UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2020

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission File Number: 001-37702

Amgen Inc.

(Exact name of registrant as specified in its charter)

Delaware	**95-3540776**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Amgen Center Drive	
Thousand Oaks	
California	**91320-1799**
(Address of principal executive offices)	(Zip Code)

(805) 447-1000
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, $0.0001 par value	**AMGN**	**The NASDAQ Global Select Market**
1.250% Senior Notes Due 2022	**AMGN22**	**New York Stock Exchange**
2.00% Senior Notes Due 2026	**AMGN26**	**New York Stock Exchange**

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or Section 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☑	Accelerated filer ☐	Non-accelerated filer ☐
Smaller reporting company ☐	Emerging growth company ☐	

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐

No ☑

As of July 23, 2020, the registrant had 585,693,775 shares of common stock, $0.0001 par value, outstanding.

AMGEN INC.

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PART I — FINANCIAL INFORMATION

Item 1. FINANCIAL STATEMENTS

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per-share data)
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2020	2019	2020	2019
Revenues:				
Product sales	$ 5,908	$ 5,574	$ 11,802	$ 10,860
Other revenues	298	297	565	568
Total revenues	6,206	5,871	12,367	11,428
Operating expenses:				
Cost of sales	1,488	1,012	3,001	2,067
Research and development	964	924	1,916	1,803
Selling, general and administrative	1,295	1,260	2,611	2,414
Other	136	(3)	161	(6)
Total operating expenses	3,883	3,193	7,689	6,278
Operating income	2,323	2,678	4,678	5,150
Interest expense, net	296	332	642	675
Interest and other income, net	3	218	14	403
Income before income taxes	2,030	2,564	4,050	4,878
Provision for income taxes	227	385	422	707
Net income	$ 1,803	$ 2,179	$ 3,628	$ 4,171
Earnings per share:				
Basic	$ 3.07	$ 3.59	$ 6.16	$ 6.78
Diluted	$ 3.05	$ 3.57	$ 6.12	$ 6.75
Shares used in calculation of earnings per share:				
Basic	588	607	589	615
Diluted	592	610	593	618

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2020	2019	2020	2019
Net income	$ 1,803	$ 2,179	$ 3,628	$ 4,171
Other comprehensive (loss) income, net of reclassification adjustments and taxes:				
Losses on foreign currency translation	(3)	(4)	(55)	(17)
Losses on cash flow hedges	(116)	(104)	(177)	(59)
(Losses) gains on available-for-sale securities	(2)	153	(21)	374
Other	—	6	(2)	6
Other comprehensive (loss) income, net of taxes	(121)	51	(255)	304
Comprehensive income	$ 1,682	$ 2,230	$ 3,373	$ 4,475

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(In millions, except per-share data)

	June 30, 2020 (Unaudited)	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 9,145	$ 6,037
Marketable securities	2,276	2,874
Trade receivables, net	5,366	4,057
Inventories	3,840	3,584
Other current assets	2,268	1,888
Total current assets	22,895	18,440
Property, plant and equipment, net	4,843	4,928
Intangible assets, net	17,948	19,413
Goodwill	14,678	14,703
Other assets	4,647	2,223
Total assets	$ 65,011	$ 59,707
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,150	$ 1,371
Accrued liabilities	9,282	8,511
Current portion of long-term debt	91	2,953
Total current liabilities	10,523	12,835
Long-term debt	34,133	26,950
Long-term deferred tax liabilities	259	606
Long-term tax liabilities	7,556	8,037
Other noncurrent liabilities	1,881	1,606
Contingencies and commitments		
Stockholders' equity:		
Common stock and additional paid-in capital; $0.0001 par value; 2,750.0 shares authorized; outstanding — 586.4 shares in 2020 and 591.4 shares in 2019	31,610	31,531
Accumulated deficit	(20,168)	(21,330)
Accumulated other comprehensive loss	(783)	(528)
Total stockholders' equity	10,659	9,673
Total liabilities and stockholders' equity	$ 65,011	$ 59,707

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In millions, except per-share data)
(Unaudited)

	Number of shares of common stock	Common stock and additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total
Balance as of December 31, 2019	591.4	$ 31,531	$ (21,330)	$ (528)	$ 9,673
Cumulative effect of changes in accounting principles, net of tax	—	—	(2)	—	(2)
Net income	—	—	1,825	—	1,825
Other comprehensive loss, net of taxes	—	—	—	(134)	(134)
Dividends declared on common stock ($1.60 per share)	—	—	(938)	—	(938)
Issuance of common stock in connection with the Company's equity award programs	0.9	10	—	—	10
Stock-based compensation expense	—	52	—	—	52
Tax impact related to employee stock-based compensation expense	—	(68)	—	—	(68)
Repurchases of common stock	(4.3)	—	(933)	—	(933)
Balance as of March 31, 2020	588.0	31,525	(21,378)	(662)	9,485
Net income	—	—	1,803	—	1,803
Other comprehensive loss, net of taxes	—	—	—	(121)	(121)
Issuance of common stock in connection with the Company's equity award programs	1.0	65	—	—	65
Stock-based compensation expense	—	101	—	—	101
Tax impact related to employee stock-based compensation expense	—	(81)	—	—	(81)
Repurchases of common stock	(2.6)	—	(591)	—	(591)
Other	—	—	(2)	—	(2)
Balance as of June 30, 2020	586.4	$ 31,610	$ (20,168)	$ (783)	$ 10,659

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In millions, except per-share data)
(Unaudited)

	Number of shares of common stock	Common stock and additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total
Balance as of December 31, 2018	629.6	$ 31,246	$ (17,977)	$ (769)	$ 12,500
Net income	—	—	1,992	—	1,992
Other comprehensive income, net of taxes	—	—	—	253	253
Dividends declared on common stock ($1.45 per share)	—	—	(879)	—	(879)
Issuance of common stock in connection with the Company's equity award programs	0.7	6	—	—	6
Stock-based compensation expense	—	64	—	—	64
Tax impact related to employee stock-based compensation expense	—	(73)	—	—	(73)
Repurchases of common stock	(15.9)	—	(3,031)	—	(3,031)
Balance as of March 31, 2019	614.4	31,243	(19,895)	(516)	10,832
Net income	—	—	2,179	—	2,179
Other comprehensive income, net of taxes	—	—	—	51	51
Issuance of common stock in connection with the Company's equity award programs	0.8	23	—	—	23
Stock-based compensation expense	—	97	—	—	97
Tax impact related to employee stock-based compensation expense	—	(50)	—	—	(50)
Repurchases of common stock	(13.1)	—	(2,349)	—	(2,349)
Other	—	—	11	—	11
Balance as of June 30, 2019	602.1	$ 31,313	$ (20,054)	$ (465)	$ 10,794

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)
(Unaudited)

	Six months ended June 30,	
	2020	**2019**
Cash flows from operating activities:		
Net income	$ 3,628	$ 4,171
Depreciation, amortization and other	1,827	996
Deferred income taxes	(261)	(70)
Other items, net	245	32
Changes in operating assets and liabilities, net of acquisition:		
Trade receivables, net	(1,177)	(228)
Inventories	(226)	(118)
Other assets	143	(158)
Accounts payable	(216)	(205)
Accrued income taxes, net	452	(257)
Long-term tax liabilities	106	(322)
Other liabilities	455	(582)
Net cash provided by operating activities	4,976	3,259
Cash flows from investing activities:		
Purchases of marketable securities	(2,229)	(7,250)
Proceeds from sales of marketable securities	2,598	217
Proceeds from maturities of marketable securities	238	13,617
Purchases of property, plant and equipment	(300)	(260)
Purchases of equity method investments	(2,648)	(12)
Other	(48)	(12)
Net cash (used in) provided by investing activities	(2,389)	6,300
Cash flows from financing activities:		
Net proceeds from issuance of debt	9,002	—
Repayment of debt	(5,000)	(3,650)
Repurchases of common stock	(1,516)	(5,447)
Dividends paid	(1,887)	(1,781)
Other	(78)	(101)
Net cash provided by (used in) financing activities	521	(10,979)
Increase (decrease) in cash and cash equivalents	3,108	(1,420)
Cash and cash equivalents at beginning of period	6,037	6,945
Cash and cash equivalents at end of period	$ 9,145	$ 5,525

See accompanying notes.

1. Summary of significant accounting policies

Business

Amgen Inc. (including its subsidiaries, referred to as "Amgen," "the Company," "we," "our" or "us") is a global biotechnology pioneer that discovers, develops, manufactures and delivers innovative human therapeutics. We operate in one business segment: human therapeutics.

Basis of presentation

The financial information for the three and six months ended June 30, 2020 and 2019, is unaudited but includes all adjustments (consisting of only normal, recurring adjustments unless otherwise indicated), which Amgen considers necessary for a fair presentation of its condensed consolidated results of operations for those periods. Interim results are not necessarily indicative of results for the full fiscal year.

The condensed consolidated financial statements should be read in conjunction with our consolidated financial statements and the notes thereto contained in our Annual Report on Form 10-K for the year ended December 31, 2019, and with our condensed consolidated financial statements and the notes thereto contained in our Quarterly Report on Form 10-Q for the period ended March 31, 2020.

Principles of consolidation

The condensed consolidated financial statements include the accounts of Amgen as well as its majority-owned subsidiaries. We do not have any significant interests in any variable interest entities. All material intercompany transactions and balances have been eliminated in consolidation.

Use of estimates

The preparation of condensed consolidated financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Actual results may differ from those estimates.

Property, plant and equipment, net

Property, plant and equipment is recorded at historical cost, net of accumulated depreciation and amortization of $8.7 billion and $8.4 billion as of June 30, 2020 and December 31, 2019, respectively.

Equity method investments

The equity method of accounting is used for equity investments that give us the ability to exert significant influence, but not control, over an investee based on such factors as our ownership percentage, voting and other shareholder rights, board of director representation and the existence of other collaborative or business relationships. The equity method of accounting requires us to allocate the difference between the fair value of securities acquired and our proportionate share of the carrying value of the underlying assets (the basis difference) to various items and amortize such differences over their useful lives. Our share of the investees' earnings or losses and amortization of basis differences, if any, are recorded one quarter in arrears in Interest and other income, net, in the Condensed Consolidated Statements of Income.

We record impairment losses on our equity method investments if we deem the impairment to be other-than-temporary. We deem an impairment to be other-than-temporary based on various factors including, but not limited to, the length of time the fair value is below the carrying value, volatility of the security price and our intent and ability to retain the investment to allow for a recovery in fair value.

Recent accounting pronouncements

In June 2016, the Financial Accounting Standards Board (FASB) issued a new accounting standard that amends the guidance for measuring and recording credit losses on financial assets measured at amortized cost by replacing the incurred-loss model with an expected-loss model. Accordingly, these financial assets will be presented at the net amount expected to be collected. This new standard also requires that credit losses related to available-for-sale debt securities be recorded as an allowance through net income rather than reducing the carrying amount under the current, other-than-temporary-impairment model. We adopted this standard as of January 1, 2020, using a modified-retrospective approach. Adoption of the standard did not have a material impact on our condensed consolidated financial statements.

In March 2020, the FASB issued a new accounting standard to ease the financial reporting burdens of the expected market transition from the London Interbank Offered Rate (LIBOR) and other interbank offered rates to alternative reference rates, commonly referred to as reference rate reform. The new standard provides temporary optional expedients and exceptions to current GAAP guidance on contract modifications and hedge accounting. Specifically, a modification to transition to an alternative reference rate is treated as an event that does not require contract remeasurement or reassessment of a previous accounting treatment. Moreover, for all types of hedging relationships, an entity may change the reference rate without having to dedesignate the hedging relationship. The standard is generally effective for all contract modifications made and hedging relationships evaluated through December 31, 2022, as a result of reference rate reform. We are currently evaluating the impact that this new standard will have on our condensed consolidated financial statements.

2. Revenues

We operate in one business segment: human therapeutics. Therefore, results of our operations are reported on a consolidated basis for purposes of segment reporting, consistent with internal management reporting. Revenues by product and by geographic area, based on customers' locations, are presented below. Rest-of-world (ROW) revenues relate to products that are sold primarily in Europe.

Revenues were as follows (in millions):

	Three months ended June 30,					
	2020			2019		
	US	ROW	Total	US	ROW	Total
Enbrel® (etanercept)	$ 1,213	$ 33	$ 1,246	$ 1,315	$ 48	$ 1,363
Prolia® (denosumab)	441	218	659	458	240	698
Neulasta® (pegfilgrastim)	520	73	593	719	105	824
Otezla® (apremilast)	464	97	561	—	—	—
XGEVA® (denosumab)	318	117	435	379	120	499
Aranesp® (darbepoetin alfa)	156	231	387	192	244	436
KYPROLIS® (carfilzomib)	167	86	253	166	101	267
Repatha® (evolocumab)	115	85	200	91	61	152
Other products	1,034	540	1,574	822	513	1,335
Total product sales[1]	$ 4,428	$ 1,480	5,908	$ 4,142	$ 1,432	5,574
Other revenues			298			297
Total revenues			$ 6,206			$ 5,871

	Six months ended June 30,					
	2020			2019		
	US	ROW	Total	US	ROW	Total
ENBREL	$ 2,330	$ 69	$ 2,399	$ 2,421	$ 93	$ 2,514
Prolia®	863	450	1,313	848	442	1,290
Neulasta®	1,054	148	1,202	1,612	233	1,845
Otezla®	841	199	1,040	—	—	—
XGEVA®	673	243	916	735	235	970
Aranesp®	331	478	809	374	476	850
KYPROLIS®	354	179	533	320	192	512
Repatha®	239	190	429	174	119	293
Other products	2,022	1,139	3,161	1,649	937	2,586
Total product sales[1]	$ 8,707	$ 3,095	11,802	$ 8,133	$ 2,727	10,860
Other revenues			565			568
Total revenues			$ 12,367			$ 11,428

[1] Hedging gains and losses, which are included in product sales, were not material for the three and six months ended June 30, 2020 and 2019.

3. Income taxes

The effective tax rates for the three and six months ended June 30, 2020, were 11.2% and 10.4%, respectively, compared with 15.0% and 14.5%, respectively, for the corresponding periods of the prior year.

The decrease in our effective tax rate for the three and six months ended June 30, 2020, was due primarily to net favorable items in the quarter, amortization related to the Otezla® acquisition and changes in jurisdictional mix of earnings. The effective tax rates differ from the federal statutory rate primarily as a result of foreign earnings from the Company's operations conducted in Puerto Rico, a territory of the United States that is treated as a foreign jurisdiction for U.S. tax purposes and are subject to tax incentive grants through 2035. In addition, the Company's operations conducted in Singapore are subject to a tax incentive grant through 2034. These earnings are also subject to U.S. tax at a reduced rate of 10.5%.

The U.S. territory of Puerto Rico imposes an excise tax on the gross intercompany purchase price of goods and services from our manufacturer in Puerto Rico. The rate of 4% is effective through December 31, 2027. We account for the excise tax as a manufacturing cost that is capitalized in inventory and expensed in cost of sales when the related products are sold. For U.S. income tax purposes, the excise tax results in foreign tax credits that are generally recognized in our provision for income taxes when the excise tax is incurred.

One or more of our legal entities file income tax returns in the U.S. federal jurisdiction, various U.S. state jurisdictions and certain foreign jurisdictions. Our income tax returns are routinely examined by tax authorities in those jurisdictions. Significant disputes may arise with tax authorities involving issues regarding the timing and amount of deductions, the use of tax credits and allocations of income and expenses among various tax jurisdictions because of differing interpretations of tax laws, regulations and relevant facts. As previously disclosed, we received a Revenue Agent Report (RAR) from the Internal Revenue Service (IRS) for the years 2010, 2011 and 2012. The RAR proposes to make significant adjustments that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. In November 2017, we received a modified RAR that revised the IRS's calculations but continued to propose substantial adjustments. We disagree with the proposed adjustments and calculations and are pursuing resolution with the IRS administrative appeals office, which currently has jurisdiction over the matter. If unable to reach resolution, we will vigorously contest the proposed adjustments through the judicial process. In addition, as previously reported, in April 2020, we received draft notices of proposed adjustments (NOPAs) and subsequently in May 2020, we received an RAR from the IRS for the years 2013, 2014 and 2015, which are similar to the proposed adjustments for the years 2010, 2011 and 2012 that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. We disagree with the proposed adjustments and calculations and will pursue resolution with the IRS administrative appeals office. We are also currently under examination by a number of other state and foreign tax jurisdictions.

Final resolution of these complex matters is not likely within the next 12 months and could have a material impact on our condensed consolidated financial statements. We believe our accrual for income tax liabilities is appropriate based on past experience, interpretations of tax law and judgments about potential actions by tax authorities; however, due to the complexity of the provision for income taxes, the ultimate resolution of any tax matters may result in payments substantially greater or less than amounts accrued. We are no longer subject to U.S. federal income tax examinations for years ended on or before December 31, 2009.

During the three and six months ended June 30, 2020, the gross amounts of our unrecognized tax benefits (UTBs) increased $55 million and $105 million, respectively, as a result of tax positions taken during the current year. Substantially all of the UTBs as of June 30, 2020, if recognized, would affect our effective tax rate.

4. Earnings per share

The computation of basic earnings per share (EPS) is based on the weighted-average number of our common shares outstanding. The computation of diluted EPS is based on the weighted-average number of our common shares outstanding and dilutive potential common shares, which include primarily shares that may be issued under our stock option, restricted stock and performance unit award programs (collectively, dilutive securities), as determined by using the treasury stock method.

The computations for basic and diluted EPS were as follows (in millions, except per-share data):

	Three months ended June 30,		Six months ended June 30,	
	2020	2019	2020	2019
Income (Numerator):				
Net income for basic and diluted EPS	$ 1,803	$ 2,179	$ 3,628	$ 4,171
Shares (Denominator):				
Weighted-average shares for basic EPS	588	607	589	615
Effect of dilutive securities	4	3	4	3
Weighted-average shares for diluted EPS	592	610	593	618
Basic EPS	$ 3.07	$ 3.59	$ 6.16	$ 6.78
Diluted EPS	$ 3.05	$ 3.57	$ 6.12	$ 6.75

For the three and six months ended June 30, 2020 and 2019, the number of antidilutive employee stock-based awards excluded from the computation of diluted EPS was not significant.

5. Collaborations

On January 2, 2020, we closed our strategic collaboration with BeiGene, Ltd. (BeiGene) to expand our oncology presence in China. Under the collaboration, BeiGene will commercialize XGEVA®, KYPROLIS® and BLINCYTO® (blinatumomab) in China, and Amgen will share profits and losses equally during the initial product-specific commercialization periods; thereafter, product rights may revert to Amgen, and Amgen will pay royalties to BeiGene on sales in China.

In addition, we will jointly develop a portion of our oncology portfolio with BeiGene sharing in global research and development (R&D) costs by providing cash and development services up to $1.25 billion. Upon regulatory approval, BeiGene will assume commercialization rights in China for a specified period, and Amgen and BeiGene will share profits equally until certain of these product rights revert to Amgen. Upon return of the product rights, Amgen will pay royalties to BeiGene on sales in China for a specified period. For product sales outside of China, Amgen will also pay BeiGene royalties.

For the three and six months ended June 30, 2020, net costs recovered from BeiGene for oncology product candidates were $55 million and $112 million, respectively, and were recorded in R&D expense in the Condensed Consolidated Statements of Income. For the six months ended June 30, 2020, no profit share payments or product sales were recorded between Amgen and BeiGene. In connection with this collaboration, we acquired an ownership interest in BeiGene. See Note 6, Investments.

6. Investments

Available-for-sale investments

The amortized cost, gross unrealized gains, gross unrealized losses and fair values of interest-bearing securities, which are considered available-for-sale, by type of security were as follows (in millions):

Types of securities as of June 30, 2020	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair values
U.S. Treasury notes	$ 172	$ 3	$ —	$ 175
U.S. Treasury bills	3,399	—	—	3,399
Corporate debt securities:				
Financial	—	—	—	—
Industrial	3	—	(1)	2
Other	—	—	—	—
Residential-mortgage-backed securities	—	—	—	—
Money market mutual funds	7,158	—	—	7,158
Other short-term interest-bearing securities	—	—	—	—
Total interest-bearing securities	$ 10,732	$ 3	$ (1)	$ 10,734

Types of securities as of December 31, 2019	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair values
U.S. Treasury notes	$ 359	$ 1	$ —	$ 360
U.S. Treasury bills	—	—	—	—
Corporate debt securities:				
Financial	1,108	13	—	1,121
Industrial	824	10	—	834
Other	195	3	—	198
Residential-mortgage-backed securities	181	1	—	182
Money market mutual funds	5,250	—	—	5,250
Other short-term interest-bearing securities	289	—	—	289
Total interest-bearing securities	$ 8,206	$ 28	$ —	$ 8,234

The fair values of interest-bearing securities by location in the Condensed Consolidated Balance Sheets were as follows (in millions):

Condensed Consolidated Balance Sheets locations	June 30, 2020	December 31, 2019
Cash and cash equivalents	$ 8,458	$ 5,360
Marketable securities	2,276	2,874
Total interest-bearing securities	$ 10,734	$ 8,234

Cash and cash equivalents in the above table excludes bank account cash of $687 million and $677 million as of June 30, 2020 and December 31, 2019, respectively.

The fair values of interest-bearing securities by contractual maturity, except for residential-mortgage-backed securities that do not have a single maturity date, were as follows (in millions):

Contractual maturities	June 30, 2020	December 31, 2019
Maturing in one year or less	$ 10,681	$ 5,629
Maturing after one year through three years	53	2,304
Maturing after three years through five years	—	119
Residential-mortgage-backed securities	—	182
Total interest-bearing securities	$ 10,734	$ 8,234

For the three months ended June 30, 2020 and 2019, realized gains and losses on interest-bearing securities were not material. For the six months ended June 30, 2020 and 2019, realized gains on interest-bearing securities were $37 million and $2 million, respectively, and realized losses on interest-bearing securities were $4 million and $8 million, respectively. Realized gains and losses on interest-bearing securities are recorded in Interest and other income, net, in the Condensed Consolidated Statements of Income. The cost of securities sold is based on the specific-identification method.

The primary objective of our investment portfolio is to maintain safety of principal, prudent levels of liquidity and acceptable levels of risk. Our investment policy limits interest-bearing security investments to certain types of debt and money market instruments issued by institutions with primarily investment-grade credit ratings, and it places restrictions on maturities and concentration by asset class and issuer.

As of June 30, 2020 and December 31, 2019, aggregated gross unrealized losses of available-for-sale investments were not material, and accordingly, no allowance for credit losses was recorded as of June 30, 2020.

Equity securities

We held investments in equity securities with readily determinable fair values of $297 million and $303 million as of June 30, 2020 and December 31, 2019, respectively, which are included in Other assets in the Condensed Consolidated Balance Sheets. Gains and losses recognized on equity securities with readily determinable fair values, including gains and losses recognized on sales, were not material for the three and six months ended June 30, 2020 and 2019.

We held investments of $183 million and $176 million in equity securities without readily determinable fair values as of June 30, 2020 and December 31, 2019, respectively, which are included in Other assets in the Condensed Consolidated Balance Sheets. Gains and losses recognized on these securities, including adjustments to the carrying values of these securities, were not material for the three and six months ended June 30, 2020 and 2019.

Equity method investments

Limited partnerships

We held limited partnership investments of $311 million and $320 million as of June 30, 2020 and December 31, 2019, respectively, which are included in Other assets in the Condensed Consolidated Balance Sheets. These investments, primarily investment funds of early-stage biotechnology companies, are accounted for by using the equity method of accounting and are measured by using our proportionate share of the net asset values of the underlying investments held by the limited partnerships as a practical expedient. These investments are typically redeemable only through distributions upon liquidation of the underlying assets. As of June 30, 2020, unfunded additional commitments to be made for these investments during the next several years were not material. Gains and losses recognized from our limited partnership investments were not material for the three and six months ended June 30, 2020 and 2019.

BeiGene

On January 2, 2020, we acquired a 20.5% ownership interest in BeiGene for $2.8 billion, of which $2.6 billion was attributed to the fair value of equity securities upon closing, with the remainder attributed to prepaid R&D. Our equity investment in BeiGene is included in Other assets in the Condensed Consolidated Balance Sheets. The fair value of equity securities acquired exceeded our proportionate share of the carrying value of the underlying net assets of BeiGene by approximately $2.4 billion. This investment is accounted for by using the equity method of accounting, which requires us to identify and allocate amounts to the items that give rise to the basis difference and to amortize these items over their useful lives. This amortization, along with our share of the results of operations of BeiGene, are included in Interest and other income, net, in our Condensed Consolidated Statements of Income. Recognition occurs one quarter in arrears, which began in the second quarter of 2020. The basis difference was allocated to finite-lived intangible assets, indefinite-lived intangible assets, equity-method goodwill and related deferred taxes. The finite-lived intangible assets are being amortized over a period ranging from 8 to 15 years.

For the three and six months ended June 30, 2020, we recognized a reduction in the carrying value of our investment of $111 million. This reduction consists of our share of BeiGene's net loss, totaling $75 million, and amortization of the basis difference of $36 million. As of June 30, 2020, the carrying and fair values of our approximately 20.4% ownership interest in BeiGene totaled $2.5 billion and $3.0 billion, respectively. As of June 30, 2020, we believe the carrying value of our equity investment in BeiGene is fully recoverable. See Note 1, Summary of significant accounting policies, for factors considered in determining our conclusion. For information on a collaboration agreement we entered into with BeiGene in connection with this investment, see Note 5, Collaborations.

On July 15, 2020, in connection with BeiGene's equity offering, Amgen made an additional investment of approximately $421 million to maintain our current pro rata ownership of BeiGene.

7. Inventories

Inventories consisted of the following (in millions):

	June 30, 2020	December 31, 2019
Raw materials	$ 463	$ 358
Work in process	2,376	2,227
Finished goods	1,001	999
Total inventories	$ 3,840	$ 3,584

8. Goodwill and other intangible assets

Goodwill

The change in the carrying amount of goodwill was as follows (in millions):

	Six months ended June 30, 2020
Beginning balance	$ 14,703
Currency translation adjustment	(25)
Ending balance	$ 14,678

Other intangible assets

Other intangible assets consisted of the following (in millions):

	June 30, 2020			December 31, 2019		
	Gross carrying amounts	Accumulated amortization	Other intangible assets, net	Gross carrying amounts	Accumulated amortization	Other intangible assets, net
Finite-lived intangible assets:						
Developed-product-technology rights	$ 25,559	$ (9,436)	$ 16,123	$ 25,575	$ (8,322)	$ 17,253
Licensing rights	3,746	(2,602)	1,144	3,761	(2,398)	1,363
Marketing-related rights	1,371	(1,003)	368	1,382	(965)	417
Research and development technology rights	1,279	(996)	283	1,273	(947)	326
Total finite-lived intangible assets	31,955	(14,037)	17,918	31,991	(12,632)	19,359
Indefinite-lived intangible assets:						
In-process research and development	30	—	30	54	—	54
Total other intangible assets	$ 31,985	$ (14,037)	$ 17,948	$ 32,045	$ (12,632)	$ 19,413

Developed-product-technology rights consists of rights related to marketed products. Licensing rights consists primarily of contractual rights to receive future milestone, royalty and profit-sharing payments; capitalized payments to third parties for milestones related to regulatory approvals to commercialize products; and up-front payments associated with royalty obligations for marketed products. Marketing-related rights consists primarily of rights related to the sale and distribution of marketed products. R&D technology rights pertains to technologies used in R&D that have alternative future uses.

In-process research and development (IPR&D) consists of R&D projects acquired in a business combination that are not complete at the time of acquisition due to remaining technological risks and/or lack of receipt of required regulatory approvals. We review IPR&D projects for impairment annually, whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable and upon the establishment of technological feasibility or regulatory approval.

During the three months ended June 30, 2020 and 2019, we recognized amortization associated with our finite-lived intangible assets of $713 million and $315 million, respectively. During the six months ended June 30, 2020 and 2019, we recognized amortization associated with our finite-lived intangible assets of $1.4 billion and $630 million, respectively. Amortization of intangible assets is included primarily in Cost of sales in the Condensed Consolidated Statements of Income. The total estimated amortization for our finite-lived intangible assets for the remaining six months ending December 31, 2020, and the years ending December 31, 2021, 2022, 2023, 2024 and 2025, are $1.4 billion, $2.6 billion, $2.5 billion, $2.4 billion, $2.4 billion and $2.2 billion, respectively.

9. Financing arrangements

Our borrowings consisted of the following (in millions):

	June 30, 2020	December 31, 2019
4.50% notes due 2020 (4.50% 2020 Notes)	$ —	$ 300
2.125% notes due 2020 (2.125% 2020 Notes)	—	750
Floating Rate Notes due 2020	—	300
2.20% notes due 2020 (2.20% 2020 Notes)	—	700
3.45% notes due 2020 (3.45% 2020 Notes)	—	900
4.10% notes due 2021 (4.10% 2021 Notes)	—	1,000
1.85% notes due 2021 (1.85% 2021 Notes)	—	750
3.875% notes due 2021 (3.875% 2021 Notes)	1,450	1,750
1.25% €1,250 million notes due 2022 (1.25% 2022 euro Notes)	1,404	1,402
2.70% notes due 2022 (2.70% 2022 Notes)	500	500
2.65% notes due 2022 (2.65% 2022 Notes)	1,500	1,500
3.625% notes due 2022 (3.625% 2022 Notes)	750	750
0.41% CHF700 million bonds due 2023 (0.41% 2023 Swiss franc Bonds)	739	725
2.25% notes due 2023 (2.25% 2023 Notes)	750	750
3.625% notes due 2024 (3.625% 2024 Notes)	1,400	1,400
1.90% notes due 2025 (1.90% 2025 Notes)	500	—
3.125% notes due 2025 (3.125% 2025 Notes)	1,000	1,000
2.00% €750 million notes due 2026 (2.00% 2026 euro Notes)	843	841
2.60% notes due 2026 (2.60% 2026 Notes)	1,250	1,250
5.50% £475 million notes due 2026 (5.50% 2026 pound sterling Notes)	589	630
2.20% notes due 2027 (2.20% 2027 Notes)	1,750	—
3.20% notes due 2027 (3.20% 2027 Notes)	1,000	1,000
4.00% £700 million notes due 2029 (4.00% 2029 pound sterling Notes)	868	928
2.45% notes due 2030 (2.45% 2030 Notes)	1,250	—
2.30% notes due 2031 (2.30% 2031 Notes)	1,250	—
6.375% notes due 2037 (6.375% 2037 Notes)	552	552
6.90% notes due 2038 (6.90% 2038 Notes)	291	291
6.40% notes due 2039 (6.40% 2039 Notes)	466	466
3.15% notes due 2040 (3.15% 2040 Notes)	2,000	—
5.75% notes due 2040 (5.75% 2040 Notes)	412	412
4.95% notes due 2041 (4.95% 2041 Notes)	600	600
5.15% notes due 2041 (5.15% 2041 Notes)	974	974
5.65% notes due 2042 (5.65% 2042 Notes)	487	487
5.375% notes due 2043 (5.375% 2043 Notes)	261	261
4.40% notes due 2045 (4.40% 2045 Notes)	2,250	2,250
4.563% notes due 2048 (4.563% 2048 Notes)	1,415	1,415
3.375% notes due 2050 (3.375% 2050 Notes)	2,250	—
4.663% notes due 2051 (4.663% 2051 Notes)	3,541	3,541
Other notes due 2097	100	100
Unamortized bond discounts, premiums and issuance costs, net	(849)	(868)
Fair value adjustments	678	296
Other	3	—
Total carrying value of debt	34,224	29,903
Less current portion	(91)	(2,953)
Total long-term debt	$ 34,133	$ 26,950

There are no material differences between the effective interest rates and coupon rates of any of our borrowings, except for the 4.563% 2048 Notes and the 4.663% 2051 Notes, which have effective interest rates of 6.3% and 5.6%, respectively.

Debt issuances and repayments

During the six months ended June 30, 2020, we issued debt securities in the following offerings:

• In February 2020, we issued $5.0 billion of debt consisting of $500 million of the 1.90% 2025 Notes, $750 million of the 2.20% 2027 Notes, $1.25 billion of the 2.45% 2030 Notes, $1.25 billion of the 3.15% 2040 Notes and $1.25 billion of the 3.375% 2050 Notes.

• In May 2020, we issued $4.0 billion of debt, including $1.0 billion of the 2.20% 2027 Notes, $750 million of the 3.15% 2040 Notes and $1.0 billion of the 3.375% 2050 Notes, which represents a further issuance of, and which forms a single series with, each of the corresponding series of notes issued in February 2020, and $1.25 billion of 2.30% 2031 Notes.

In the event of a change-in-control triggering event, as defined in the terms of the notes, we may be required to purchase all or a portion of these notes at a price equal to 101% of the principal amount of the notes plus accrued and unpaid interest. In addition, these notes may be redeemed at any time at our option, in whole or in part, at the principal amount of the notes being redeemed plus accrued and unpaid interest and a "make-whole" amount, which are defined by the terms of the notes. The notes may be redeemed without payment of make-whole amounts if redemption occurs during specified periods of time immediately prior to the maturity of the notes. Such time periods range from one month to six months prior to maturity.

A portion of the proceeds from the issuance of the notes in February 2020 were used to redeem the 3.45% 2020 Notes, the 4.10% 2021 Notes, the 1.85% 2021 Notes and the $300 million aggregate principal amount of our 3.875% 2021 Notes. In connection with the redemption of these notes, we paid a total of $50 million in make-whole amounts plus associated accrued and unpaid interest, all of which was recognized in Interest expense, net, in the Condensed Consolidated Statements of Income. In addition to these redemptions, the 4.50% 2020 Notes, 2.125% 2020 Notes, Floating Rate 2020 Notes and 2.20% 2020 Notes matured and were repaid during the six months ended June 30, 2020.

Interest rate swaps

In connection with the redemption of certain of the notes discussed above, associated interest rate swap contracts with an aggregate notional value of $2.2 billion were terminated. In addition, because of historically low interest rates, during the three months ended March 31, 2020, we terminated interest rate swaps with an aggregate notional amount of $5.2 billion that hedged the 3.625% 2024 Notes, the 2.60% 2026 Notes, the 4.663% 2051 Notes and portions of the 3.625% 2022 Notes and 3.125% 2025 Notes, which resulted in the receipt of $576 million of cash and reduced counterparty credit risk. Immediately following the terminations of these contracts, we entered into new interest rate swap agreements at then-current interest rates on the same $5.2 billion principal amount of notes. See Note 12, Derivative instruments.

The effective interest rates on notes for which we have entered into interest rate swap contracts and the related notional amounts of these contracts were as follows (dollar amounts in millions):

	June 30, 2020		December 31, 2019	
Notes	**Notional amounts**	**Effective interest rates**	**Notional amounts**	**Effective interest rates**
3.45% 2020 Notes	$ —	LIBOR + 1.1%	$ 900	LIBOR + 1.1%
4.10% 2021 Notes	—	LIBOR + 1.7%	1,000	LIBOR + 1.7%
3.875% 2021 Notes	1,450	LIBOR + 2.0%	1,750	LIBOR + 2.0%
3.625% 2022 Notes	750	LIBOR + 2.7%	750	LIBOR + 1.6%
3.625% 2024 Notes	1,400	LIBOR + 3.2%	1,400	LIBOR + 1.4%
3.125% 2025 Notes	1,000	LIBOR + 1.8%	1,000	LIBOR + 0.9%
2.60% 2026 Notes	1,250	LIBOR + 1.8%	1,250	LIBOR + 0.3%
4.663% 2051 Notes[(1)]	1,500	LIBOR + 2.6%	1,500	LIBOR + 0.0%
Total notional amounts	$ 7,350		$ 9,550	

[(1)] Excludes an additional 1.5% of interest for the difference between the coupon rate paid to note holders and the fixed rate received under the interest rate swap contracts.

10. Stockholders' equity

Stock repurchase program

Activity under our stock repurchase program, on a trade date basis, was as follows (in millions):

	2020		2019	
	Shares	Dollars	Shares *	Dollars
First quarter	4.3	$ 933	15.9	$ 3,031
Second quarter	2.6	591	13.1	2,349
Total stock repurchases	6.9	$ 1,524	28.9	$ 5,380

* Total shares do not add due to rounding.

In December 2019, our Board of Directors increased the amount authorized under our stock repurchase program by an additional $4.0 billion. As of June 30, 2020, $4.9 billion of authorization remained available under our stock repurchase program.

Dividends

In March 2020 and December 2019, the Board of Directors declared quarterly cash dividends of $1.60 per share, which were paid in June 2020 and March 2020, respectively. In July 2020, the Board of Directors declared a quarterly dividend of $1.60 per share, which will be paid on September 8, 2020.

Accumulated other comprehensive income (loss)

The components of Accumulated other comprehensive income (loss) (AOCI) were as follows (in millions):

	Foreign currency translation	Cash flow hedges	Available-for-sale securities	Other	AOCI
Balance as of December 31, 2019	$ (718)	$ 175	$ 22	$ (7)	$ (528)
Foreign currency translation adjustments	(52)	—	—	—	(52)
Unrealized (losses) gains	—	(162)	8	—	(154)
Reclassification adjustments to income	—	84	(33)	—	51
Other	—	—	—	(2)	(2)
Income taxes	—	17	6	—	23
Balance as of March 31, 2020	(770)	114	3	(9)	(662)
Foreign currency translation adjustments	(3)	—	—	—	(3)
Unrealized losses	—	(30)	(2)	—	(32)
Reclassification adjustments to income	—	(119)	—	—	(119)
Other	—	—	—	—	—
Income taxes	—	33	—	—	33
Balance as of June 30, 2020	$ (773)	$ (2)	$ 1	$ (9)	$ (783)

Reclassifications out of AOCI and into earnings were as follows (in millions):

Components of AOCI	Three months ended June 30, 2020	2019	Condensed Consolidated Statements of Income locations
Cash flow hedges:			
Foreign currency contract gains	$ 68	$ 22	Product sales
Cross-currency swap contract gains	51	14	Interest and other income, net
	119	36	Income before income taxes
	(26)	(8)	Provision for income taxes
	$ 93	$ 28	Net income
Available-for-sale securities:			
Net realized losses	$ —	$ (2)	Interest and other income, net
	—	—	Provision for income taxes
	$ —	$ (2)	Net income

Components of AOCI	Six months ended June 30, 2020	2019	Condensed Consolidated Statements of Income locations
Cash flow hedges:			
Foreign currency contract gains	$ 117	$ 36	Product sales
Cross-currency swap contract losses	(82)	(28)	Interest and other income, net
	35	8	Income before income taxes
	(8)	(2)	Provision for income taxes
	$ 27	$ 6	Net income
Available-for-sale securities:			
Net realized gains (losses)	$ 33	$ (6)	Interest and other income, net
	(7)	—	Provision for income taxes
	$ 26	$ (6)	Net income

11. Fair value measurement

To estimate the fair value of our financial assets and liabilities, we use valuation approaches within a hierarchy that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing an asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing an asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy is divided into three levels based on the source of inputs as follows:

Level 1 — Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access

Level 2 — Valuations for which all significant inputs are observable either directly or indirectly—other than Level 1 inputs

Level 3 — Valuations based on inputs that are unobservable and significant to the overall fair value measurement

The availability of observable inputs can vary among the various types of financial assets and liabilities. To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. In certain cases, the inputs used for measuring fair value may fall into different levels of the fair value hierarchy. In such cases, for financial statement disclosure purposes, the level in the fair value hierarchy within which the fair value measurement is categorized is based on the lowest level of input used that is significant to the overall fair value measurement.

The fair values of each major class of the Company's financial assets and liabilities measured at fair value on a recurring basis were as follows (in millions):

Fair value measurement as of June 30, 2020, using:	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Available-for-sale securities:				
U.S. Treasury notes	$ 175	$ —	$ —	$ 175
U.S. Treasury bills	3,399	—	—	3,399
Corporate debt securities:				
Financial	—	—	—	—
Industrial	—	2	—	2
Other	—	—	—	—
Residential-mortgage-backed securities	—	—	—	—
Money market mutual funds	7,158	—	—	7,158
Other short-term interest-bearing securities	—	—	—	—
Equity securities	297	—	—	297
Derivatives:				
Foreign currency contracts	—	236	—	236
Cross-currency swap contracts	—	27	—	27
Interest rate swap contracts	—	121	—	121
Total assets	$ 11,029	$ 386	$ —	$ 11,415
Liabilities:				
Derivatives:				
Foreign currency contracts	$ —	$ 26	$ —	$ 26
Cross-currency swap contracts	—	604	—	604
Interest rate swap contracts	—	2	—	2
Contingent consideration obligations	—	—	55	55
Total liabilities	$ —	$ 632	$ 55	$ 687

Fair value measurement as of December 31, 2019, using:	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Available-for-sale securities:				
U.S. Treasury notes	$ 360	$ —	$ —	$ 360
U.S. Treasury bills	—	—	—	—
Corporate debt securities:				
Financial	—	1,121	—	1,121
Industrial	—	834	—	834
Other	—	198	—	198
Residential-mortgage-backed securities	—	182	—	182
Money market mutual funds	5,250	—	—	5,250
Other short-term interest-bearing securities	—	289	—	289
Equity securities	303	—	—	303
Derivatives:				
Foreign currency contracts	—	224	—	224
Cross-currency swap contracts	—	66	—	66
Interest rate swap contracts	—	259	—	259
Total assets	$ 5,913	$ 3,173	$ —	$ 9,086
Liabilities:				
Derivatives:				
Foreign currency contracts	$ —	$ 31	$ —	$ 31
Cross-currency swap contracts	—	315	—	315
Interest rate swap contracts	—	—	—	—
Contingent consideration obligations	—	—	61	61
Total liabilities	$ —	$ 346	$ 61	$ 407

Interest-bearing and equity securities

The fair values of our U.S. Treasury securities, money market mutual funds and equity securities are based on quoted market prices in active markets, with no valuation adjustment.

As of June 30, 2020, our corporate debt securities are not material. We estimate the fair values of these securities by taking into consideration valuations obtained from third-party pricing services. The pricing services use industry-standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable either directly or indirectly to estimate fair value. The inputs include reported trades of and broker-dealer quotes on the same or similar securities; issuer credit spreads; benchmark securities; and other observable inputs.

Derivatives

All of our foreign currency forward derivative contracts have maturities of three years or less, and all are with counterparties that have minimum credit ratings of A– or equivalent by Standard & Poor's Financial Services LLC (S&P), Moody's Investors Service, Inc. (Moody's) or Fitch Ratings, Inc. (Fitch). We estimate the fair values of these contracts by taking into consideration valuations obtained from a third-party valuation service that uses an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include foreign currency exchange rates, LIBOR, swap rates and obligor credit default swap rates. In addition, inputs for our foreign currency option contracts include implied volatility measures. These inputs, when applicable, are at commonly quoted intervals. See Note 12, Derivative instruments.

Our cross-currency swap contracts are with counterparties that have minimum credit ratings of A– or equivalent by S&P, Moody's or Fitch. We estimate the fair values of these contracts by taking into consideration valuations obtained from a third-party valuation service that uses an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include foreign currency exchange rates, LIBOR, swap rates, obligor credit default swap rates and cross-currency-basis swap spreads. See Note 12, Derivative instruments.

Our interest rate swap contracts are with counterparties that have minimum credit ratings of A– or equivalent by S&P, Moody's or Fitch. We estimate the fair values of these contracts by using an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include LIBOR, swap rates and obligor credit default swap rates. See Note 12, Derivative instruments.

During the three and six months ended June 30, 2020 and 2019, there were no material remeasurements to the fair values of assets and liabilities that are not measured at fair value on a recurring basis.

Summary of the fair values of other financial instruments

Cash equivalents

The fair values of cash equivalents approximate their carrying values due to the short-term nature of such financial instruments.

Borrowings

We estimated the fair values of our borrowings by using Level 2 inputs. As of June 30, 2020 and December 31, 2019, the aggregate fair values of our borrowings were $40.0 billion and $33.7 billion, respectively, and the carrying values were $34.2 billion and $29.9 billion, respectively.

12. Derivative instruments

The Company is exposed to foreign currency exchange rate and interest rate risks related to its business operations. To reduce our risks related to such exposures, we use or have used certain derivative instruments, including foreign currency forward, foreign currency option, cross-currency swap, forward interest rate and interest rate swap contracts. We do not use derivatives for speculative trading purposes.

Cash flow hedges

We are exposed to possible changes in the values of certain anticipated foreign currency cash flows resulting from changes in foreign currency exchange rates associated primarily with our euro-denominated international product sales. Increases and decreases in the cash flows associated with our international product sales due to movements in foreign currency exchange rates are offset partially by corresponding increases and decreases in the cash flows from our international operating expenses resulting from these foreign currency exchange rate movements. To further reduce our exposure to foreign currency exchange rate fluctuations with regard to our international product sales, we enter into foreign currency forward contracts to hedge a portion of our projected international product sales—primarily over a three-year time horizon, with, at any given point in time, a higher percentage of nearer-term projected product sales being hedged than in successive periods.

As of both June 30, 2020 and December 31, 2019, we had outstanding foreign currency forward contracts with aggregate notional amounts of $5.0 billion. We have designated these foreign currency forward contracts, which are primarily euro based, as cash flow hedges. Accordingly, we report the unrealized gains and losses on these contracts in AOCI in the Condensed Consolidated Balance Sheets, and we reclassify them to Product sales in the Condensed Consolidated Statements of Income in the same periods during which the hedged transactions affect earnings.

To hedge our exposure to foreign currency exchange rate risk associated with certain of our long-term debt denominated in foreign currencies, we enter into cross-currency swap contracts. Under the terms of such contracts, we paid euros, pounds sterling and Swiss francs and received U.S. dollars for the notional amounts at the inception of the contracts; and based on these notional amounts, we exchange interest payments at fixed rates over the lives of the contracts by paying U.S. dollars and receiving euros, pounds sterling and Swiss francs. In addition, we will pay U.S. dollars to and receive euros, pounds sterling and Swiss francs from the counterparties at the maturities of the contracts for these same notional amounts. The terms of these contracts correspond to the related hedged debt, thereby effectively converting the interest payments and principal repayment on the debt from euros, pounds sterling and Swiss francs to U.S. dollars. We have designated these cross-currency swap contracts as cash flow hedges. Accordingly, the unrealized gains and losses on these contracts are reported in AOCI in the Condensed Consolidated Balance Sheets and reclassified to Interest and other income, net, in the Condensed Consolidated Statements of Income in the same periods during which the hedged debt affects earnings.

The notional amounts and interest rates of our cross-currency swaps as of June 30, 2020, were as follows (notional amounts in millions):

	Foreign currency			U.S. dollars		
Hedged notes	**Notional amounts**		**Interest rates**	**Notional amounts**		**Interest rates**
1.25% 2022 euro Notes	€	1,250	1.3 %	$	1,388	3.2 %
0.41% 2023 Swiss franc Bonds	CHF	700	0.4 %	$	704	3.4 %
2.00% 2026 euro Notes	€	750	2.0 %	$	833	3.9 %
5.50% 2026 pound sterling Notes	£	475	5.5 %	$	747	6.0 %
4.00% 2029 pound sterling Notes	£	700	4.0 %	$	1,111	4.5 %

In connection with the anticipated issuance of long-term fixed-rate debt, we occasionally enter into forward interest rate contracts in order to hedge the variability in cash flows due to changes in the applicable U.S. Treasury rate between the time we enter into these contracts and the time the related debt is issued. Gains and losses on forward interest rate contracts, which are designated as cash flow hedges, are recognized in AOCI in the Condensed Consolidated Balance Sheets and are amortized into Interest expense, net, in the Condensed Consolidated Statements of Income over the lives of the associated debt issuances. Amounts recognized in connection with forward interest rate swaps during the six months ended June 30, 2020, and amounts expected to be recognized during the subsequent 12 months are not material.

The unrealized gains and losses recognized in AOCI for our derivative instruments designated as cash flow hedges were as follows (in millions):

	Three months ended June 30,		Six months ended June 30,	
Derivatives in cash flow hedging relationships	**2020**	**2019**	**2020**	**2019**
Foreign currency contracts	$ (101)	$ (16)	$ 138	$ 69
Cross-currency swap contracts	71	(80)	(330)	(135)
Total unrealized losses	$ (30)	$ (96)	$ (192)	$ (66)

Fair value hedges

To achieve a desired mix of fixed-rate and floating-rate debt, we entered into interest rate swap contracts that qualified for and were designated as fair value hedges. These interest rate swap contracts effectively convert fixed-rate coupons to floating-rate LIBOR-based coupons over the terms of the related hedge contracts. As of June 30, 2020 and December 31, 2019, we had interest rate swap contracts with aggregate notional amounts of $7.4 billion and $9.6 billion, respectively, that hedge certain portions of our long-term debt issuances.

Interest rate swaps with an aggregate notional value of $2.2 billion were terminated during the six months ended June 30, 2020, in connection with the redemption of certain of our notes. The terminations of these interest rate swaps resulted in a gain of $17 million, recognized in Interest expense, net, in the Condensed Consolidated Statements of Income. Additionally, we terminated $5.2 billion aggregate notional amount of interest rate swaps, which resulted in the receipt of $576 million from the counterparties that was included in Net cash provided by operating activities in the Condensed Consolidated Statements of Cash Flows for the six months ended June 30, 2020. This amount will be recognized as a reduction in Interest expense, net, in the Condensed Consolidated Statements of Income over the remaining life of the underlying notes. Immediately following the terminations of these interest rate swap contracts, we entered into new interest rate swap agreements at then-current interest rates on the same $5.2 billion principal amount of notes. See Note 9, Financing arrangements, for information on our interest rate swaps.

For interest rate swap contracts that qualify for and are designated as fair value hedges, we recognize in Interest expense, net, in the Condensed Consolidated Statements of Income the unrealized gain or loss on the derivative resulting from the change in fair value during the period, as well as the offsetting unrealized loss or gain of the hedged item resulting from the change in fair value during the period attributable to the hedged risk. If a hedging relationship involving an interest rate swap contract is terminated, the gain or loss realized on contract termination is recorded as an adjustment to the carrying value of the debt and amortized into Interest expense, net, over the remaining life of the previously hedged debt.

The hedged liabilities and related cumulative-basis adjustments for fair value hedges of those liabilities were recorded in the Condensed Consolidated Balance Sheets as follows (in millions):

	Carrying amounts of hedged liabilities[1]		Cumulative amounts of fair value hedging adjustments related to the carrying amounts of the hedged liabilities[2]	
Condensed Consolidated Balance Sheets locations	**June 30, 2020**	**December 31, 2019**	**June 30, 2020**	**December 31, 2019**
Current portion of long-term debt	$ 89	$ 903	$ 89	$ 4
Long-term debt	$ 7,816	$ 8,814	$ 589	$ 292

[1] Current portion of long-term debt includes $89 million of carrying value with discontinued hedging relationships as of June 30, 2020. Long-term debt includes $569 million and $136 million of carrying value with discontinued hedging relationships as of June 30, 2020 and December 31, 2019, respectively.

[2] Current portion of long-term debt includes $89 million of hedging adjustments on discontinued hedging relationships as of June 30, 2020. Long-term debt includes $469 million and $36 million of hedging adjustments on discontinued hedging relationships as of June 30, 2020 and December 31, 2019, respectively.

Impact of hedging transactions

The following tables summarize the amounts recorded in income and expense line items and the effects thereon from fair value and cash flow hedging, including discontinued hedging relationships (in millions):

	Three months ended June 30, 2020			Six months ended June 30, 2020		
	Product sales	Interest and other income, net	Interest (expense), net	Product sales	Interest and other income, net	Interest (expense), net
Total amounts recorded in income and (expense) line items presented in the Condensed Consolidated Statements of Income	$ 5,908	$ 3	$ (296)	$ 11,802	$ 14	$ (642)
The effects of cash flow and fair value hedging:						
Gains (losses) on cash flow hedging relationships reclassified out of AOCI:						
Foreign currency contracts	$ 68	$ —	$ —	$ 117	$ —	$ —
Cross-currency swap contracts	$ —	$ 51	$ —	$ —	$ (82)	$ —
(Losses) gains on fair value hedging relationships—interest rate swap agreements:						
Hedged items[1]	$ —	$ —	$ (30)	$ —	$ —	$ 180
Derivatives designated as hedging instruments	$ —	$ —	$ 53	$ —	$ —	$ (137)

	Three months ended June 30, 2019			Six months ended June 30, 2019		
	Product sales	Interest and other income, net	Interest (expense), net	Product sales	Interest and other income, net	Interest (expense), net
Total amounts recorded in income and (expense) line items presented in the Condensed Consolidated Statements of Income	$ 5,574	$ 218	$ (332)	$ 10,860	$ 403	$ (675)
The effects of cash flow and fair value hedging:						
Gains (losses) on cash flow hedging relationships reclassified out of AOCI:						
Foreign currency contracts	$ 22	$ —	$ —	$ 36	$ —	$ —
Cross-currency swap contracts	$ —	$ 14	$ —	$ —	$ (28)	$ —
(Losses) gains on fair value hedging relationships—interest rate swap agreements:						
Hedged items[1]	$ —	$ —	$ (218)	$ —	$ —	$ (348)
Derivatives designated as hedging instruments	$ —	$ —	$ 218	$ —	$ —	$ 351

[1] (Losses) gains on hedged items do not completely offset gains (losses) on the related designated hedging instruments due to amortization of the cumulative amounts of fair value hedging adjustments included in the carrying amount of the hedged debt for discontinued hedging relationships and the recognition of gains on terminated hedges where the corresponding hedged item was paid down in the period.

No portions of our cash flow hedge contracts were excluded from the assessment of hedge effectiveness. As of June 30, 2020, we expected to reclassify $95 million of net gains on our foreign currency and cross-currency swap contracts out of AOCI and into earnings during the next 12 months.

Derivatives not designated as hedges

To reduce our exposure to foreign currency fluctuations in certain assets and liabilities denominated in foreign currencies, we enter into foreign currency forward contracts that are not designated as hedging transactions. Most of these exposures are hedged on a month-to-month basis. As of June 30, 2020 and December 31, 2019, the total notional amounts of these foreign currency forward contracts were $1.3 billion and $1.2 billion, respectively. Gains and losses recognized in earnings for our derivative instruments not designated as hedging instruments were not material for the three and six months ended June 30, 2020 and 2019.

The fair values of derivatives included in the Condensed Consolidated Balance Sheets were as follows (in millions):

	Derivative assets		Derivative liabilities	
June 30, 2020	**Condensed Consolidated Balance Sheets locations**	**Fair values**	**Condensed Consolidated Balance Sheets locations**	**Fair values**
Derivatives designated as hedging instruments:				
Foreign currency contracts	Other current assets/ Other assets	$ 236	Accrued liabilities/ Other noncurrent liabilities	$ 26
Cross-currency swap contracts	Other current assets/ Other assets	27	Accrued liabilities/ Other noncurrent liabilities	604
Interest rate swap contracts	Other current assets/ Other assets	121	Accrued liabilities/ Other noncurrent liabilities	2
Total derivatives designated as hedging instruments		384		632
Derivatives not designated as hedging instruments:				
Foreign currency contracts	Other current assets	—	Accrued liabilities	—
Total derivatives not designated as hedging instruments		—		—
Total derivatives		$ 384		$ 632

	Derivative assets		Derivative liabilities	
December 31, 2019	**Condensed Consolidated Balance Sheets locations**	**Fair values**	**Condensed Consolidated Balance Sheets locations**	**Fair values**
Derivatives designated as hedging instruments:				
Foreign currency contracts	Other current assets/ Other assets	$ 223	Accrued liabilities/ Other noncurrent liabilities	$ 31
Cross-currency swap contracts	Other current assets/ Other assets	66	Accrued liabilities/ Other noncurrent liabilities	315
Interest rate swap contracts	Other current assets/ Other assets	259	Accrued liabilities/ Other noncurrent liabilities	—
Total derivatives designated as hedging instruments		548		346
Derivatives not designated as hedging instruments:				
Foreign currency contracts	Other current assets	1	Accrued liabilities	—
Total derivatives not designated as hedging instruments		1		—
Total derivatives		$ 549		$ 346

Our derivative contracts that were in liability positions as of June 30, 2020, contain certain credit-risk-related contingent provisions that would be triggered if (i) we were to undergo a change in control and (ii) our or the surviving entity's creditworthiness deteriorates, which is generally defined as having either a credit rating that is below investment grade or a materially weaker creditworthiness after the change in control. If these events were to occur, the counterparties would have the right but not the obligation to close the contracts under early-termination provisions. In such circumstances, the counterparties could request immediate settlement of these contracts for amounts that approximate the then-current fair values of the contracts. In addition, our derivative contracts are not subject to any type of master netting arrangement, and amounts due either to or from a counterparty under the contracts may be offset against other amounts due either to or from the same counterparty only if an event of default or termination, as defined, were to occur.

The cash flow effects of our derivative contracts in the Condensed Consolidated Statements of Cash Flows are included in Net cash provided by operating activities, except for the settlement of notional amounts of cross-currency swaps, which are included in Net cash provided by (used in) financing activities.

13. Contingencies and commitments

Contingencies

In the ordinary course of business, we are involved in various legal proceedings, government investigations and other matters that are complex in nature and have outcomes that are difficult to predict. See our Annual Report on Form 10-K for the year ended December 31, 2019, Part I, Item 1A. Risk Factors—*Our business may be affected by litigation and government investigations.* We describe our legal proceedings and other matters that are significant or that we believe could become significant in this footnote; in Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019; and in Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Report on Form 10-Q for the period ended March 31, 2020.

We record accruals for loss contingencies to the extent that we conclude it is probable that a liability has been incurred and the amount of the related loss can be reasonably estimated. We evaluate, on a quarterly basis, developments in legal proceedings and other matters that could cause an increase or decrease in the amount of the liability that has been accrued previously. Our legal proceedings involve various aspects of our business and a variety of claims, some of which present novel factual allegations and/or unique legal theories. In each of the matters described in this filing; in Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019; or in Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Report on Form 10-Q for the period ended March 31, 2020, in which we could incur a liability, our opponents seek an award of a not-yet-quantified amount of damages or an amount that is not material. In addition, a number of the matters pending against us are at very early stages of the legal process, which in complex proceedings of the sort we face often extend for several years. As a result, none of the matters described in this filing; in Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019; or in Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Report on Form 10-Q for the period ended March 31, 2020, in which we could incur a liability, have progressed sufficiently through discovery and/or the development of important factual information and legal issues to enable us to estimate a range of possible loss, if any, or such amounts are not material. While it is not possible to accurately predict or determine the eventual outcomes of these matters, an adverse determination in one or more of these matters currently pending could have a material adverse effect on our consolidated results of operations, financial position or cash flows.

Certain recent developments concerning our legal proceedings and other matters are discussed below:

Abbreviated New Drug Application (ANDA) Patent Litigation

KYPROLIS® (carfilzomib) ANDA Patent Litigation

Onyx Therapeutics, Inc. v. Cipla Limited, et al.

On May 8, 2020, consistent with its May 4, 2020 decision and order, the U.S. District Court for the District of Delaware (the Delaware District Court) entered final judgment in favor of Onyx Therapeutics, Inc. (Onyx, a wholly-owned subsidiary of Amgen) and against Cipla Limited and Cipla USA, Inc. (collectively, Cipla) on infringement, validity and enforceability of claims 23 and 24 of U.S. Patent No. 7,417,042; claim 1 of U.S. Patent No. 8,207,125; and claim 31 of U.S. Patent No. 7,737,112 (the ’112 Patent). The Delaware District Court entered judgment in favor of Cipla and against Onyx on Cipla’s counterclaim for invalidity of claim 32 of the ’112 Patent and ordered that the effective date of any final approval by the U.S. Food and Drug Administration (FDA) of Cipla’s ANDA must be after expiration of the three asserted patents and any regulatory exclusivity to which Onyx may become entitled. The final judgment includes an injunction prohibiting Cipla from making, using, offering to sell, selling or importing into the United States Cipla’s carfilzomib product during the term of the three asserted patents.

On May 29, 2020, Cipla filed a notice of appeal to the U.S. Court of Appeals for the Federal Circuit (the Federal Circuit Court).

Otezla® (apremilast) ANDA Patent Litigation

Amgen Inc. v. Sandoz Inc., et al.

On May 28, 2020, based on a joint request by Amgen and Emcure Pharmaceuticals Ltd. and Heritage Pharmaceuticals Inc. (collectively, Emcure), the U.S. District Court for the District of New Jersey (the New Jersey District Court) entered a consent judgment and injunction prohibiting the making, using, selling, offering to sell, or importing of Emcure's apremilast product during the term of U.S. Patent Nos. 7,427,638 (the '638 Patent); 7,893,101 (the '101 Patent); 9,872,854 (the '854 Patent); and 10,092,541 (the '541 Patent) unless authorized pursuant to a confidential settlement agreement.

On July 7, 2020, the New Jersey District Court ordered a stipulated dismissal without prejudice of all claims, counterclaims, and affirmative defenses between Amgen and Sandoz Inc. (Sandoz) with respect to U.S. Patent Nos. 8,802,717; 7,208,516; and the '854 Patent, leaving U.S. Patent Nos. 6,962,940; 7,659,302; 8,455,536; 9,018,243; and 9,724,330; the '638 Patent; the '101 Patent; and the '541 Patent asserted by Amgen against Sandoz in the litigation.

Sensipar® (cinacalcet) ANDA Patent Litigation

Amgen Inc. v. Amneal Pharmaceuticals LLC, et al. (formerly, Amgen Inc. v. Aurobindo Pharma Ltd. et al.) Consolidated Case

On July 9, 2020, the Federal Circuit Court granted a motion filed by Watson Laboratories, Inc. and Actavis Pharma, Inc. (collectively, Watson) and Amgen to dismiss Amgen's appeals of the Delaware District Court's judgment of noninfringement as to Watson and denial of the joint motion for indicative ruling.

A hearing on the request by Piramal Healthcare UK Limited to recover damages for being enjoined during the pendency of Amgen's appeal will be held by the Delaware District Court during the week of December 14, 2020. No trial date has been set for the patent infringement and validity issues to be tried in the remanded case against Amneal Pharmaceuticals LLC and Amneal Pharmaceuticals of New York, LLC.

ENBREL (etanercept) Patent Litigation

Immunex Corporation, et al. v. Sandoz Inc., et al.

On July 1, 2020, the Federal Circuit Court affirmed the judgment of the New Jersey District Court upholding the validity of U.S. Patent Nos. 8,063,182 and 8,163,522.

Repatha® (evolocumab) Patent Litigation

Patent Disputes in the International Region

As previously disclosed, we are involved in and expect future involvement in additional disputes regarding our proprotein convertase subtilisin/kexin type 9 (PCSK9) patents in other jurisdictions and regions. This includes matters filed against us and that we have filed in the United Kingdom, Germany, France, the Netherlands, Italy, Spain and Japan.

On June 24, 2020, Amgen filed written answers to the invalidity trials initiated by Regeneron on February 12, 2020 before the Japan Patent Office seeking to invalidate Amgen's Japanese patents that were previously held infringed by PRALUENT® and valid over challenges filed by Sanofi K.K.

NEUPOGEN® (filgrastim)/Neulasta® (pegfilgrastim) Patent Litigation

Fresenius Patent Trial and Appeal Board (PTAB) Challenge

On June 23, 2020, the PTAB of the U.S. Patent and Trademark Office terminated two proceedings filed by Fresenius Kabi USA, LLC and Fresenius Kabi SwissBioSim GmbH (collectively, Fresenius) challenging the patentability of Amgen's U.S. Patent Nos. 9,643,997 and 9,856,287 due to a settlement between Amgen and Fresenius.

Litigation relating to our Biosimilar Products

KANJINTI® (trastuzumab-anns) Patent Litigation

Genentech, Inc. v. Amgen Inc.

On July 7, 2020, pursuant to a settlement and license agreement, Amgen and Genentech, Inc. stipulated to dismissal of the lawsuit. On July 9, 2020, the Delaware District Court closed the matter.

MVASI® (bevacizumab-awwb) Patent Litigation

Genentech, Inc. and City of Hope v. Amgen Inc.

On July 7, 2020, pursuant to a settlement and license agreement, Genentech, Inc. and City of Hope (collectively, Genentech) and Amgen stipulated to dismissal of the lawsuit. On July 9, 2020, the Delaware District Court closed the matter.

Genentech, Inc. and City of Hope v. Immunex Rhode Island Corp. and Amgen Inc.

On July 6, 2020, the Federal Circuit Court affirmed the Delaware District Court's denial of Genentech's request for injunction. On July 7, 2020, pursuant to a settlement and license agreement, the parties stipulated to dismissal of the lawsuit. On July 9, 2020, the Delaware District Court closed the matter.

Breach of Contract Action

Cipla Ltd. et al. v. Amgen Inc.

On July 16, 2020, Amgen and Cipla filed a stipulation of dismissal. On July 21, 2020, the Delaware District Court issued an order dismissing all pending claims between Amgen and Cipla.

Novartis Pharma AG v. Amgen Inc.

On June 9, 2020, the U.S. District Court for the Southern District of New York (the New York Southern District Court) entered an order granting Novartis Pharma AG's (Novartis) motion for judgment on the pleadings as to count II of Novartis's amended complaint and denying Amgen's motions for judgment on the pleadings as to counts I, II and IV of Novartis's amended complaint. On June 23, 2020, Amgen filed a motion for clarification and/or reconsideration of the New York Southern District Court's June 9, 2020 order. On July 7, and July 14, 2020, respectively, Novartis and Amgen each filed its response. No trial date has been set.

Antitrust Class Action

Sensipar® Antitrust Class Actions

On July 22, 2020, the U.S. Magistrate Judge for the District of Delaware issued a recommendation to the Delaware District Court that the claims against Amgen be dismissed but recommended that leave be given to plaintiffs to amend their complaints.

Humira® Biosimilar Antitrust Class Actions

On June 8, 2020, the U.S. District Court for the Northern District of Illinois (the Illinois Northern District Court) issued an order granting the motion by the defendants Amgen, along with AbbVie Inc. and AbbVie Biotechnology Ltd., Samsung Bioepis Co., Ltd., Sandoz and Fresenius Kabi USA LLC., to dismiss the consolidated class action complaint. On June 29, 2020, the plaintiffs in the antitrust class action lawsuit filed a status report asking the Illinois Northern District Court to convert the dismissal to one with prejudice. On June 30, 2020, the Illinois Northern District Court granted the motion and the plaintiffs have 30 days therefrom to file their notice of appeal.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to assist the reader in understanding Amgen's business. MD&A is provided as a supplement to and should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2019, and our Quarterly Report on Form 10-Q for the period ended March 31, 2020. Our results of operations discussed in MD&A are presented in conformity with GAAP. Amgen operates in one business segment: human therapeutics. Therefore, our results of operations are discussed on a consolidated basis.

Forward-looking statements

This report and other documents we file with the Securities and Exchange Commission (SEC) contain forward-looking statements that are based on current expectations, estimates, forecasts and projections about us, our future performance, our business, our beliefs and our management's assumptions. In addition, we, or others on our behalf, may make forward-looking statements in press releases, written statements or our communications and discussions with investors and analysts in the normal course of business through meetings, webcasts, phone calls and conference calls. Such words as "expect," "anticipate," "outlook," "could," "target," "project," "intend," "plan," "believe," "seek," "estimate," "should," "may," "assume" and "continue" as well as variations of such words and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and they involve certain risks, uncertainties and assumptions that are difficult to predict. We describe our respective risks, uncertainties and assumptions that could affect the outcome or results of operations in Item 1A. Risk Factors in Part II herein and in Part I, Item 1A. Risk Factors of our Annual Report on Form 10-K for the year ended December 31, 2019 and in Part II, Item 1A. Risk Factors of our Quarterly Report on Form 10-Q for the period ended March 31, 2020. We have based our forward-looking statements on our management's beliefs and assumptions based on information available to our management at the time the statements are made. We caution you that actual outcomes and results may differ materially from what is expressed, implied or forecasted by our forward-looking statements. Reference is made in particular to forward-looking statements regarding product sales, regulatory activities, clinical trial results, reimbursement, expenses, EPS, liquidity and capital resources, trends, planned dividends, stock repurchases, collaborations and effects of pandemics. Except as required under the federal securities laws and the rules and regulations of the SEC, we do not have any intention or obligation to update publicly any forward-looking statements after the distribution of this report, whether as a result of new information, future events, changes in assumptions or otherwise.

Overview

Amgen is a biotechnology company committed to unlocking the potential of biology for patients suffering from serious illnesses. A biotechnology pioneer since 1980, Amgen has grown to be one of the world's leading independent biotechnology companies, has reached millions of patients around the world and is developing a pipeline of medicines with breakaway potential. In 2020, we are celebrating our 40th anniversary, continuing our history of focusing on innovative medicines that have the potential to be first-in-class molecules and that have a large-effect size on serious diseases.

Our principal products—those with the most significant annual commercial sales—are ENBREL, Prolia®, Neulasta®, Otezla®, XGEVA®, Aranesp®, KYPROLIS® and Repatha®. We also market a number of other products, including Nplate® (romiplostim), Vectibix® (panitumumab), Parsabiv® (etelcalcetide), EPOGEN® (epoetin alfa), MVASI®, KANJINTI®, Sensipar®/Mimpara®, EVENITY®(romosozumab-aqqg), BLINCYTO®, Aimovig® (erenumab-aooe), AMGEVITA™ (adalimumab), NEUPOGEN®, IMLYGIC® (talimogene laherparepvec) and Corlanor® (ivabradine).

COVID-19 pandemic

A novel strain of coronavirus (COVID-19) was declared a global pandemic by the World Health Organization (WHO) on March 11, 2020. We have been carefully monitoring the COVID-19 pandemic and its impact on our global operations. We have taken appropriate steps to minimize the risk to our employees. Most of our employees have been working remotely, with the exception of certain essential staff that continue to report to Amgen locations. The essential staff are primarily at our manufacturing sites, working in accordance with applicable government health and safety protocols and guidance issued in response to the COVID-19 pandemic. To date, our remote working arrangements have not significantly affected our ability to maintain critical business operations and we have not experienced disruptions or shortages of our supply of medicines.

Since the beginning of the COVID-19 pandemic, we have seen changes in demand trends for some of our products, including lower demand for certain products as continuing patient access to those products has been affected by COVID-19, particularly in the early phases of the pandemic. For example, near the end of March, we began to observe a decline in sales of Prolia®, as elderly patients, who are relatively vulnerable to COVID-19, avoided doctors' offices. Demand has since recovered to varying degrees by product as local conditions improved in certain geographies that opened after an initial improvement in COVID-19 infection rates, allowing patients to resume receiving their treatments. However, a resurgence of infections has been observed, which may further restrict demand similar to early phases of the pandemic. As a result, we expect to see continued volatility through at least the duration of the pandemic as geographies respond to current local conditions.

To respond to COVID-19, we are managing our clinical development on a case-by-case basis. Patients who are already enrolled in studies continue to receive study drug, including through direct-to-patient shipments. The majority of clinical trials that were paused at the onset of the pandemic to ensure subject safety or data integrity have resumed, however we are continuing to experience impact to enrollment. We continuously monitor and reevaluate the status of studies, pausing when there is uncertainty with regard to the trial sites' ability to ensure safety or data integrity. We remain focused on supporting our active clinical sites in providing care for these patients and in providing investigational drug supply. In addition, our R&D organization is supporting efforts to combat the COVID-19 pandemic in a number of ways, including: (i) conducting research in support of therapeutic antibodies that could diminish the impact of COVID-19 on patients, (ii) joining a public–private partnership between leading companies in our industry and U.S. government health agencies to develop a strategy for a coordinated research response, (iii) investigating Otezla® as a potential immunomodulatory treatment in adult patients hospitalized with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections through platform trials and (iv) through our subsidiary deCODE Genetics, conducting a population-based study.

We continue to believe that existing funds, cash generated from operations and existing sources of and access to financing are adequate to satisfy our needs for working capital, capital expenditures and debt service requirements as well as to engage in the capital-return and other business initiatives that we plan to strategically pursue. To respond to some of the challenges experienced in the healthcare community as a result of the pandemic, we recently extended credit terms with certain customers for a subset of our products globally. In addition, in the second quarter of this year, we issued $4.0 billion of long-term debt, for general corporate purposes, including, enhancing our working capital position. For a discussion of the risks presented by the COVID-19 pandemic to our results, see Risk Factors in Part II, Item 1A. of this Form 10-Q.

Significant developments

Following is a summary of selected significant developments affecting our business that have occurred since the filing of our Quarterly Report on Form 10-Q for the period ended March 31, 2020. For additional developments or for a more comprehensive discussion of certain developments discussed below, see our Annual Report on Form 10-K for the year ended December 31, 2019, and our Quarterly Report on Form 10-Q for the period ended March 31, 2020.

Inflammation

Otezla®

- In May 2020, we announced positive top-line results from a phase 3 study to assess the efficacy of Otezla® in adults with mild-to-moderate plaque psoriasis. The study showed that oral Otezla® 30 mg twice daily achieved a statistically significant improvement, compared with placebo, in the primary endpoint of the static Physician's Global Assessment (sPGA) response (defined as an sPGA score of clear (0) or almost clear (1) with at least a 2-point reduction from baseline) at week 16.

ENBREL

- In July 2020, the Federal Circuit Court affirmed the judgment of the New Jersey District Court upholding the validity of the two patents that describe and claim ENBREL and methods for making it. See Note 13, Contingencies and commitments, to the condensed consolidated financial statements.

Cardiovascular

Omecamtiv Mecarbil

- In May 2020, we and Cytokinetics, Incorporated, announced that the FDA granted fast-track designation for omecamtiv mecarbil, a small molecule, selective cardiac myosin activator, also called a myotrope, which directly targets the contractile mechanisms of the heart. It is being developed for the potential treatment of chronic heart failure with reduced ejection fraction (HFrEF).

Selected financial information

The following is an overview of our results of operations (in millions, except percentages and per-share data):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Product sales						
U.S.	$ 4,428	$ 4,142	7 %	$ 8,707	$ 8,133	7 %
ROW	1,480	1,432	3 %	3,095	2,727	13 %
Total product sales	5,908	5,574	6 %	11,802	10,860	9 %
Other revenues	298	297	— %	565	568	(1)%
Total revenues	$ 6,206	$ 5,871	6 %	$ 12,367	$ 11,428	8 %
Operating expenses	$ 3,883	$ 3,193	22 %	$ 7,689	$ 6,278	22 %
Operating income	$ 2,323	$ 2,678	(13)%	$ 4,678	$ 5,150	(9)%
Net income	$ 1,803	$ 2,179	(17)%	$ 3,628	$ 4,171	(13)%
Diluted EPS	$ 3.05	$ 3.57	(15)%	$ 6.12	$ 6.75	(9)%
Diluted shares	592	610	(3)%	593	618	(4)%

In the following discussion of changes in product sales, any reference to unit demand growth or decline refers to changes in the purchases of our products by healthcare providers (such as physicians or their clinics), dialysis centers, hospitals and pharmacies. In addition, any reference to increases or decreases in inventory refers to changes in inventory held by wholesaler customers and end users (such as pharmacies).

Notwithstanding the effects of the COVID-19 pandemic, total product sales increased for the three and six months ended June 30, 2020, driven primarily by unit demand increases from newer brands including Otezla®, acquired in November 2019, MVASI®, KANJINTI®, EVENITY® and Repatha®. These unit demand increases were offset partially by declines in net selling prices for certain products, as well as unit demand declines for mature brands that face biosimilar or generic competition. For the remainder of 2020, we expect continued competition against our mature brands to result in both unit demand and net selling price declines.

During the initial stages of the COVID-19 pandemic, we experienced changes in demand trends for some of our products. The pandemic interrupted many physician-patient interactions which led to delays in diagnosis and treatment with varying degrees of impact across our portfolio. In general, sales of negatively affected products fell the most early in the second quarter with product demand beginning to recover in the latter weeks of the quarter. However, given the unpredictable nature of the pandemic, it is possible that there could be intermittent disruptions in physician-patient interactions going forward. See Risk Factors in Part II, Item 1A. of this Form 10-Q.

In addition, other changes in the healthcare eco-system introduce variability into product sales trends. A number of patient insurance plans (commercial and governmental) have been required to cover or have voluntarily covered 90-day prescription fills for a number of medicines, including some of our products that are used in chronic conditions. In response to the challenges the healthcare community is facing, we have extended credit terms for a subset of customers and our products. Overall, there is increased uncertainty around the timing and magnitude of our sales during the COVID-19 pandemic.

Other revenues were relatively flat for the three and six months ended June 30, 2020.

Operating expenses increased for the three and six months ended June 30, 2020, driven primarily by acquisition related expenses and commercial-related support for Otezla®, offset partially by a reduction of certain expenses as a result of COVID-19. For the remainder of 2020, we expect to continue to see the effects of our acquisition of Otezla® on our operating expenses, including increases to Cost of sales, R&D, and Selling, general and administrative (SG&A) expenses.

Although changes in foreign currency exchange rates result in increases or decreases in our reported international product sales, the benefit or detriment that such movements have on our international product sales is offset partially by corresponding increases or decreases in our international operating expenses and our related foreign currency hedging activities. Our hedging activities seek to offset the impacts, both positive and negative, that foreign currency exchange rate changes may have on our net income by hedging our net foreign currency exposure, primarily with respect to product sales denominated in euros. The net impact from changes in foreign currency exchange rates was not material for the three and six months ended June 30, 2020 and 2019.

Results of operations

Product sales

Worldwide product sales were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
ENBREL	$ 1,246	$ 1,363	(9)%	$ 2,399	$ 2,514	(5)%
Prolia®	659	698	(6)%	1,313	1,290	2 %
Neulasta®	593	824	(28)%	1,202	1,845	(35)%
Otezla®	561	—	*	1,040	—	*
XGEVA®	435	499	(13)%	916	970	(6)%
Aranesp®	387	436	(11)%	809	850	(5)%
KYPROLIS®	253	267	(5)%	533	512	4 %
Repatha®	200	152	32 %	429	293	46 %
Other products	1,574	1,335	18 %	3,161	2,586	22 %
Total product sales	$ 5,908	$ 5,574	6 %	$ 11,802	$ 10,860	9 %

* Change in excess of 100%.

Future sales of our products will depend in part on the factors discussed below and in the following sections of this report: (i) Part I, Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations—Overview and Selected Financial Information; and (ii) Part II, Item 1A. Risk Factors; and in the following sections of our Annual Report on Form 10-K for the year ended December 31, 2019: (i) Item 1. Business—Marketing, Distribution and Selected Marketed Products, (ii) Item 1A. Risk Factors and (iii) Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Overview, and Results of Operations—Product Sales, as well as in our Quarterly Report on Form 10-Q for the period ended March 31, 2020, in (i) Part I, Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations—Results of Operations—Product Sales; and (ii) Part II, Item 1A. Risk Factors.

ENBREL

Total ENBREL sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
ENBREL — U.S.	$ 1,213	$ 1,315	(8)%	$ 2,330	$ 2,421	(4)%
ENBREL — Canada	33	48	(31)%	69	93	(26)%
Total ENBREL	$ 1,246	$ 1,363	(9)%	$ 2,399	$ 2,514	(5)%

The decrease in ENBREL sales for the three and six months ended June 30, 2020, was driven primarily by lower unit demand, offset partially by favorable changes to estimated sales deductions. The decline was due, in part, to a reduction in the growth rate of the rheumatology market as a result of COVID-19. For the remainder of 2020, we expect the trend of lower unit demand to continue.

In April 2019, the FDA approved a second biosimilar version of ENBREL, and we are involved in patent litigations with the two companies seeking to market their FDA-approved biosimilar versions of ENBREL. See Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019, and Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Reports on Form 10-Q for the periods ended March 31, 2020 and June 30, 2020. Other companies are also developing proposed biosimilar versions of ENBREL. Companies with approved biosimilar versions of ENBREL may seek to enter the U.S. market if we are not ultimately successful in our litigations, or even earlier.

Prolia®

Total Prolia® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Prolia® — U.S.	$ 441	$ 458	(4)%	$ 863	$ 848	2 %
Prolia® — ROW	218	240	(9)%	450	442	2 %
Total Prolia®	$ 659	$ 698	(6)%	$ 1,313	$ 1,290	2 %

Prior to the COVID-19 pandemic, Prolia® had exhibited a historical sales pattern, with the first and third quarters of each year representing lower sales than the second and fourth quarters of a year. This is primarily due to Prolia®'s six-month dosing interval. However, disruptions in patient visits as a result of COVID-19 have affected demand during the first half of 2020. Although unit demand trends improved in May and June, there was an overall decrease in global Prolia® sales for the three months ended June 30, 2020, driven primarily by lower unit demand. The increase in global Prolia® sales for the six months ended June 30, 2020, was driven by higher net selling price and to a lesser extent, unit demand, as volume growth trends were diminished by COVID-19. We expect continued variability in unit demand trends for at least the remainder of the year.

Neulasta®

Total Neulasta® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Neulasta®— U.S.	$ 520	$ 719	(28)%	$ 1,054	$ 1,612	(35)%
Neulasta®— ROW	73	105	(30)%	148	233	(36)%
Total Neulasta®	$ 593	$ 824	(28)%	$ 1,202	$ 1,845	(35)%

The decrease in global Neulasta® sales for the three and six months ended June 30, 2020, was driven by the impact of biosimilar competition on net selling price and unit demand, offset partially by increased prescribing of the Neulasta® Onpro® kit supported by the recently revised treatment recommendations from the National Comprehensive Cancer Network (NCCN) in response to COVID-19 that recommend increased use of long-acting granulocyte colony-stimulating factors (G-CSFs) in intermediate risk febrile neutropenia cancer patients. Neulasta® sales included a $98 million order from the U.S. government in the first quarter of 2019.

We face increased competition in the United States and Europe as a result of launches of biosimilar versions of Neulasta®, which has had and will continue to have a material adverse impact on sales. We also expect another biosimilar version to be approved in the future. For a discussion of ongoing patent litigations related to these and other biosimilars, see Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019, and Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Reports on Form 10-Q for the periods ended March 31, 2020 and June 30, 2020.

Otezla®

Total Otezla® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Otezla® — U.S.	$ 464	$ —	*	$ 841	$ —	*
Otezla® — ROW	97	—	*	199	—	*
Total Otezla®	$ 561	$ —	*	$ 1,040	$ —	*

* Change in excess of 100%.

Otezla® was acquired on November 21, 2019 and generated $561 million and $1.0 billion in sales for the three and six months ended June 30, 2020, respectively.

XGEVA®

Total XGEVA® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
XGEVA® — U.S.	$ 318	$ 379	(16)%	$ 673	$ 735	(8)%
XGEVA® — ROW	117	120	(3)%	243	235	3 %
Total XGEVA®	$ 435	$ 499	(13)%	$ 916	$ 970	(6)%

The decrease in global XGEVA® sales for the three and six months ended June 30, 2020, was driven primarily by lower unit demand as a result of the COVID-19 pandemic, including a decrease in patient visits and treatment recommendations from the NCCN in response to COVID-19 to prioritize primary cancer treatments over bone targeting agents.

Aranesp®

Total Aranesp® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Aranesp® — U.S.	$ 156	$ 192	(19)%	$ 331	$ 374	(11)%
Aranesp® — ROW	231	244	(5)%	478	476	— %
Total Aranesp®	$ 387	$ 436	(11)%	$ 809	$ 850	(5)%

The decrease in global Aranesp® sales for the three months ended June 30, 2020, was driven by a decline in net selling price and lower unit demand. The decrease in global Aranesp® sales for the six months ended June 30, 2020, was driven primarily by a decline in net selling price.

Aranesp® faces competition from a long-acting erythropoiesis-stimulating agent (ESA). Aranesp® also faces competition from a biosimilar version of EPOGEN®. For the remainder of 2020, we expect sales to decline at a faster rate than in 2019 due to short- and long-acting competition.

KYPROLIS®

Total KYPROLIS® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
KYPROLIS® — U.S.	$ 167	$ 166	1 %	$ 354	$ 320	11 %
KYPROLIS® — ROW	86	101	(15)%	179	192	(7)%
Total KYPROLIS®	$ 253	$ 267	(5)%	$ 533	$ 512	4 %

The decrease in global KYPROLIS® sales for the three months ended June 30, 2020, was driven by lower unit demand as a result of the COVID-19 pandemic. The increase in global KYPROLIS® sales for the six months ended June 30, 2020, was driven by an increase in net selling price and favorable changes to inventory.

We are engaged in litigation with two related companies that are challenging our material patents related to KYPROLIS® and that are seeking to market generic carfilzomib products. Separately, we have entered into confidential settlement agreements with other companies developing generic carfilzomib products, and the court has entered consent judgments enjoining those companies from infringing certain of our patents, subject to terms of the confidential settlement agreements. See Note 19, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2019, and Note 13, Contingencies and commitments, to the condensed consolidated financial statements in our Quarterly Reports on Form 10-Q for the periods ended March 31, 2020 and June 30, 2020. The FDA has reported that it has finally approved ANDAs filed by two companies for generic carfilzomib products and tentatively approved ANDAs filed by two other companies. The date of final approval of ANDAs for generic carfilzomib products is governed by the Hatch-Waxman Act and any applicable settlement agreements between the parties.

Repatha®

Total Repatha® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Repatha® — U.S.	$ 115	$ 91	26 %	$ 239	$ 174	37 %
Repatha® — ROW	85	61	39 %	190	119	60 %
Total Repatha®	$ 200	$ 152	32 %	$ 429	$ 293	46 %

The increase in global Repatha® sales for the three and six months ended June 30, 2020, was driven primarily by higher unit demand, offset partially by lower net selling price. The pace of new prescription growth slowed during the second quarter as a result of the COVID-19 pandemic.

Other products

Other product sales by geographic region were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Nplate®— U.S.	$ 107	$ 122	(12)%	$ 234	$ 236	(1)%
Nplate®— ROW	86	79	9 %	177	154	15 %
Vectibix®— U.S.	79	79	— %	159	157	1 %
Vectibix®— ROW	116	117	(1)%	238	209	14 %
Parsabiv® — U.S.	160	148	8 %	306	257	19 %
Parsabiv® — ROW	26	20	30 %	55	37	49 %
EPOGEN® — U.S.	161	223	(28)%	316	442	(29)%
MVASI®— U.S.	149	—	*	257	—	*
MVASI®— ROW	23	—	*	30	—	*
KANJINTI®— U.S.	101	—	*	197	—	*
KANJINTI®— ROW	22	30	(27)%	45	54	(17)%
Sensipar® — U.S.	32	43	(26)%	74	178	(58)%
Sensipar®/Mimpara® — ROW	49	79	(38)%	130	157	(17)%
EVENITY® — U.S.	40	3	*	77	3	*
EVENITY®— ROW	61	25	*	124	42	*
BLINCYTO® — U.S.	56	39	44 %	113	79	43 %
BLINCYTO® — ROW	37	39	(5)%	74	68	9 %
Aimovig® — U.S.	98	83	18 %	169	142	19 %
AMGEVITA™ — ROW	62	52	19 %	148	83	78 %
NEUPOGEN®— U.S.	28	55	(49)%	73	105	(30)%
NEUPOGEN®— ROW	21	20	5 %	41	43	(5)%
Other — U.S.	23	27	(15)%	47	50	(6)%
Other — ROW	37	52	(29)%	77	90	(14)%
Total other products	$ 1,574	$ 1,335	18 %	$ 3,161	$ 2,586	22 %
Total U.S. — other products	$ 1,034	$ 822	26 %	$ 2,022	$ 1,649	23 %
Total ROW — other products	540	513	5 %	1,139	937	22 %
Total other products	$ 1,574	$ 1,335	18 %	$ 3,161	$ 2,586	22 %

* Change in excess of 100%.

Operating expenses

Operating expenses were as follows (dollar amounts in millions):

	Three months ended June 30,			Six months ended June 30,		
	2020	2019	Change	2020	2019	Change
Operating expenses:						
Cost of sales	$ 1,488	$ 1,012	47 %	$ 3,001	$ 2,067	45 %
% of product sales	25.2 %	18.2 %		25.4 %	19.0 %	
% of total revenues	24.0 %	17.2 %		24.3 %	18.1 %	
Research and development	$ 964	$ 924	4 %	$ 1,916	$ 1,803	6 %
% of product sales	16.3 %	16.6 %		16.2 %	16.6 %	
% of total revenues	15.5 %	15.7 %		15.5 %	15.8 %	
Selling, general and administrative	$ 1,295	$ 1,260	3 %	$ 2,611	$ 2,414	8 %
% of product sales	21.9 %	22.6 %		22.1 %	22.2 %	
% of total revenues	20.9 %	21.5 %		21.1 %	21.1 %	
Other	$ 136	$ (3)	*	$ 161	$ (6)	*

* Change in excess of 100%.

Cost of sales

Cost of sales increased to 24.0% and 24.3% of total revenues for the three and six months ended June 30, 2020, respectively, driven by the amortization of expenses related to our acquisition of Otezla® and by the benefit of Hurricane Maria insurance proceeds in the prior year, offset partially by lower manufacturing costs.

Research and development

The increases in R&D expense for the three and six months ended June 30, 2020, were driven by higher late-stage program support, including AMG 510 (sotorasib) and biosimilar programs, and higher marketed-product support for Otezla®, offset partially by recoveries from our collaboration with BeiGene that reduced expenses in late-stage program support and in research and early pipeline.

Selling, general and administrative

The increases in SG&A expense for the three and six months ended June 30, 2020, was driven primarily by Otezla® commercial- and acquisition-related expenses, offset partially by lower spend mainly due to the COVID-19 pandemic.

Other

Other operating expenses for the three and six months ended June 30, 2020, consisted of legal settlement expenses. Other operating expenses for the three and six months ended June 30, 2019, included changes in the fair values of contingent consideration liabilities related to business combinations.

See the Overview and Selected financial information sections above for discussion of impacts to operating expenses from the COVID-19 pandemic.

Nonoperating expense/income and income taxes

Nonoperating expense/income and income taxes were as follows (dollar amounts in millions):

	Three months ended June 30,		Six months ended June 30,	
	2020	2019	2020	2019
Interest expense, net	$ 296	$ 332	$ 642	$ 675
Interest and other income, net	$ 3	$ 218	$ 14	$ 403
Provision for income taxes	$ 227	$ 385	$ 422	$ 707
Effective tax rate	11.2 %	15.0 %	10.4 %	14.5 %

Interest expense, net

The decrease in Interest expense, net, for the three months ended June 30, 2020, was due primarily to lower LIBOR rates on debt for which we effectively pay a variable rate of interest, offset partially by a higher average debt balance.

The decrease in Interest expense, net, for the six months ended June 30, 2020, was due primarily to lower LIBOR rates on debt for which we effectively pay a variable rate of interest, offset partially by net costs associated with the early retirement of debt.

Interest and other income, net

The decrease in Interest and other income, net, for the three and six months ended June 30, 2020, was due primarily to reduced interest income as a result of lower average cash balances and a decline in interest yields.

Income taxes

The decrease in our effective tax rate for the three and six months ended June 30, 2020, was due primarily to net favorable items in the quarter, amortization related to the Otezla® acquisition and changes in jurisdictional mix of earnings.

On March 27, 2020, in response to the COVID-19 pandemic, the president of the United States signed the Coronavirus Aid, Relief, and Economic Security (CARES) Act, which provides additional economic stimulus to address the impact of the COVID-19 pandemic. We do not expect there to be any significant benefit to our income tax provision as a result of the CARES Act, and we continue to monitor for any potential tax legislation related to the COVID-19 pandemic.

As previously disclosed, we received an RAR from the IRS for the years 2010, 2011 and 2012. The RAR proposes to make significant adjustments that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. In November 2017, we received a modified RAR that revised the IRS's calculations but continued to propose substantial adjustments. We disagree with the proposed adjustments and calculations and are pursuing resolution with the IRS administrative appeals office, which currently has jurisdiction over the matter. If we are unable to reach resolution, we will vigorously contest the proposed adjustments through the judicial process. In addition, as previously reported, in April 2020, we received draft NOPAs and subsequently in May 2020, we received an RAR from the IRS for the years 2013, 2014 and 2015, which are similar to the proposed adjustments for the years 2010, 2011 and 2012 that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. We disagree with the proposed adjustments and calculations and will pursue resolution with the IRS administrative appeals office. Final resolution of these complex matters is not likely within the next 12 months and could have a material impact on our condensed consolidated financial statements. We believe our accrual for income tax liabilities is appropriate based on past experience, interpretations of tax law and judgments about potential actions by tax authorities; however, due to the complexity of the provision for income taxes, the ultimate resolution of any tax matters may result in payments substantially greater or less than amounts accrued.

See Note 3, Income taxes, to the condensed consolidated financial statements for further discussion.

Financial condition, liquidity and capital resources

Selected financial data was as follows (in millions):

	June 30, 2020	December 31, 2019
Cash, cash equivalents and marketable securities	$ 11,421	$ 8,911
Total assets	$ 65,011	$ 59,707
Current portion of long-term debt	$ 91	$ 2,953
Long-term debt	$ 34,133	$ 26,950
Stockholders' equity	$ 10,659	$ 9,673

Cash, cash equivalents and marketable securities

We have global access to our $11.4 billion balance of cash, cash equivalents and marketable securities. The primary objective of our investment portfolio is to maintain safety of principal, prudent levels of liquidity and acceptable levels of risk. Our investment policy limits interest-bearing security investments to certain types of debt and money market instruments issued by institutions with primarily investment-grade credit ratings, and it places restrictions on maturities and concentration by asset class and issuer.

Capital allocation

Consistent with the objective to optimize our capital structure, we deploy our accumulated cash balances in a strategic manner and consider a number of alternatives, including strategic transactions (including those that expand our portfolio of products in areas of therapeutic interest), repayment of debt, payment of dividends and stock repurchases.

We intend to continue to invest in our business while returning capital to stockholders through the payment of cash dividends and stock repurchases, thereby reflecting our confidence in the future cash flows of our business. The timing and amount of future dividends and stock repurchases will vary based on a number of factors, including future capital requirements for strategic transactions, availability of financing on acceptable terms, debt service requirements, our credit rating, changes to applicable tax laws or corporate laws, changes to our business model and periodic determination by our Board of Directors that cash dividends and/or stock repurchases are in the best interests of stockholders and are in compliance with applicable laws and the Company's agreements. In addition, the timing and amount of stock repurchases may also be affected by our overall level of cash, stock price and blackout periods, during which we are restricted from repurchasing stock. The manner of stock repurchases may include private block purchases, tender offers and market transactions.

In March 2020 and December 2019, the Board of Directors declared quarterly cash dividends of $1.60 per share of common stock, which were paid on June 8, 2020 and March 6, 2020, respectively, an increase of 10% over the quarterly cash dividend paid in each quarter of 2019. In July 2020, the Board of Directors declared a quarterly dividend of $1.60 per share, which will be paid on September 8, 2020.

We have also returned capital to stockholders through our stock repurchase program. During the six months ended June 30, 2020, we executed trades to repurchase $1.5 billion of common stock. As of June 30, 2020, $4.9 billion of authorization remained available under our stock repurchase program.

As a result of stock repurchases and quarterly dividend payments, we have an accumulated deficit as of June 30, 2020 and December 31, 2019. Our accumulated deficit is not expected to affect our future ability to operate, repurchase stock, pay dividends or repay our debt given our continuing profitability and strong financial position.

We believe that existing funds, cash generated from operations and existing sources of and access to financing are adequate to satisfy our needs for working capital, capital expenditure and debt service requirements, our plans to pay dividends and repurchase stock and other business initiatives we plan to strategically pursue, including acquisitions and licensing activities. We anticipate that our liquidity needs can be met through a variety of sources, including cash provided by operating activities, sales of marketable securities, borrowings through commercial paper and/or syndicated credit facilities and access to other domestic and foreign debt markets and equity markets. For example, we issued $5.0 billion of long-term debt during the three months ended March 31, 2020, to payoff long-term debt maturing in the near term, and $4.0 billion of long-term debt during three months ended June 30, 2020, for general corporate purposes, including, enhancing our working capital position. See our Annual Report on Form 10-K for the year ended December 31, 2019, Part I, Item 1A. Risk Factors—*Global economic conditions may negatively affect us and may magnify certain risks that affect our business*.

Certain of our financing arrangements contain nonfinancial covenants. In addition, our revolving credit agreement includes a financial covenant, which requires that we maintain a specified minimum interest coverage ratio of (i) the sum of consolidated net income, interest expense, provision for income taxes, depreciation expense, amortization expense, unusual or nonrecurring charges and other noncash items (Consolidated EBITDA) to (ii) Consolidated Interest Expense, each as defined and described in the credit agreement. We were in compliance with all applicable covenants under these arrangements as of June 30, 2020.

Cash flows

Our summarized cash flow activity was as follows (in millions):

	Six months ended June 30,	
	2020	2019
Net cash provided by operating activities	$ 4,976	$ 3,259
Net cash (used in) provided by investing activities	$ (2,389)	$ 6,300
Net cash provided by (used in) financing activities	$ 521	$ (10,979)

Operating

Cash provided by operating activities is expected to be our primary recurring source of funds. Cash provided by operating activities during the six months ended June 30, 2020, increased compared with the same period in the prior year due primarily to the favorable timing of repatriation and federal tax payments and current year monetization of interest rate swap contracts along with the timing of other working capital items, offset partially due to the timing of collections from customers as a result of our recent acquisition of Otezla®.

Investing

Cash used in investing activities during the six months ended June 30, 2020, was due primarily to our $2.6 billion equity investment in BeiGene, offset by net cash inflows related to marketable securities of $607 million. Cash provided by investing activities during the six months ended June 30, 2019, was due primarily to net cash inflows related to marketable securities of $6.6 billion. Capital expenditures for the six months ended June 30, 2020 and 2019, were $300 million and $260 million, respectively. We currently estimate 2020 spending on capital projects to be approximately $600 million.

Financing

Cash provided by financing activities during the six months ended June 30, 2020, was due primarily to net proceeds from the issuance of debt of $9.0 billion, offset substantially by repayment of debt of $5.0 billion, the payment of dividends of $1.9 billion and payments to repurchase our common stock of $1.5 billion. Cash used in financing activities during the six months ended June 30, 2019, was due primarily to payments to repurchase our common stock of $5.4 billion, repayment of debt of $3.7 billion and payment of dividends of $1.8 billion. See Note 9, Financing arrangements, and Note 10, Stockholders' equity, to the condensed consolidated financial statements for further discussion.

Critical accounting policies

The preparation of our condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and the notes to the financial statements. Some of those judgments can be subjective and complex, and therefore, actual results could differ materially from those estimates under different assumptions or conditions. A summary of our critical accounting policies is presented in Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, of our Annual Report on Form 10-K for the year ended December 31, 2019.

During the six months ended June 30, 2020, our critical accounting policies were changed to include our assessment of impairment of equity method investments. We review the carrying value of our equity method investments whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. We record impairment losses on our equity method investments if we deem the impairment to be other-than-temporary. We deem an impairment to be other-than-temporary based on various factors, including but not limited to, the length of time and the extent to which the fair value is below the carrying value, volatility of the security price, the financial condition of the issuer, changes in technology that may impair the earnings potential of the investment and our intent and ability to retain the investment to allow for a recovery in fair value. We believe our judgments used in assessing impairment of equity method investments are based on reasonable assumptions given the facts and circumstances as of the related dates of the assessments.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Information about our market risk is disclosed in Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk, of our Annual Report on Form 10-K for the year ended December 31, 2019, and is incorporated herein by reference. Except as noted below, there have been no material changes during the six months ended June 30, 2020, to the information provided in Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk, of our Annual Report on Form 10-K for the year ended December 31, 2019.

During the six months ended June 30, 2020, we issued $9.0 billion in long-term debt with a weighted-average maturity of approximately 16 years and redeemed/repaid approximately $5.0 billion of debt, all with maturities of less than two years. These changes increased the sensitivity of fluctuations in fair value of our outstanding long-term debt resulting from changes in market interest rates. A hypothetical 100 basis point decrease in interest rates relative to interest rates at June 30, 2020 and December 31, 2019, would have resulted in increases of $4.5 billion and $3.0 billion, respectively, in the aggregate fair values of our outstanding long-term debt on each of these dates. These amounts do not consider the impact that hypothetical changes in interest rates would have on our associated interest rate swap and cross-currency swap contracts.

During the six months ended June 30, 2020, we terminated interest rate swaps with an aggregate notional amount of $5.2 billion with respect to certain of our long-term debt, which resulted in the receipt of $576 million of cash and reduced counterparty credit risk. Immediately following termination of these contracts, we entered into new interest rate swap agreements at then-current interest rates on the same $5.2 billion principal amount of notes. See Note 9, Financing arrangements, and Note 12, Derivative instruments, to the condensed consolidated financial statements for further discussion.

Item 4. CONTROLS AND PROCEDURES

We maintain “disclosure controls and procedures,” as such term is defined under the Securities Exchange Act Rule 13a-15(e), that are designed to ensure that information required to be disclosed in Amgen’s Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms, and that such information is accumulated and communicated to Amgen’s management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to facilitate timely decisions regarding required disclosures. In designing and evaluating the disclosure controls and procedures, Amgen’s management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives and, in reaching a reasonable level of assurance, Amgen’s management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. We have carried out an evaluation under the supervision and with the participation of our management, including Amgen’s Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of Amgen’s disclosure controls and procedures. Based upon their evaluation and subject to the foregoing, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of June 30, 2020.

Management determined that, as of June 30, 2020, there were no changes in our internal control over financial reporting that occurred during the fiscal quarter then ended that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. LEGAL PROCEEDINGS

See Note 13, Contingencies and commitments, to the condensed consolidated financial statements included in our Quarterly Reports on Form 10-Q for the periods ended March 31, 2020 and June 30, 2020, for discussions that are limited to certain recent developments concerning our legal proceedings. Those discussions should be read in conjunction with Note 19, Contingencies and commitments, to the consolidated financial statements in Part IV of our Annual Report on Form 10-K for the year ended December 31, 2019.

Item 1A. RISK FACTORS

This report and other documents we file with the SEC contain forward-looking statements that are based on current expectations, estimates, forecasts and projections about us, our future performance, our business, our beliefs and our management's assumptions. These statements are not guarantees of future performance and involve certain risks, uncertainties and assumptions that are difficult to predict. You should carefully consider the risks and uncertainties our business faces. The risks described below are not the only ones we face. Our business is also subject to the risks that affect many other companies, such as employment relations, general economic conditions, geopolitical events and international operations. Further, additional risks not currently known to us or that we currently believe are immaterial may in the future materially and adversely affect our business, operations, liquidity and stock price.

The COVID-19 pandemic, and the public and governmental effort to mitigate against the spread of the disease, have had, and are expected to continue to have, an adverse effect, and may have a material adverse effect, on our clinical trials, operations, supply chains, distribution systems, product development, product sales, business and results of operations.

The novel coronavirus identified in late 2019, SARS-CoV-2, which causes the disease known as COVID-19, is an ongoing global pandemic that has resulted in public and governmental efforts to contain or slow the spread of the disease, including widespread shelter-in-place orders, social distancing interventions, quarantines, travel restrictions and various forms of operational shutdowns and/or re-shutdowns. The COVID-19 pandemic and the resulting measures implemented in response to the pandemic is adversely affecting, and is expected to continue to adversely affect, a number of our business activities (including our research and development activities, clinical trials, operations, supply chains, distribution systems, product development and sales) as well as our suppliers, customers, third-party payers and patients. Due to these measures and their effects, we have experienced, and expect to continue to experience, unpredictable reductions in demand for certain of our products, and, in some cases, have experienced, and could continue to experience, unpredictable increases in demand for certain of our products.

Our clinical trials have been, and are expected to continue to be, adversely affected by the COVID-19 pandemic. We have clinical work ongoing at investigational sites across the globe. A number of clinical trial sites have restricted site visits and have imposed restrictions on the initiation of new clinical trials and patient visits, to protect both site staff and patients from possible COVID-19 exposure that has stopped or slowed clinical trial activities. In response to the safety concerns related to COVID-19, we suspended enrollment and screening in clinical trials where sites are unable to perform clinical trial work due to COVID-19 or there is uncertainty around the ability of sites to ensure subject safety or data integrity. Further, the COVID-19 pandemic is expected to adversely affect our ability to continue enrollment of certain required post-marketing studies, including pediatric studies. The disruption caused by the COVID-19 pandemic to our clinical trials and our clinical trial plans and timelines may have a significant adverse effect on our product development and launches, and, in turn, on future product sales, business and results of operations. For example, to ensure patient safety we initially paused enrollment of our AMG 510 (sotorasib) Phase 1 combination cohort with Keytruda® and Phase 3 lung cancer study, and the interruption in enrollment may ultimately affect the timeline of these studies. Additionally, while we are investing in research and collaborations to potentially develop treatments for COVID-19, such activities may not result in therapeutic candidates, product approvals and/or significant commercial value being derived from potential COVID-19-related medicines.

We have experienced, and we will continue to experience, regulatory delays, including delays in receiving regulatory advice, reviews of applications, or performance of inspections required for approvals as a result of the COVID-19 pandemic. The pandemic may also result in greater regulatory uncertainty. For example, the FDA and the European Medicines Agency have issued guidance to provide biopharmaceutical manufacturers greater flexibility in certain regulatory areas, including protocol deviations and adverse event reporting. However, such flexibility may result in greater uncertainty regarding the expectations of such health authorities in relation to this guidance. Additionally, there may be delays in ongoing or new patent office or court patent proceedings in the U.S. or internationally that may delay the outcome of such proceedings. Such delays and disruptions may have a significant adverse effect on our product development and launches, product sales, business and results of operations.

In response to COVID-19, we have activated our applicable business continuity plans, including suspending U.S. in-person meetings and interactions with the healthcare community and professionals in a substantial number of states, suspending, as a general matter, all international business travel and the majority of domestic travel within the United States, and all U.S. employees who are able to work from home have been doing so since mid-March 2020. Our ability to perform critical functions and maintain operations could be adversely affected as a result of such workforce restrictions, and the COVID-19-related support programs we have put into place for our staff, suppliers and customers are increasing our operating expenses and reducing the efficiency of our operations. Notwithstanding such support programs, the COVID-19 pandemic could affect the health and availability of our workforce as well as those of the third parties on which we rely. If members of our management and other key personnel in critical functions across our organization are unable to perform their duties or have limited availability due to COVID-19, we may not be able to execute on our business strategy and our operations may be adversely affected. We may also experience limitations in employee resources, including as a result of sickness of employees or their families. Additionally, disruptions in public and private infrastructure, including transportation and supply chains, have further adversely affected the efficiency of our business operations. Also, the transition of the majority of our workforce to a remote work environment in response to COVID-19, as have a number of our third-party service providers, may exacerbate certain risks to our business, including, but not limited to, an increased demand for information technology resources, increased risk of social engineering and other cybersecurity attacks, and increased risk of unauthorized dissemination of sensitive personal information or proprietary or confidential information about us or our service providers or other third-parties. In April 2020, a vendor that provides information technology services to us experienced a cybersecurity incident that required us to disconnect our systems from this vendor. While we do not believe this cybersecurity incident has had a significant adverse effect on our operations, an extended service outage, particularly where a vendor is the single source from which we obtain services, or where a cybersecurity incident significantly affects the operation of our systems, could have a material adverse effect on our business. We may experience significant adverse effects on our commercial and clinical manufacturing activities, our operations, and our cybersecurity, and our suppliers and vendors may experience significant disruptions to their manufacturing activities and operations, and cybersecurity, as a result of the COVID-19 pandemic.

Federal, state and local, and international governmental policies and initiatives designed to reduce the transmission of COVID-19 also have resulted in the cancellation of diagnostic, elective, specialty and other procedures and appointments to avoid non-essential patient exposure to medical environments and potential infection with COVID-19 and to focus limited resources and personnel capacity toward the treatment of COVID-19. These measures and challenges will likely continue for the duration of the pandemic, which is uncertain, and have significantly reduced patient access to and administration of certain of our drugs. For example, Prolia® is a product requiring administration by a healthcare provider in doctors' offices or other healthcare settings that are affected by COVID-19. The U.S. label for Prolia® instructs healthcare professionals who discontinue Prolia® to transition the patient to an alternative antiresorptive, including oral treatments that do not require administration by a healthcare provider. Further, as a result of COVID-19, oncology patients, in consultation with their doctors, may be selecting less immunosuppressive therapies or therapies that do not require administration in a hospital setting, potentially adversely affecting certain of our products. Our general medicine products have benefited from 90-day supply availability for existing patients but new patients are less likely to be diagnosed and/or to start these therapeutics during the pandemic. Once the pandemic subsides, we anticipate there will be a substantial backlog of patients seeking appointments with physicians relating to a variety of medical conditions, and as a result, patients seeking treatment with certain of our products may have to navigate limited provider capacity and this limited provider capacity could have a continued adverse effect on our sales following the end of the pandemic. Further, the effects of the COVID-19 pandemic may result in long-term shifts in preferences among healthcare professionals and patients toward treatments that do not require administration by healthcare professionals or visits to medical facilities.

The legislative and regulatory environment governing our businesses is dynamic and changing frequently in response to COVID-19. More than a dozen states have taken action to help patients maintain access to prescription drugs during the COVID-19 pandemic including requiring state-regulated commercial plans to cover 90-day fills and emergency fills in certain circumstances. At the federal level, legislation has been proposed seeking to incentivize greater drug manufacturing in the United States with the stated goal of improving supply reliability in the United States. One such legislative proposal would prohibit the U.S. Department of Veterans Affairs from purchasing certain drugs that have active pharmaceutical ingredients

manufactured outside the United States. While we perform a substantial majority of our commercial manufacturing activities in the United States, including in the U.S. territory of Puerto Rico, and a substantial majority of our clinical manufacturing activities at our facility in Thousand Oaks, California, the passage of such legislation could result in foreign governments enacting retaliatory legislation or regulatory actions, which may have an adverse effect on our product sales, business and results of operations internationally. The COVID-19 pandemic has also resulted in increased interest in compulsory licenses, march-in rights or other governmental interventions, both in the United States and internationally, related to the procurement of drugs, such as the WHO's COVID-19 Technology Access Pool initiative, which provides an approach for sharing all intellectual property, information and clinical trial data necessary to enable generic drug manufacturing. Pursuant to the declaration of a national emergency in March 2020 under the Stafford Act, state and local governments may request access to discounted pricing for certain items related to the COVID-19 response. The CARES Act implements initiatives to provide advanced payments from Medicare to healthcare providers, clinics and physicians and to require Medicare plans to provide up to a 90-day supply of Part D drugs. However, despite such initiatives and government support, there may be adverse effects on the timing and collectability of our customer receivables as a result of the COVID-19 pandemic. See our Annual Report on Form 10-K for the year ended December 31, 2019, Part I, Item 1A. Risk Factors—*Concentration of sales at certain of our wholesaler distributors and at one free-standing dialysis clinic business and consolidation of private payers may negatively affect our business*. The COVID-19 pandemic has also resulted in a significant increase in unemployment in the United States which may continue after the pandemic. Such a significant increase in unemployment is expected to lead to a substantial reduction in disposable income and access to health insurance which could adversely affect our product sales. Further, the substantial pressures placed on governmental and payor budgets as a result of the COVID-19 pandemic and the projected governmental budget shortfalls caused by significantly reduced economic activity during and potentially after the COVID-19 pandemic may result in greater and continued downward price pressure on biopharmaceutical products and increased intensity of stakeholder negotiations across the biopharmaceutical value chain. For example, on July 24, 2020, the Administration announced a number of executive orders intended to reduce the cost of biopharmaceuticals for patients that have the potential to increase the risks described and discussed previously in our Annual Report on Form 10-K for the year ended December 31, 2019, Part I, Item 1A. Risk Factors—*Our sales depend on coverage and reimbursement from third-party payers, and pricing and reimbursement pressures may affect our profitability*, and such risks could materially adversely affect our product sales, business, profitability, results of operations, cash flows and financial position.

In recent weeks, the continued global spread of COVID-19 has also led to disruption and volatility in the global capital markets. We have certain assets, including equity investments, that are exposed to market fluctuations that could, in a sustained market disruption, result in impairments. Further, the economic downturn resulting from this global pandemic has precipitated a global recession which may be of an extended duration. See our Annual Report on Form 10-K for the year ended December 31, 2019, Part I, Item 1A. Risk Factors—*Global economic conditions may negatively affect us and may magnify certain risks that affect our business.*

As the pandemic continues, and if conditions worsen, we expect to experience additional adverse effects on our operational and commercial activities, customer purchases and our collections of accounts receivable, it is unclear which adverse effects may be material, and it remains uncertain the degree to which these adverse effects would impact our future operational and commercial activities, customer purchases and our collections even if conditions begin to improve. With the recent relaxation of restrictions on business operations and in-person gatherings there has been a resurgence in COVID-19 infections in numerous jurisdictions, resulting in the reinstatement of stricter restrictions and shutdowns. It is expected that there will be an ebb and flow to the pandemic with different jurisdictions having higher levels of infections than others over the course of the pandemic. In addition to existing travel restrictions, jurisdictions may continue or reinstate border closures, impose or reimpose prolonged quarantines and further restrict travel and business activity, which could significantly affect our ability to support our operations and customers and the ability of our employees to get to their workplaces to discover, study, develop and produce our product candidates and products, disrupt the movement of our products through the supply chain, and prevent or discourage patients from seeking healthcare services and the administration of certain of our products. Further, in connection with the global outbreak and spread of COVID-19 and in an effort to increase the wider availability of needed medical products, we or our suppliers may elect to, or governments may require us or our suppliers to, allocate manufacturing capacity (for example pursuant to the U.S. Defense Production Act) in a way that adversely affects our regular operations, customer relationships, and financial results. The rapid reallocation of resources for the treatment and prevention of COVID-19, including the production of COVID-19 vaccinations or related therapies, could also result in increased competition for, or reduced availability of, materials used in the manufacturing or distribution of our products. In addition, unpredictable increases in demand for certain of our products could exceed our capacity to meet such demand, which could adversely affect our financial results and customer relationships.

The COVID-19 pandemic and the volatile global economic conditions stemming from it may amplify the other risks described in the "Risk Factors" section of our Annual Report on Form 10-K for the year ended December 31, 2019, which could materially adversely affect our business, operations and financial conditions and results. For example, if a natural disaster or other potentially disruptive event occurs concurrently with the COVID-19 pandemic, such disaster or event could deplete our inventory levels and we could experience a disruption to our manufacturing or ability to supply our products. Further, the global pandemic has exacerbated geopolitical tensions, and some countries, such as China, may be especially vulnerable to such

dynamics. If relations between the U.S. and China or other governments deteriorates, our business and investments in China or other such markets may also be adversely affected.

The rapid development and fluidity of the pandemic preclude any prediction as to the ultimate effect of COVID-19 on us. The duration of the measures being taken by the authorities to mitigate against the spread of COVID-19, and the extent to which such measures are effective, if at all, remain highly uncertain. We believe the magnitude and degree of COVID-19's adverse effect on our product development, product sales, businesses, operating results, cash flows and financial condition will be driven by the severity and duration of the pandemic, the pandemic's effect on the United States and global economies and the timing, scope and effectiveness of federal, state, local and international governmental responses to the pandemic. However, if the spread continues on at or near its current trajectory or mitigation continues to require similar levels of shelter-in-place and shut-down orders, such effect will likely grow and our product development, product sales, business, results of operations, cash flows and financial position could be materially adversely affected.

Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

During the three months ended June 30, 2020, we had one outstanding stock repurchase program, under which the repurchase activity was as follows:

Period	Total number of shares purchased	Average price paid per share [1]	Total number of shares purchased as part of publicly announced program	Maximum dollar value that may yet be purchased under the program[2]
April 1 - 30	—	$ —	—	$ 5,540,776,983
May 1 - 31	809,677	$ 227.93	809,677	$ 5,356,226,673
June 1 - 30	1,787,649	$ 227.46	1,787,649	$ 4,949,614,503
Total	2,597,326	$ 227.60	2,597,326	

[1] Average price paid per share includes related expenses.

[2] In December 2019, our Board of Directors increased the amount authorized under our stock repurchase program by an additional $4.0 billion.

Item 6. EXHIBITS

Reference is made to the Index to Exhibits included herein.

INDEX TO EXHIBITS

Exhibit No.	Description
2.1	Asset Purchase Agreement, dated August 25, 2019, by and between Amgen Inc. and Celgene Corporation. (Filed as an exhibit to Form 8-K on August 26, 2019 and incorporated herein by reference.)
2.2	Amendment No. 1 to the Asset Purchase Agreement, dated October 17, 2019, by and between Amgen Inc. and Celgene Corporation. (Filed as an exhibit to Form 8-K on October 17, 2019 and incorporated herein by reference.)
2.3	Amendment No. 2 to the Asset Purchase Agreement, dated October 17, 2019, by and between Amgen Inc. and Celgene Corporation. (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
2.4	Letter Agreement, dated November 21, 2019, by and between Amgen Inc. and the parties named therein re: Treatment of Certain Product Inventory in connection with Amgen's acquisition of Otezla®. (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
2.5	Irrevocable Guarantee, dated August 25, 2019, by and between Amgen Inc. and Bristol-Myers Squibb Company. (Filed as an exhibit to Form 8-K on August 26, 2019 and incorporated herein by reference.)
3.1	Restated Certificate of Incorporation of Amgen Inc. (As Restated March 6, 2013.) (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2013 on May 3, 2013 and incorporated herein by reference.)
3.2	Amended and Restated Bylaws of Amgen Inc. (As Amended and Restated February 15, 2016.) (Filed as an exhibit to Form 8-K on February 17, 2016 and incorporated herein by reference.)
4.1	Form of stock certificate for the common stock, par value $.0001 of the Company. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 1997 on May 14, 1997 and incorporated herein by reference.)
4.2	Form of Indenture, dated January 1, 1992. (Filed as an exhibit to Form S-3 Registration Statement filed on December 19, 1991 and incorporated herein by reference.)
4.3	Agreement of Resignation, Appointment and Acceptance dated February 15, 2008. (Filed as an exhibit to Form 10-K for the year ended December 31, 2007 on February 28, 2008 and incorporated herein by reference.)
4.4	First Supplemental Indenture, dated February 26, 1997. (Filed as an exhibit to Form 8-K on March 14, 1997 and incorporated herein by reference.)
4.5	8-1/8% Debentures due April 1, 2097. (Filed as an exhibit to Form 8-K on April 8, 1997 and incorporated herein by reference.)
4.6	Officer's Certificate of Amgen Inc., dated April 8, 1997, establishing a series of securities entitled "8 1/8% Debentures due April 1, 2097." (Filed as an exhibit to Form 8-K on April 8, 1997 and incorporated herein by reference.)
4.7	Indenture, dated August 4, 2003. (Filed as an exhibit to Form S-3 Registration Statement on August 4, 2003 and incorporated herein by reference.)
4.8	Corporate Commercial Paper - Master Note between and among Amgen Inc., as Issuer, Cede & Co., as Nominee of The Depository Trust Company, and Citibank, N.A., as Paying Agent. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 1998 on May 13, 1998 and incorporated herein by reference.)
4.9	Officers' Certificate of Amgen Inc., dated May 30, 2007, including form of the Company's 6.375% Senior Notes due 2037. (Filed as an exhibit to Form 8-K on May 30, 2007 and incorporated herein by reference.)
4.10	Officers' Certificate of Amgen Inc., dated May 23, 2008, including form of the Company's 6.90% Senior Notes due 2038. (Filed as exhibit to Form 8-K on May 23, 2008 and incorporated herein by reference.)
4.11	Officers' Certificate of Amgen Inc., dated January 16, 2009, including form of the Company's 6.40% Senior Notes due 2039. (Filed as exhibit to Form 8-K on January 16, 2009 and incorporated herein by reference.)
4.12	Officers' Certificate of Amgen Inc., dated March 12, 2010, including form of the Company's 5.75% Senior Notes due 2040. (Filed as exhibit to Form 8-K on March 12, 2010 and incorporated herein by reference.)

4.13	Officers' Certificate of Amgen Inc., dated September 16, 2010, including form of the Company's 4.95% Senior Notes due 2041. (Filed as an exhibit to Form 8-K on September 17, 2010 and incorporated herein by reference.)
4.14	Officers' Certificate of Amgen Inc., dated June 30, 2011, including form of the Company's 5.65% Senior Notes due 2042. (Filed as an exhibit to Form 8-K on June 30, 2011 and incorporated herein by reference.)
4.15	Officers' Certificate of Amgen Inc., dated November 10, 2011, including forms of the Company's 3.875% Senior Notes due 2021 and 5.15% Senior Notes due 2041. (Filed as an exhibit to Form 8-K on November 10, 2011 and incorporated herein by reference.)
4.16	Officers' Certificate of Amgen Inc., dated December 5, 2011, including form of the Company's 5.50% Senior Notes due 2026. (Filed as an exhibit to Form 8-K on December 5, 2011 and incorporated herein by reference.)
4.17	Officers' Certificate of Amgen Inc., dated May 15, 2012, including forms of the Company's 3.625% Senior Notes due 2022 and 5.375% Senior Notes due 2043. (Filed as an exhibit to Form 8-K on May 15, 2012 and incorporated herein by reference.)
4.18	Officers' Certificate of Amgen Inc., dated September 13, 2012, including form of the Company's 4.000% Senior Notes due 2029. (Filed as an exhibit to Form 8-K on September 13, 2012 and incorporated herein by reference.)
4.19	Indenture, dated May 22, 2014, between Amgen Inc. and The Bank of New York Mellon Trust Company, N.A., as Trustee. (Filed as an exhibit to Form 8-K on May 22, 2014 and incorporated herein by reference.)
4.20	Officers' Certificate of Amgen Inc., dated May 22, 2014, including form of the Company's 3.625% Senior Notes due 2024. (Filed as an exhibit to Form 8-K on May 22, 2014 and incorporated herein by reference.)
4.21	Officer's Certificate of Amgen Inc., dated May 1, 2015, including forms of the Company's 2.700% Senior Notes due 2022, 3.125% Senior Notes due 2025 and 4.400% Senior Notes due 2045. (Filed as an exhibit on Form 8-K on May 1, 2015 and incorporated herein by reference.)
4.22	Officer's Certificate of Amgen Inc., dated as of February 25, 2016, including forms of the Company's 1.250% Senior Notes due 2022 and 2.000% Senior Notes due 2026. (Filed as an exhibit on Form 8-K on February 26, 2016 and incorporated herein by reference.)
4.23	Form of Permanent Global Certificate for the Company's 0.410% bonds due 2023. (Filed as an exhibit on Form 8-K on March 8, 2016 and incorporated herein by reference.)
4.24	Terms of the Bonds for the Company's 0.410% bonds due 2023. (Filed as an exhibit on Form 8-K on March 8, 2016 and incorporated herein by reference.)
4.25	Officer's Certificate of Amgen Inc., dated as of June 14, 2016, including forms of the Company's 4.563% Senior Notes due 2048 and 4.663% Senior Notes due 2051. (Filed as an exhibit to Form 8-K on June 14, 2016 and incorporated herein by reference.)
4.26	Officer's Certificate of Amgen Inc., dated as of August 19, 2016, including forms of the Company's 2.250% Senior Notes due 2023 and 2.600% Senior Notes due 2026. (Filed as an exhibit to Form 8-K on August 19, 2016 and incorporated herein by reference.)
4.27	Officer's Certificate of Amgen Inc., dated as of May 11, 2017 including form of the Company's 2.650% Senior Notes due 2022. (Filed as an exhibit to Form 8-K on May 11, 2017 and incorporated herein by reference.)
4.28	Officer's Certificate of Amgen Inc., dated as of November 2, 2017, including in the form of the Company's 3.200% Senior Notes due 2027. (Filed as an exhibit to Form 8-K on November 2, 2017 and incorporated herein by reference.)
4.29	Officer's Certificate of Amgen Inc., dated as of February 21, 2020, including forms of the Company's 1.900% Senior Notes due 2025, 2.200% Senior Notes due 2027, 2.450% Senior Notes due 2030, 3.150% Senior Notes due 2040 and 3.375% Senior Notes due 2050. (Filed as an exhibit to Form 8-K on February 21, 2020 and incorporated herein by reference.)
4.30	Officer's Certificate of Amgen Inc., dated as of May 6, 2020, including form of the Company's 2.300% Senior Notes due 2031. (Filed as an exhibit to Form 8-K on May 6, 2020 and incorporated herein by reference.)

10.1+	Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (Filed as Appendix C to the Definitive Proxy Statement on Schedule 14A on April 8, 2013 and incorporated herein by reference.)
10.2+	First Amendment to Amgen Inc. Amended and Restated 2009 Equity Incentive Plan, effective March 4, 2015. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2015 on April 27, 2015 and incorporated herein by reference.)
10.3+	Second Amendment to Amgen Inc. Amended and Restated 2009 Equity Incentive Plan, effective March 2, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2016 on May 2, 2016 and incorporated herein by reference.)
10.4+	Form of Grant of Stock Option Agreement for the Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (As Amended on December 10, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.5+	Form of Restricted Stock Unit Agreement for the Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (As Amended on December 10, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.6+	Amgen Inc. 2009 Performance Award Program. (As Amended on December 12, 2017.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2017 on February 13, 2018 and incorporated herein by reference.)
10.7+	Form of Performance Unit Agreement for the Amgen Inc. 2009 Performance Award Program. (As Amended on December 10, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.8+	Amgen Inc. 2009 Director Equity Incentive Program. (As Amended on December 11, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.9+	Form of Grant of Non-Qualified Stock Option Agreement for the Amgen Inc. 2009 Director Equity Incentive Program. (Filed as an exhibit to Form 8-K on May 8, 2009 and incorporated herein by reference.)
10.10+	Form of Restricted Stock Unit Agreement for the Amgen Inc. 2009 Director Equity Incentive Program. (As Amended on December 11, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.11+	Form of Cash-Settled Restricted Stock Unit Agreement for the Amgen 2009 Director Equity Incentive Program. (As Amended on December 11, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.12+	Amgen Inc. Supplemental Retirement Plan. (As Amended and Restated effective October 16, 2013.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2013 on February 24, 2014 and incorporated herein by reference.)
10.13+	First Amendment to the Amgen Inc. Supplemental Retirement Plan, effective October 14, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2016 on October 28, 2016 and incorporated herein by reference.)
10.14+	Second Amendment to the Amgen Inc. Supplemental Retirement Plan (As Amended and Restated effective October 23, 2019.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.15+	Amended and Restated Amgen Change of Control Severance Plan. (As Amended and Restated effective December 9, 2010 and subsequently amended effective March 2, 2011.) (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2011 on May 10, 2011 and incorporated herein by reference.)
10.16+	Amgen Inc. Executive Incentive Plan. (As Amended and Restated effective January 1, 2009.) (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2008 on November 7, 2008 and incorporated herein by reference.)
10.17+	First Amendment to the Amgen Inc. Executive Incentive Plan, effective December 13, 2012. (Filed as an exhibit to Form 10-K for the year ended December 31, 2012 on February 27, 2013 and incorporated herein by reference.)
10.18+	Second Amendment to the Amgen Inc. Executive Incentive Plan, effective January 1, 2017. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2017 on April 27, 2017 and incorporated herein by reference.)

10.19+	Amgen Nonqualified Deferred Compensation Plan. (As Amended and Restated effective October 16, 2013.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2013 on February 24, 2014 and incorporated herein by reference.)
10.20+	First Amendment to the Amgen Nonqualified Deferred Compensation Plan, effective October 14, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2016 on October 28, 2016 and incorporated herein by reference.)
10.21+	Second Amendment to the Amgen Nonqualified Deferred Compensation Plan (As Amended and Restated effective January 1, 2020.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.22+	Agreement between Amgen Inc. and Jonathan Graham, dated May 11, 2015. (Filed as an exhibit to Form 10-Q/A for the quarter ended June 30, 2015 on August 6, 2015 and incorporated herein by reference.)
10.23+	Agreement between Amgen Inc. and Murdo Gordon, dated July 25, 2018. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2018 on October 31, 2018 and incorporated herein by reference.)
10.24+	Agreement between Amgen Inc. and Peter Griffith, dated October 18, 2019. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2020 on May 1, 2020 and incorporated herein by reference.)
10.25	Second Amended and Restated Credit Agreement, dated December 12, 2019, among Amgen Inc., the Banks therein named, Citibank, N.A., as administrative agent, and JPMorgan Chase Bank, N.A., as syndication agent. (Filed as an exhibit to Form 8-K on December 12, 2019 and incorporated herein by reference.)
10.26	Collaboration and License Agreement between Amgen Inc. and Celltech R&D Limited dated May 10, 2002 (portions of the exhibit have been omitted pursuant to a request for confidential treatment) and Amendment No. 1, effective June 9, 2003, to Collaboration and License Agreement between Amgen Inc. and Celltech R&D Limited (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-K/A for the year ended December 31, 2012 on July 31, 2013 and incorporated herein by reference.)
10.27	Amendment No. 2 to Collaboration and License Agreement, effective November 14, 2016, between Amgen Inc. and Celltech R&D Limited (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-K for the year ended December 31, 2016 on February 14, 2017 and incorporated herein by reference.)
10.28	Letter Agreement, dated June 25, 2019, by and between Amgen Inc. and UCB Celltech (portions of the exhibit have been omitted because they are both (i) not material and (ii) would be competitively harmful if publicly disclosed). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2019 on July 31, 2019 and incorporated herein by reference.)
10.29	Collaboration Agreement, dated April 22, 1994, by and between Bayer Corporation (formerly Miles, Inc.) and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2011 by Onyx Pharmaceuticals, Inc. on May 10, 2011 and incorporated herein by reference.)
10.30	Amendment to Collaboration Agreement, dated April 24, 1996, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2006 by Onyx Pharmaceuticals, Inc. on May 10, 2006 and incorporated herein by reference.)
10.31	Amendment to Collaboration Agreement, dated February 1, 1999, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2006 by Onyx Pharmaceuticals, Inc. on May 10, 2006 and incorporated herein by reference.)
10.32	Settlement Agreement and Release, dated October 11, 2011, by and between Bayer Corporation, Bayer AG, Bayer HealthCare LLC and Bayer Pharma AG and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-K for the year ended December 31, 2011 by Onyx Pharmaceuticals, Inc. on February 27, 2012 and incorporated herein by reference.)
10.33	Fourth Amendment to Collaboration Agreement, dated October 11, 2011, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-K for the year ended December 31, 2011 by Onyx Pharmaceuticals, Inc. on February 27, 2012 and incorporated herein by reference.)
10.34	Side Letter Regarding Collaboration Agreement, dated May 29, 2015, by and between Bayer HealthCare LLC and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2015 on August 5, 2015 and incorporated herein by reference.)

10.35	Side Letter Regarding Collaboration Agreement and Stivarga Agreement, dated February 13, 2020, by and between Onyx Pharmaceuticals, Inc. and Bayer HealthCare LLC. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2020 on May 1, 2020 and incorporated herein by reference.)
10.36	Sourcing and Supply Agreement, dated January 6, 2017, by and between Amgen USA Inc., a wholly owned subsidiary of Amgen Inc., and DaVita Inc. (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2017 on April 27, 2017 and incorporated herein by reference.)
10.37	Exclusive License and Collaboration Agreement, dated August 28, 2015, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.38	Amendment No. 1 to the Exclusive License and Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.39	Amendment No. 2 to the Exclusive License and Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.40	Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.41	Amendment No. 1 to the Collaboration Agreement, dated March 20, 2018, by and between Novartis Pharma AG and Amgen Inc. (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2018 on April 25, 2018 and incorporated herein by reference.)
10.42	Collaboration Agreement, dated October 31, 2019, by and between Amgen Inc. and BeiGene Switzerland GmbH, a wholly-owned subsidiary of BeiGene, Ltd. (portions of the exhibit have been omitted because they are both (i) not material and (ii) would be competitively harmful if publicly disclosed). (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.43	Guarantee, dated as of October 31, 2019, made by and among BeiGene, Ltd. and Amgen Inc. (Filed as an exhibit to Form 10-K for the year ended December 31, 2019 on February 12, 2020 and incorporated herein by reference.)
10.44	Share Purchase Agreement, dated October 31, 2019, by and between Amgen Inc. and BeiGene, Ltd. (portions of the exhibit have been omitted because they are both (i) not material and (ii) would be competitively harmful if publicly disclosed). (Filed as an exhibit to Schedule 13D on January 8, 2020 and incorporated herein by reference.)
10.45	Amendment No. 1 to Share Purchase Agreement, dated December 6, 2019, by and among BeiGene, Ltd. and Amgen Inc. (Filed as an exhibit to Schedule 13D on January 8, 2020 and incorporated herein by reference.)
10.46	Amendment No. 2 to Share Purchase Agreement, dated March 17, 2020, by and among BeiGene, Ltd. and Amgen Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2020 on May 1, 2020 and incorporated herein by reference.)
10.47	Collaboration Agreement dated March 30, 2012 by and between Amgen Inc. and AstraZeneca Collaboration Ventures, LLC, a wholly owned subsidiary of AstraZeneca Pharmaceuticals LP (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2012 on May 8, 2012 and incorporated herein by reference.)
10.48	Amendment No. 1 to the Collaboration Agreement, dated October 1, 2014, by and among Amgen Inc., AstraZeneca Collaboration Ventures, LLC and AstraZeneca Pharmaceuticals LP (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-K for the year ended December 31, 2014 on February 19, 2015 and incorporated herein by reference.)

10.49*	Amendment Nos. 2 through 6 to the March 30, 2012 Collaboration Agreement between Amgen Inc. and AstraZeneca Collaboration Ventures, LLC, dated May 2 and 27 and October 2, 2016, January 31, 2018, and May 15, 2020, respectively (portions of the exhibit have been omitted because they are both (i) not material and (ii) would be competitively harmful if publicly disclosed).
31*	Rule 13a-14(a) Certifications.
32**	Section 1350 Certifications.
101.INS	Inline XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

(* = filed herewith)

(** = furnished herewith and not “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended)

(+ = management contract or compensatory plan or arrangement)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this Quarterly Report to be signed on its behalf by the undersigned, thereunto duly authorized.

Amgen Inc.
(Registrant)

Date: July 28, 2020

By: /S/ PETER H. GRIFFITH

Peter H. Griffith
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

CERTAIN IDENTIFIED INFORMATION HAS BEEN EXCLUDED FROM THE EXHIBIT BECAUSE IT BOTH (I) IS NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED. SUCH EXCLUDED INFORMATION HAS BEEN MARKED WITH "[*]".

AMENDMENT NO. 2
TO THE
COLLABORATION AGREEMENT AND RELEASE

This Amendment No. 2 to the Collaboration Agreement and Release (this "**Amendment**") is entered into as of the 2nd day of May, 2016 (the "**Amendment Effective Date**") by and between **Amgen Inc.**, a Delaware corporation with a place of business at One Amgen Center Drive, Thousand Oaks, California 91320 ("**Amgen**"), and **AstraZeneca Collaboration Ventures, LLC**, a Delaware limited liability company with a place of business at 1800 Concord Pike, Wilmington, Delaware 19850 ("**AstraZeneca**" or "**Partner**"). Amgen and AstraZeneca are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**". AstraZeneca Pharmaceuticals LP, the parent corporation of Partner ("**AZ Parent**"), pursuant to Section 15.16 (AstraZeneca Guarantee) of the Agreement (as defined below) is a party to this Amendment as guarantor of Partner's obligations under the Agreement.

WHEREAS, Amgen and Partner entered into that certain Collaboration Agreement, dated as of March 30, 2012, as amended by Amendment No.1 to the Collaboration Agreement, dated October 1, 2014 (collectively, the "**Agreement**");

WHEREAS, the Parties have been having discussions and disagreements on the various post-termination financial rights and obligations of the Parties related to Brodalumab (AMG-827), a Terminated Product that was terminated pursuant to the termination notice Amgen delivered to AstraZeneca on May 22, 2015, with such termination becoming effective on August 26, 2015 (the "**Termination Effective Date**");

WHEREAS, each of Amgen and AstraZeneca desire to resolve their disagreements related to the post-Termination Effective Date financial rights and obligations of the Parties for Brodalumab (AMG-827) by further amending certain portions of the Agreement and releasing each other with respect to any existing and potential claims with respect thereto;

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the Parties agree to amend the Agreement as follows. Capitalized terms used in this Amendment and not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

ARTICLE 1 - AMENDMENT

1.1 **Amendment related to Brodalumab (AMG-827)**. The Parties hereby agree that following the Amendment Effective Date, as it relates to the post-Termination Effective Date financial payment rights of Amgen (and the corresponding obligations of AstraZeneca) as set forth in Section 14.6.1.6 of the Agreement:

1.1.1 AstraZeneca (as the Continuing Party) shall hereby buyout and purchase Amgen (as the Terminating Party) out of its post-Termination Effective Date financial payment rights related to Brodalumab (AMG-827) under the Agreement.

1.1.2 Section 14.6.1.6 shall not apply to Brodalumab (AMG-827), retroactive to the Termination Effective Date.

1.1.3 Amgen's post Termination Effective Date financial payment rights under the Agreement (and AstraZeneca's corresponding obligations thereunder) related to Brodalumab (AMG-827) as of the Termination Effective Date shall solely consist of being entitled to receive, and AstraZeneca shall pay to Amgen:

1.1.3.1 [*] within ten (10) days of the Amendment Effective Date.

1.1.3.2 [*] within sixty (60) days of receipt of Regulatory Approval for Brodalumab (AMG-827) for psoriasis, which, for the avoidance of doubt, shall only be paid once.

1.1.3.3 Royalties on Net Revenues from the sales of Brodalumab (AMG-827) in the Collaboration Territory by or on behalf of AstraZeneca, its Affiliates or sublicensees, with such royalty payment obligation of AstraZeneca consisting of and limited to (a) [*] royalty as the Inventorship Margin for Brodalumab (AMG-827) as set forth in the Agreement, (b) an additional [*] royalty payable, on a country-by-country basis, only until the tenth (10^{th}) anniversary of first commercial sale in the applicable country. Such royalties will be payable quarterly within thirty (30) days of the end of the applicable calendar quarter for which such royalties are owed. Each royalty payment will be accompanied by a report setting forth AstraZeneca's (or its sublicensees') calculation of Net Revenues and royalties owed for the applicable quarter. For such purposes, *"Net Revenues"* and *"Inventorship Margin"* shall have the meaning ascribed to them in the Agreement but for such purposes substituting in such definitions (including in each definition referenced in such definitions) a reference to *"Terminated Product"*, in this case, Brodalumab (AMG-827), for each reference to *"Product;"* and Sections 7.4 (Calculation of Net Revenues) and 8.3 (Currency) through 8.7 (Late Payment) (inclusive) will apply with respect to such royalty payments, *mutatis mutandis*.

1.2 <u>Other Products</u>. The Parties hereby agree that, other than with respect to Brodalumab (AMG-827), in the event that a Party and/or any of its Affiliates (as the Continuing Party of a Terminated Product) enters into a transaction, series of transactions or other arrangements in which a Third Party obtains a license (or sublicense) of the Product Intellectual Property (or any option or other right to obtain a license of the Product Intellectual Property) (a "**Third Party Arrangement**"), then if such Party and/or any of its Affiliates (as the Continuing Party) is entitled to receive:

1.2.1 a profit share associated with the Exploitation of a Terminated Product, then the Continuing Party's share of profit shall be treated as "Sublicensing Revenue" under the Agreement; *provided*, that the Continuing Party shall be entitled to deduct and recoup its Development Costs and General Costs incurred prior to entering into any such Third Party Arrangement, as applicable, from such profit share before it is required to remit a share of such profit as Sublicensing Revenue to the Terminating Party.a profit/loss share associated with the Exploitation of a Terminated Product rather than just a profit share, then instead of the Continuing Party's share of profit being deemed Sublicensing Revenue, the Continuing Party shall instead be obligated to pay to the Terminating Party the tiered royalty set forth in the table in Section 14.6.1.6 of the Agreement on Terminated Product Net Revenues regardless of whether such Terminated Product Net Revenues were for Terminated Products sold by or on behalf of such Continuing Party or the applicable Third Party; *provided*, that the Continuing Party shall not be obligated to pay such tiered royalty to the Terminating Party until the first calendar quarter after the first calendar quarter in which the Net Revenues exceeds Development Costs and General Costs for such calendar quarter.

1.2.2 Nothing in this Section 1.2 shall affect nor modify any other payments that may be owed from the Continuing Party to the Terminating Party.

ARTICLE 2 - RELEASE

2.1 Except as set forth in Section 1.1 or in any stand-alone transition services undertakings between the Parties related to Brodalumab (AMG-827) (including that certain Transition Services Agreement by and between Amgen and Partner dated as of August 28, 2015, no other payment rights of Amgen or payment obligations of AstraZeneca shall be deemed to exist or survive following the Amendment Effective Date related to Brodalumab (AMG-827); provided that, for clarity, nothing herein shall limit, modify or amend AstraZeneca's indemnification obligations under the Agreement with respect to Brodalumab (AMG-827).

2.2 The Parties, on behalf of themselves, their respective parents, subsidiaries and affiliates, and their respective employees, officers, directors, shareholders, agents, attorneys, predecessors, successors, assigns and other representatives and servants, (a) hereby release and forever discharge each other and each other's parents, subsidiaries, affiliates, licensees, sublicensees, contractors, subcontractors and customers, and their respective employees, officers, directors, shareholders, agents, attorneys, predecessors, successors, assigns and other representatives and servants, from any and all actions, causes of action, suits, charges, complaints, arbitrations, claims, judgments, demands, obligations or liabilities, damages, rights, costs, loans, debts and expenses (including attorneys' fees and expenses), in law or equity, whether now known or unknown, suspected or unsuspected, asserted or unasserted, determined or determinable, arising out of or in any way related to any post Termination Effective Date financial rights or obligations each Party may have been entitled to under Section 14.6.1.6 of the Agreement related to Brodalumab (AMG-827) after the Termination Effective Date and (b) hereby agree not to assert any such released claims herein against the other Party, or any of its Affiliates or any of its or their respective parents, subsidiaries, affiliates, licensees, sublicensees, contractors and subcontractors, and their respective employees, officers, directors, shareholders, agents,

attorneys, predecessors, successors, assigns and other representatives and servants. Nothing herein shall release a Party from its obligation to perform the terms or conditions of this Amendment. The releases in this Section shall be immediately and irrevocably effective as of the Amendment Effective Date.

2.3 This Amendment constitutes a compromise of disputed claims. This Amendment and all negotiations, statements, and proceedings in connection therewith are not, will not be argued to be, and will not be deemed to be, a presumption, a concession, or an admission by either Party of any fault, liability, or wrongdoing, or lack thereof, as to any fact or claim alleged or asserted, and will not be interpreted, construed, deemed, invoked, offered, or received in evidence, deemed to have any precedential value or otherwise used by any Party or Person in any actions or proceedings, whether civil, criminal, or administrative, except in a proceeding to enforce the terms or conditions of this Amendment.

2.4 In furtherance of their express intent to fully, forever and irrevocably release and discharge each other from all actions, causes of action, suits, charges, complaints, arbitrations, claims, judgments, demands, obligations or liabilities, damages, rights, costs, loans, debts and expenses (including attorneys' fees and expenses) arising out of or in any way related to any post-Termination Effective Date financial rights or obligations each Party may have been entitled to under Section 14.6.1.6 of the Agreement related to Brodalumab (AMG-827) after the Termination Effective Date, known and unknown, from the beginning of time until the end of time, the Parties expressly waive any and all rights they may have under any statute, code, ordinance or the common law, which may limit or restrict the effect of a general release with respect to the claims that the Parties do not know or suspect to exist in their favor at the time of the execution of this release, including, to the extent deemed applicable, any and all rights under California Civil Code Section 1542, which provides as follows:

"A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her, must have materially affected his or her settlement with the debtor."

The Parties hereby waive any applicability of Section 1542 of the California Civil Code to the releases contained herein. The Parties similarly waive with respect to the releases contained herein any and all rights and benefits conferred by any statute, regulation, or principle of common law or civil law of the United States, of any state, commonwealth, territory, or other jurisdiction thereof, or of any foreign country or other foreign jurisdiction that is similar, comparable or equivalent to Section 1542 of the California Civil Code. This Amendment is a full and complete release of the matters released herein, regardless of whether those matters are presently known, unknown, foreseen or unforeseen.

ARTICLE 3 – REFERENCE TO AND EFFECT ON THE AGREEMENT

3.1 **Reference to Agreement.** Upon and after the effectiveness of this Amendment, each reference in the Agreement to "this Agreement", "hereunder", "hereof" or words of like import referring to the Agreement shall mean and be a reference to the Agreement as modified and amended hereby.

3.2 **Effectiveness of Amendment.** Upon execution and delivery of this Amendment by both Parties, the amendments set forth above shall be effective as of the Amendment Effective Date. Except as specifically amended above, the Agreement is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed and shall constitute the legal, valid, binding and enforceable obligations of the Parties.

ARTICLE 4 – MISCELLANEOUS

4.1 **Choice of Law; Jurisdiction.** This Amendment will be governed by, and enforced and construed in accordance with, the laws of the State of New York without regard to its conflicts of law provisions. Each of the Parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the state and federal courts of the State of New York for any matter arising out of or relating to this Amendment and the transactions contemplated hereby, and agrees not to commence any litigation relating thereto except in such courts. Each of the Parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any matter arising out of this Amendment or the transactions contemplated hereby in the state and federal courts of the State of New York and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such matter brought in any such court has been brought in an inconvenient forum. The Parties agree that a final judgment in any such matter will be conclusive and may be enforced in other jurisdictions by suits on the judgment or in any other manner provided by law. Any proceeding brought by either Party under this Amendment will be exclusively conducted in the English language. The United Nations Convention for the International Sale of Goods will not apply to the transactions contemplated herein.

4.2 **Headings.** The heading for each article and section in this Amendment has been inserted for convenience of reference only and is not intended to limit or expand on the meaning of the language contained in the particular article or section.

4.3 **Counterparts.** This Amendment may be executed via electronic and pdf format signatures in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[Signature page follows]

IN WITNESS THEREOF, duly authorized representatives of the Parties hereto have executed this Amendment as of the date first set forth above.

ASTRAZENECA COLLABORATION VENTURES, LLC

By:	/s/ Steve Mohr
Name:	Steve Mohr
Title:	Deputy General Counsel, NA & General Counsel, US & Secretary

AMGEN INC.

By:	/s/ Robert A. Bradway
Name:	Robert A. Bradway
Title:	Chairman & Chief Executive Officer

ASTRAZENECA PHARMACEUTICALS LP

By:	/s/ Steve Mohr
Name:	Steve Mohr
Title:	Deputy General Counsel, NA & General Counsel, US & Secretary

AMENDMENT NO. 3
TO THE
COLLABORATION AGREEMENT 3

This Amendment No. 3 to the Collaboration Agreement 3 (this "**Amendment**") is entered into as of the 27th day of May, 2016 (the "**Amendment Effective Date**") by and between **Amgen Inc.**, a Delaware corporation with a place of business at One Amgen Center Drive, Thousand Oaks, California 91320 ("**Amgen**"), and **AstraZeneca Collaboration Ventures, LLC**, a Delaware limited liability company with a place of business at 1800 Concord Pike, Wilmington, Delaware 19850 ("**AstraZeneca**" or "**Partner**"). Amgen and AstraZeneca are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**". AstraZeneca Pharmaceuticals LP, the parent corporation of Partner ("**AZ Parent**"), pursuant to Section 15.16 (AstraZeneca Guarantee) of the Agreement (as defined below) is a party to this Amendment as guarantor of Partner's obligations under the Agreement.

WHEREAS, Amgen and Partner entered into that certain Collaboration Agreement, dated as of March 30, 2012, as amended by Amendment No.1 to the Collaboration Agreement, dated October 1, 2014 and as further amended by Amendment No.2 to the Collaboration Agreement and Release, dated May 2, 2016 (collectively, the "**Agreement**");

WHEREAS, Amgen previously suspended its participation in the development and commercialization of AMG-139/MedI-2070, the monoclonal antibody targeting IL-23 that was one of the Products under the Agreement (the "**Suspended Product**"), effective April, 1, 2015;

WHEREAS, in accordance with Section 7.8.2.4 of the Agreement, AstraZeneca is serving notice to Amgen (as the Suspending Party) informing Amgen that AstraZeneca (as the Non-Suspending Party) has received an offer from a third party for the exclusive right to develop and commercialize the Suspended Product worldwide; and

WHEREAS, Amgen and Partner wish to update certain portions of the Agreement.

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the Parties agree to amend the Agreement as follows. Capitalized terms used in this Amendment and not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

ARTICLE 1 - AMENDMENT

1.1 **Amendment to Section 9.1.1.** The Parties hereby agree that, following the Amendment Effective Date, Section 9.1.1 shall be deleted in its entirety and replaced with the following:

> "Partner will not, during the Term and, other than in the event of termination by Partner pursuant to Section 14.3 (Termination for Breach), for (a) three (3) years thereafter for all Products other than AMG139 and AMG181 and (b) one (1) year thereafter for AMG139 and AMG181, itself or through its Affiliates, conduct or participate in, or advise, assist or intentionally enable any Third Party to conduct

to participate in, any Distracting Program anywhere in the world; provided, that MEDI-570 shall not be considered a Distracting Program or a Distracting Product for the purposes of this Agreement;"

1.2 **Amendment to Section 9.1.2.** The Parties hereby agree that, following the Amendment Effective Date, Section 9.1.2 shall be deleted in its entirety and replaced with the following:

"Amgen will not, during the Term and, other than in the event of termination by Amgen pursuant to Section 14.3 (Termination for Breach), for (a) three (3) years thereafter for all Products other than AMG139 and AMG181 and (b) one (1) year thereafter for AMG139 and AMG181, itself or through its Affiliates, conduct or participate in, or advise, assist or intentionally enable any Third Party to conduct to participate in, any Distracting Program anywhere in the Collaboration Territory; and"

1.3 **Amendment to Section 14.6.1.4 (Distracting Products).** The Parties hereby agree that, following the Amendment Effective Date, Section 14.6.1.4 (Distracting Product) shall be amended by deleting such Section 14.6.1.4 (Distracting Product) in its entirety.

ARTICLE 2 – REFERENCE TO AND EFFECT ON THE AGREEMENT

2.1 **Reference to Agreement.** Upon and after the effectiveness of this Amendment, each reference in the Agreement to "this Agreement", "hereunder", "hereof" or words of like import referring to the Agreement shall mean and be a reference to the Agreement as modified and amended hereby.

2.2 **Effectiveness of Amendment.** Upon execution and delivery of this Amendment by both Parties, the amendments set forth above shall be effective as of the Amendment Effective Date. Except as specifically amended above, the Agreement is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed and shall constitute the legal, valid, binding and enforceable obligations of the Parties.

ARTICLE 3 – MISCELLANEOUS

3.1 **Choice of Law; Jurisdiction.** This Amendment will be governed by, and enforced and construed in accordance with, the laws of the State of New York without regard to its conflicts of law provisions. Each of the Parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the state and federal courts of the State of New York for any matter arising out of or relating to this Amendment and the transactions contemplated hereby, and agrees not to commence any litigation relating thereto except in such courts. Each of the Parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any matter arising out of this Amendment or the transactions contemplated hereby in the state and federal courts of the State of New York and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such matter brought in any such court has been brought in an inconvenient forum. The Parties agree that a final judgment in any such matter will be conclusive and may be enforced in other jurisdictions by suits on the judgment or in any other manner provided by law. Any proceeding brought by either

Party under this Amendment will be exclusively conducted in the English language. The United Nations Convention for the International Sale of Goods will not apply to the transactions contemplated herein.

3.2 **Headings.** The heading for each article and section in this Amendment has been inserted for convenience of reference only and is not intended to limit or expand on the meaning of the language contained in the particular article or section.

3.3 **Counterparts.** This Amendment may be executed via electronic and pdf format signatures in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[Signature page follows]

IN WITNESS THEREOF, duly authorized representatives of the Parties hereto have executed this Amendment as of the date first set forth above.

ASTRAZENECA COLLABORATION VENTURES, LLC

By:	/s/ Steve Mohr
Name:	Steve Mohr
Title:	Secretary

AMGEN INC.

By:	/s/ Sean E. Harper
Name:	Sean E. Harper
Title:	EVP, Research & Development

ASTRAZENECA PHARMACEUTICALS LP

By:	/s/ Steve Mohr
Name:	Steve Mohr
Title:	Deputy General Counsel, NA and General Counsel, US and Secretary

Amgen ref. no. 2012575259-008

Execution Version

AMENDMENT NO. 4
TO THE
COLLABORATION AGREEMENT

This Amendment No.4 to the Collaboration Agreement (this "**Amendment**") is entered into as of the 2nd day of October, 2016 (the "**Amendment Effective Date**") by and between Amgen Inc., a Delaware corporation with a place of business at One Amgen Center Drive, Thousand Oaks, California 91320 ("**Amgen**"), and AstraZeneca Collaboration Ventures, LLC, a Delaware limited liability company with a place of business a 1800 Concord Pike, Wilmington. Delaware 19850 ("**AstraZeneca**"). Amgen and AstraZeneca are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**". AstraZeneca Pharmaceuticals LP, the parent corporation of AstraZeneca, pursuant to Section 15.16 (AstraZeneca Guarantee) of the Agreement (as defined below) is a party to this Amendment as guarantor of AstraZeneca's obligations under the Agreement.

RECITALS

WHEREAS, Amgen and AstraZeneca entered into that certain Collaboration Agreement, dated as of March 30, 2012, as amended by Amendment No.1 to the Collaboration Agreement dated October 1, 2014, as further amended by Amendment No.2 to the Collaboration Agreement and Release dated May 2, 2016, and as further amended by Amendment No.3 to the Collaboration Agreement dated May 27, 2016 (collectively, the "**Agreement**");

WHEREAS, pursuant to a Notice Letter dated July 29, 2016, Amgen has been deemed to be the Terminating Party under the Collaboration Agreement with respect to AMG-139/MedI-2070 (the "**Terminated Product**"), with the termination of such Terminated Product having become effective on July 29, 2016; and

WHEREAS, in connection with AstraZeneca's proposed out-license of the development, manufacture and commercialization of the Terminated Product, Amgen and AstraZeneca wish to amend and update certain portions of the Agreement;

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the Parties agree to amend the Agreement as follows. Capitalized terms used in this Amendment and not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

ARTICLE 1AMENDMENTS

1.1 Amendment to Definition of Amgen Intellectual Property. The Parties hereby agree that, following the Amendment Effective Date, clause (ii) of the first sentence of the definition of Amgen Intellectual Property in Section 1.13 of the Agreement shall be deleted and replaced with the following: "(ii) is used during the Term by either Party or its Affiliates in the performance of this Agreement but, for clarity, is not generated or conceived during the Term by either Party or its Affiliates in the performance of this Agreement."

1.2 Amendment to Definition of Distracting Product.

(a) The Parties hereby agree that, following the Amendment Effective Date, the definition of Distracting Product in Section 1.48 of the Agreement shall be amended by adding at the end thereof the following: "For clarity, no Product shall be a Distracting Product."

(b) The Parties hereby agree that, following the Amendment Effective Date, (i) the Distracting Product Schedule shall be amended by deleting the AMG 139/MedI-2070 row contained therein, including the related Product Target and Distracting Target, (ii) the words "other than AMG 139" shall be added after the words "with respect to a given Product" in the definition of "Distracting Product", and (iii) the words "AMG 139 and" in Sections 9.1.1(b) and 9.1.2(b) shall be deleted from such provisions.

1.3 Amendment to Definition of Partner Intellectual Property. The Parties hereby agree that, following the Amendment Effective Date, the first sentence of the definition of Partner Intellectual Property in Section 1.100 of the Agreement shall be deleted and replaced with the following: ""*Partner Intellectual Property*" means any Know-How, Patents, electronic media registrations (including domain names, usernames, websites, blogs and the like), or Copyright controlled by Partner and its Affiliates that is used during the Term by either Party or its Affiliates in the performance of this Agreement but, for clarity, is not generated or conceived during the Term by either Party or its Affiliates in the performance of this Agreement."

1.4 Amendment to Terminated Product Intellectual Property Rights.

(a) The Parties hereby agree that, following the Amendment Effective Date, the phrase "grant and authorized sublicenses" in Section 14.6.1.3(i) of the Agreement shall be amended to read as follows: "grant and authorize sublicenses".

(b) The Parties agree that AstraZeneca has the right to grant sublicenses through multiple tiers pursuant to Section 14.6.1.3(i).

1.5 Amendment to Royalty Payment Timing. The Parties hereby agree that, following the Amendment Effective Date, the sentence "Such royalty will be payable quarterly within thirty (30) days of the end of the calendar quarter for which such royalties are owed." in Section 14.6.1.6 of the Agreement shall be amended to read as follows: "Such royalty will be payable quarterly within thirty (30) days of the end of the calendar quarter for which such royalties are owed; *provided* that any royalty in respect of AMG 139 shall be payable quarterly within fifty (50) days of the calendar quarter for which such royalties are owned."

1.6 Amendment to Survival.

(a) The Parties agree that, following the Amendment Effective Date, a new Section 14.6.1.7 shall be added to the Agreement reading as follows: "14.6.1.7 **Survival**. Each of the provisions of this Agreement referenced in the first sentence of Section 14.6.3 (as amended hereby) shall continue to apply in the case of a Product by Product termination under this Section 14.6.1 with respect to the applicable Terminated Product."

(b) The Parties hereby agree that, following the Amendment Effective Date, the phrase "10.5 (License Grant by Partner)" contained in the first sentence of Section 14.6.3 of the Agreement shall be amended to read as follows: "10.5 (License Grant by Partner) (only with respect to the third sentence thereof)".

(c) The Parties hereby agree that, following the Amendment Effective Date, the phrase "14.6 (Effects of Termination) (with all Products deemed Terminated Products and Amgen being the Continuing Party of all Terminated Products) will survive termination of this Agreement for any reason" contained in the first sentence of Section 14.6.3 of the Agreement shall be amended to read as follows: "14.6 (Effects of Termination) (with all Products deemed Terminated Products and Amgen being the Continuing Party of all Terminated Products other than any such Terminated Product for which Partner is the Continuing Party under Section 14.6.1) will survive termination of this Agreement as a whole for any reason".

(d) The Parties hereby agree that, following the Amendment Effective Date, the second sentence of Section 14.6.3 of the Agreement shall be deleted in its entirety and replaced with the following: "Except as otherwise provided in this Section 14.6 (Effects of Termination), all rights and obligations of the parties under this Agreement will terminate upon termination of this Agreement as a whole for any reason."

(e) In light of the fact that the audit rights provided in Section 8.4 of the Agreement do not apply to a Continuing Party's sublicensee, the Parties hereby agree that, if the Continuing Party enters into a sublicense of Terminated Product Intellectual Property Rights as permitted by Section 14.6.1.3 of the Agreement, the Continuing Party and the Terminating Party will reasonably cooperate in the utilization of any audit rights that the Continuing Party may have under such sublicense with respect to payments that constitute Sublicensing Revenue, provided, however, that either Continuing Party or Terminated Party shall be entitled to elect for such audit rights to be exercised for a given period and in such event the initiating party shall notify the other in writing and the Continuing Party shall use reasonable efforts to promptly exercise such audit rights under such sublicense. For any audit conducted pursuant to the foregoing sentence (notwithstanding whether such audit was elected by Continuing Party or Terminating Party), Continuing Party and Terminating Party shall be required to pay for [*] and [*], respectively, of any costs and expenses of such audit, to the extent the Continuing Party is obligated to pay for such costs and expenses under the terms of such sublicense and to the extent the audit is for payments that constitute Sublicensing Revenue. To the extent that, under the terms of such sublicense, any costs of such audit are shifted to the sublicensee or any other Person, the Parties shall cooperate to ensure that Continuing Party and Terminating Party share the benefits of such cost shifting on the basis of [*] and [*], respectively. If an audit concludes that any additional payment is due to Continuing Party under the terms of such sublicense, then

the Parties shall cooperate to ensure that Continuing Party and Terminating Party share the benefits of such additional payment on the basis of [*] and [*], respectively. Similarly, if an audit concludes that excess payments were made by Continuing Party's sublicensee (to the extent they constituted Sublicensing Revenue) for which Continuing Party is obligated to reimburse its sublicensee under such sublicense, then the Parties shall cooperate to ensure that Continuing Party and Terminating Party allocate such reimbursement payment obligation (to the extent such overpayments constituted Sublicensing Revenue) between them on the basis of [*] and [*], respectively, provided, however, that, to the extent Continuing Party is obligated to pay interest on such outstanding payment obligation under the terms of the sublicense, the allocation of such interest amount between Continuing Party and Terminating Party shall be reasonably allocated on the basis of relative fault for any late payment that triggered such interest.

ARTICLE 2 REFERENCE TO AND EFFECT ON THE AGREEMENT

2.1 Reference to Agreement. Upon and after the effectiveness of this Amendment, each reference in the Agreement to "this Agreement", "hereunder", "hereof" or words of like import referring to the Agreement shall mean and be a reference to the Agreement as modified and amended hereby.

2.2 Effectiveness of Amendment. Upon execution and delivery of this Amendment by both Parties, the amendments set forth above shall be effective as of the Amendment Effective Date. Except as specifically amended above, the Agreement is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed and shall constitute the legal, valid, binding and enforceable obligations of the Parties.

ARTICLE 3 MISCELLANEOUS

3.1 Choice of Law; Jurisdiction. This Amendment will be governed by, and enforced and construed in accordance with, the laws of the State of New York without regard to its conflicts of law provisions. Each of the Parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the state and federal courts of the State of New York for any matter arising out of or relating to this Amendment and the transactions contemplated hereby, and agrees not to commence any litigation relating thereto except in such courts. Each of the Parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any matter arising out of this Amendment or the transactions contemplated hereby in the state and federal courts of the State of New York and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such matter brought in any such court has been brought in an inconvenient forum. The Parties agree that a final judgment in any such matter will be conclusive and may be enforced in other jurisdictions by suits on the judgment or in any other manner provided by law. Any proceeding brought by either Party under this Amendment will be exclusively conducted in the English language. The United Nations Convention for the International Sale of Goods will not apply to the transactions contemplated herein.

3.2 Headings. The heading for each article and section in this Amendment has been inserted for convenience of reference only and is not intended to limit or expand on the meaning of the language contained in the particular article or section.

3.3 Counterparts. This Amendment may be executed via electronic and pdf format signatures in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[*Signature Page Follows*]

IN WITNESS WHEREOF, duly authorized representatives of the Parties hereto have executed this Amendment as of the date first set forth above.

AMGEN INC.

By: /s/ David Piacquad
Name: David Piacquad
Title: Senior Vice President, Business Development

ASTRAZENECA COLLABORATION VENTURES, LLC

By: /s/ Richard J. Kenny
Name: Richard J. Kenny
Title: Asst. Secretary

ASTRAZENECA PHARMACEUTICALS LP

By: /s/ Richard J. Kenny
Name: Richard J. Kenny
Title: Asst. Secretary

AMENDMENT NO. 5
TO THE
COLLABORATION AGREEMENT

This Amendment No. 5 to the Collaboration Agreement (this "**Amendment**") is entered into as of the 31st day of January, 2018 (the "**Amendment Effective Date**") by and between **Amgen Inc.**, a Delaware corporation with a place of business at One Amgen Center Drive, Thousand Oaks, California 91320 ("**Amgen**"), **AstraZeneca Collaboration Ventures, LLC**, a Delaware limited liability company with a place of business at 1800 Concord Pike, Wilmington, Delaware 19850 ("**AstraZeneca**" or "**Partner**"). Amgen and AstraZeneca are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**".

WHEREAS, Amgen and AstraZeneca entered into that certain Collaboration Agreement, dated as of March 30, 2012, as amended by Amendment No.1 to the Collaboration Agreement, dated October 1, 2014, as further amended by Amendment No.2 to the Collaboration Agreement and Release, dated May 2, 2016, as further amended by Amendment No.3 to the Collaboration Agreement, dated May 27, 2016, and as further amended by Amendment No.4 to the Collaboration Agreement, dated October 2, 2016 (collectively, the "**Agreement**"); and

WHEREAS, Amgen and AstraZeneca wish to provide for potential development activities by either Party outside of the existing Development Plan, and accordingly wish to update certain portions of the Agreement; and

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the Parties agree to amend the Agreement as follows. Capitalized terms used in this Amendment and not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

PART 1 - UNILATERAL ACTIVITIES AMENDMENTS

1. Amendments to Article 1 (Definitions). The Parties hereby agree that, following the Amendment Effective Date, Article 1 (Definitions) shall be amended by adding the following Sections:

> "Development Data" means, with respect to a given Specified Product, all clinical trial data and results arising from the Unilateral Activities and such other Know-How arising from such Unilateral Activities as would reasonably be expected to be included in a Regulatory Filing seeking Regulatory Approval with respect to the Unilateral Activities.
>
> "Specified Product" means AMG557 or AMG570 or both AMG557 and AMG570, as context so requires.

2. <u>Amendments to Article 3 (Development and Regulatory)</u>. The Parties hereby agree that, following the Amendment Effective Date, a new Section 3.7 shall be added to the Agreement reading as follows:

"3.7. <u>Unilateral Development Activities for Specified Products</u>.

3.7.1. *Unilateral Activities for Specified Products*.

3.7.1.1. Either Party, by written notice pursuant to Section 15.11 or through its representatives on the JSC at a meeting of the JSC, may propose to develop and potentially seek Regulatory Approval of a Specified Product for an indication for which development or additional development has not yet been agreed upon by the JSC (a "**Proposed Indication**"). The decision to pursue development of a Specified Product for such Proposed Indication, including any updates or amendments to the Development Plan, shall be subject to approval by the JSC as set forth in Section 2.5. If, within sixty (60) days of receipt of the proposal contemplated by the first sentence of this Section (the "**JSC Unilateral Activity Review Period**"), the JSC is not able to agree on an amendment to the Development Plan with respect thereto, then the interested Party shall have the right to conduct development activities for such Proposed Indication as Unilateral Activities (as hereinafter defined) as and to the extent provided in this Section 3.7. Subject to this Section 3.7, the Party desiring to conduct such Unilateral Activities ("**Unilateral Party**") shall prepare and provide to the JSC a development plan setting forth in reasonable detail (a) the specific clinical studies and other development activities to be performed unilaterally by a Party with respect to a Proposed Indication ("**Proposed Unilateral Activities**"), including, with respect to each such clinical study: (i) the number of participants to be enrolled, (ii) the countries in which such clinical study will be conducted, and (iii) the dose and dosage schedule with respect thereto, and (b) the budget for any External Development Costs, Unilateral Third Party Payments and other Development Costs expected to be incurred with respect to such development activities, as the same may be amended from time to time ("**Unilateral Development Plan and Budget**"). In addition to the Unilateral Development Plan and Budget, the Unilateral Party shall provide a written description setting forth the success criteria ("**Successful Completion Criteria**") for the Proposed Unilateral Activities, which may include, without limitation, the primary endpoints for each clinical study, a target product profile, or such other development criteria as the Unilateral Party determines are appropriate to demonstrate the successful completion of Unilateral Activities for the Proposed Indication.

3.7.1.2. Subject to Section 3.7.2, if the JSC fails to agree within the JSC Unilateral Activity Review Period to pursue development of a Proposed Indication for the relevant Specified Product or to update or amend the Development Plan of the relevant Specified Product with respect to such Proposed Indication, the Unilateral Party shall have the right to commence such Proposed Unilateral Activities (such activities, the "**Unilateral Activities**") sixty (60) days after the end of the JSC Unilateral Activity Review Period (subject to

Section 3.7.2.1) in accordance with, and subject to the terms and conditions of this Agreement and such Unilateral Development Plan and Budget (including, without limitation, Sections 6.2, 6.3 and 12.3). The other Party (the "**Opting-Out Party**") shall be deemed to have opted-out with respect to such Unilateral Activities. The Unilateral Party shall notify the JSC of any material amendments to any Unilateral Development Plan and Budget with respect to its Unilateral Activities at least thirty (30) days prior to the planned commencement. For clarity, the Unilateral Party may terminate any Unilateral Activities at any time at its sole discretion, *provided* that such Unilateral Party shall bear any cost and expense associated with the termination of such Unilateral Activities.

3.7.1.3. For clarity, and notwithstanding any other provision of this Agreement (specifically including Section 2.5.2.) but subject to Section 3.7.2, any dispute within the JSC regarding the Proposed Unilateral Activities, including its consideration under Section 3.7.1.1 of development of a Proposed Indication, shall not be subject to escalation to the CRC.

3.7.2. *Prohibited Activities*.

3.7.2.1. If the Opting-Out Party in good faith believes that (x) any Unilateral Activities of the other Party or its Affiliates would reasonably be expected to have a material adverse effect with respect to the safety profile of the relevant Specified Product or (y) the commercialization of the Specified Product for the Proposed Indication would be reasonably likely to compete with any product as to which the Opting-Out Party is engaged in clinical development or commercialization as of the date of the initiation of the JSC Unilateral Activity Review Period, then the Opting-Out Party shall notify the Unilateral Party within thirty (30) days after the end of the JSC Unilateral Activity Review Period (such notice, a "**MAE Notice**"). Following the Unilateral Party's receipt of the MAE Notice, the two Parties shall promptly discuss in good faith the applicable safety or competition issue, as the case may be, and the Unilateral Party shall not conduct any Unilateral Activities which are the subject of the MAE Notice without the other Party's written consent.

3.7.2.2. A Unilateral Party and its Affiliates may conduct Unilateral Activities for a Proposed Indication in which a pharmaceutical product owned or controlled by a Third Party is used (e.g., a combination study or a head-to-head study); *provided* that: (a) such Unilateral Party or its applicable Affiliate shall obtain all rights and licenses (if any) necessary to use such Third Party's product as part of such development for a Proposed Indication; and (b) such Unilateral Party or its applicable Affiliate solely shall bear all payments to such Third Party resulting from or in connection with such Unilateral Activities ("**Unilateral Third Party Payments**").

3.7.2.3. In conducting Unilateral Activities, (a) a Unilateral Party shall ensure that such Unilateral Activities do not diminish the rights or increase the obligations of the Opting-Out Party under this Agreement; and (b) unless otherwise agreed in writing by the Opting-Out Party, (i) in the event Amgen is the Unilateral Party, all Know-How conceived, discovered, developed or

otherwise made in connection with such Unilateral Activities shall be Amgen Intellectual Property and (ii) in the event Partner is the Unilateral Party, all Know-How conceived, discovered, developed or otherwise made in connection with such Unilateral Activities shall be Partner Intellectual Property, and, in each case ((i) and (ii)), all terms and conditions of this Agreement shall apply to such Know-How; *provided*, however, that, with respect to the foregoing clause (b), the Unilateral Party shall be entitled, subject to Section 3.7.6 below, to withhold from the Opting-Out Party any such Know-How until the Opting-Out Party Opts-In with respect to any Unilateral Activities conducted by the Unilateral Party.

3.7.3. *Costs of Unilateral Activities; External Development Costs*.

3.7.3.1. Subject to Sections 3.7.4.3. through Section 3.7.4.6. and Section 3.7.5, (i) the Unilateral Party shall bear the sole cost and expense of (a) all Unilateral Activities, including Unilateral Third Party Payments and (b) any Development Costs incurred with respect to the development of the Specified Product under the Development Plan arising as a result of or in connection with the Unilateral Activities, including Development Costs associated with new development activities requested by a Governmental Authority in connection with data generated by the Unilateral Activities ("**Additional Development Costs**"), and (ii) except as otherwise expressly set forth herein, the Opting-Out Party shall have no financial obligation to support or otherwise fund any efforts in respect of such Unilateral Activities.

3.7.3.2. The Unilateral Party shall report to the JSC regarding the Unilateral Development Plan and Budget as set forth in Section 3.1.3.

3.7.4. *Opt-In Rights; Opt-In Payments*.

3.7.4.1. Promptly after the achievement of the Successful Completion Criteria, the Unilateral Party shall provide to the Opting-Out Party (x) a written report summarizing the Development Data resulting from or with respect to the Unilateral Activities as of the date of delivery of such report ("**Completion Notice**") and (y) the Development Data with respect to such Unilateral Activities. The Completion Notice shall be accompanied by a written statement ("**Unilateral Activity Cost Statement**") of all direct out-of-pocket costs incurred under the Unilateral Development Plan and Budget by a Unilateral Party or any of its Affiliates payable to a Third Party other than Unilateral Third Party Payments ("**External Development Costs**"), Unilateral Third Party Payments, Additional Development Costs and other Development Costs incurred by the Unilateral Party with respect to such Unilateral Activities (such External Development Costs, Unilateral Third Party Payments, Additional Development Costs and other Development Costs, collectively, the "**Unilateral Development Costs**") through the last day of the calendar quarter immediately preceding the calendar quarter in which such notice is provided (such date, the "**Statement Cut-Off Date**"). In addition, the Unilateral Party promptly shall provide to the Opting-Out Party such additional information with respect to the Unilateral Activities described in a Completion Notice as may be reasonably requested by

the Opting-Out Party to evaluate such Unilateral Activities (subject to the proviso in Section 3.7.2.3).

3.7.4.2. For a period of thirty (30) days following delivery by the Unilateral Party to the Opting-Out Party of the Completion Notice ("**Opt-In Period**"), the Opting-Out Party shall have the right (subject to Section 3.7.4.4.2) to opt-in ("**Opt-In**") with respect to Unilateral Activities. If the Opting-Out Party desires to Opt-In, it shall provide written notice thereof to the other Party within the applicable Opt-In Period (an "**Opt-In Exercise Notice**"). Thereafter, not later than sixty (60) days after receiving the Opt-In Exercise Notice, the Unilateral Party shall provide to the Opting-Out Party a statement of Unilateral Development Costs incurred by the Unilateral Party in connection with such Unilateral Activities for the period commencing on the day after the Statement Cut-Off Date and ending on the date of receipt of the Opt-In Exercise Notice (the "**Subsequent Statement**").

3.7.4.3. The Opting-Out Party that Opts-In with respect to Unilateral Activities conducted by the Unilateral Party shall submit its Opt-In Exercise Notice as set forth in Section 3.7.4.2. and shall provide (i) contemporaneously with such notice a payment ("**Opt-In Payment**") to the Unilateral Party for the Unilateral Development Costs through the Statement Cut-Off Date as specified in the applicable Unilateral Activity Cost Statement and calculated in accordance with Section 3.7.4.4., and (ii) within sixty (60) days of the receipt of the applicable Subsequent Statement an additional payment ("**Subsequent Statement Payment**") to the Unilateral Party for Unilateral Development Costs with respect to such Unilateral Activities as specified in such Subsequent Statement and calculated in accordance with Section 3.7.4.4.

3.7.4.4. The foregoing Opt-In Payment and Subsequent Statement Payment shall be calculated by reference to the Unilateral Development Costs set forth in the applicable Unilateral Activity Cost Statement and Subsequent Statement, respectively, at the following rates:

3.7.4.4.1. If the Successful Completion Criteria are met but are not utilized in the filing of a Regulatory Filing for Regulatory Approval of the Proposed Indication, the Opt-In Payment and Subsequent Statement Payment shall be equal to one hundred percent (100%) of the Unilateral Development Costs.

3.7.4.4.2. If the Successful Completion Criteria are met and are used in a Regulatory Filing that results in Regulatory Approval of such Proposed Indication, then (notwithstanding any Opt-In provisions set forth in Section 3.7.4.2.) the Opting-Out Party shall automatically be deemed to have exercised its right to Opt-In with respect to the applicable Unilateral Activities and the required Opt-In Payment and Subsequent Statement Payment shall be equal to one hundred twenty five percent (125%) of the Unilateral Development Costs.

3.7.4.5. From and after the Unilateral Party's receipt of the Opt-In Exercise Notice or deemed exercise by the Opting-Out Party of the Opt-In right, all Unilateral Activities shall cease to be Unilateral Activities and shall constitute development activities under the Development Plan that the Parties thereafter shall share in accordance with Section 7.2.

3.7.5. *Failure to Opt-In; Failure to Meet Successful Completion Criteria*.

3.7.5.1. If the Successful Completion Criteria are met but (a) are not utilized in the filing of a Regulatory Filing for Regulatory Approval of the Proposed Indication and (b) the Opting-Out Party has not exercised its Opt-In Right, then the Unilateral Party shall be free to continue to Develop the applicable Specified Product for such Proposed Indication as additional Unilateral Activities as provided by this Section 3.7.

3.7.5.2. If the Unilateral Party discontinues the Unilateral Activities at any time or if the Successful Completion Criteria are not met, then:

3.7.5.2.1. The Opting-Out Party shall have no further obligation to the Unilateral Party with respect to the Unilateral Activities and the provisions of Section 3.7.4. shall no longer be in effect.

3.7.5.2.2. The Development Plan in effect immediately prior to commencement of the Unilateral Activities shall be the sole governing plan for Development of the applicable Specified Product.

3.7.6. *Sharing of Data for Safety and other Regulatory Needs.*

3.7.6.1. *Sharing and Right of Reference.* The Parties agree that the Unilateral Party shall have a right of reference under Regulatory Filings made with respect to the applicable Specified Product as may be reasonably necessary to report safety data to Governmental Authorities in respect of the Unilateral Activities. The Unilateral Party hereby grants to the Opting-Out Party a non-exclusive license under all Know-How conceived, discovered, developed or otherwise made in connection with its Unilateral Activities, and a right of reference under the Regulatory Filings made with respect to the Unilateral Activities, in both cases, as may be reasonably necessary to report safety data to Governmental Authorities.

3.7.6.2. *Review of Regulatory Filings.* Parties will discuss in good faith whether there should be review and comment rights with respect to Regulatory Filings made by the Unilateral Party.

3.7.6.3. *Pharmacovigilance and Global Safety Database.* In the event that the Unilateral Party is not the Development Lead with respect to a Specified Product, within ten (10) Business Days after the commencement of Unilateral Activities, the Unilateral Party and Development Lead shall enter into a separate written pharmacovigilance agreement providing details related to managing and reporting adverse events in respect of the Specified Product that occur during

clinical studies and other safety and reporting practices and procedures in compliance with all Applicable Laws. The Development Lead shall establish, hold and maintain a global safety database for the Specified Products. The Unilateral Party shall provide the Development Lead with information in the possession or control of the Unilateral Party as necessary for the Development Lead to maintain such global safety database. The Development Lead shall provide the Unilateral Party with information in the possession or control of the Development Lead as necessary for the Unilateral Party to comply with its pharmacovigilance responsibilities in respect of the Specified Product, including, as applicable, any adverse drug experiences (including those events or experiences that are required to be reported to the FDA under 21 C.F.R. sections 312.32 or 600.80 or to other Governmental Authorities under corresponding Applicable Law outside the United States) from pre-clinical or clinical laboratory, animal toxicology and pharmacology studies, clinical studies, and commercial experiences with the Specified Product. In the event that the Unilateral Party is the Development Lead with respect to a Specified Product, the Parties will discuss in good faith whether to enter into a separate written pharmacovigilance agreement as described above. ”

1.3 **Amendments to Article 13 (Indemnification and Insurance).** The Parties hereby agree that, following the Amendment Effective Date, Article 13 (Indemnification and Insurance) shall be amended by replacing the existing Sections 13.1 and 13.2 with the following Sections:

“13.1 Indemnity by Partner. Partner will defend, indemnify, and hold harmless Amgen, its Affiliates, and their respective directors, officers, employees, agents and representatives (collectively, *“Amgen Indemnitees”*), at Partner’s cost and expense, from and against any and all liabilities, losses, costs, damages, fees or expenses (including reasonable legal expenses and attorneys’ fees) (collectively, *“Losses”*) arising out of any Third Party Claims brought against any Amgen Indemnitee to the extent such Losses result from: (a) the negligence or willful misconduct of Partner or its Affiliates (or any employees, agents or representatives of any of them) in performing under this Agreement; (b) a breach by Partner of this Agreement, including the failure of Partner’s representations or warranties in Article 12 (Representations and Warranties) to be true in any material respect; (c) the death or injury of a person caused by the failure of Product manufactured by Partner to be manufactured in compliance with cGMP or to meet Specifications; or (d) in the event that Partner is conducting Unilateral Activities as a Unilateral Party under Section 3.7 with respect to a Proposed Indication, any activities conducted by or on behalf of Partner or its Affiliates in relation to such Proposed Indication or Unilateral Activities. The indemnification obligations under this Section 13.1 (Indemnity by Partner) exclude Losses to the extent they arise from (a), (b), (c), (d), (e), (f) or (g) below in Section 13.2 (Indemnity by Amgen).”

“13.2 Indemnity by Amgen. Amgen will defend, indemnify, and hold harmless Partner, its Affiliates, and their respective directors, officers, employees, agents and representatives (collectively, *“Partner Indemnitees”*), at Amgen’s cost and expense, from and against any and all Losses arising out of any Third Party Claims brought against any Partner Indemnitee to the extent such Losses result from: (a) acts or omissions of any Amgen Indemnitee or any partner or licensee of an Amgen Indemnitee with respect to a

Product outside the Collaboration Scope (other than activities conducted for the benefit of the Collaboration Scope); (b) the negligence or willful misconduct of Amgen or its Affiliates (or any employees, agents or representatives of any of them) in performing under this Agreement; (c) a breach by Amgen of this Agreement, including the failure of Amgen's representations or warranties in Article 12 (Representations and Warranties) to be true in any material respect; (d) personal injury (regardless of theory of liability) as a result of administration of a Product in the clinical trials listed on the Completed Clinical Trials Schedule; (e) the death or injury of a person caused by the failure of Product manufactured by Amgen to be manufactured in compliance with cGMP or to meet Specifications; (f) any activities conducted by or on behalf of Amgen or its Affiliates in relation to the Products before the Effective Date; or (g) in the event that Amgen is conducting Unilateral Activities as a Unilateral Party under Section 3.7 with respect to a Proposed Indication, any activities conducted by or on behalf of Amgen or its Affiliates in relation to such Proposed Indication or Unilateral Activities. The indemnification obligations under this Section 13.2 (Indemnity by Amgen) exclude Losses to the extent they arise from (a), (b), (c) or (d) above in Section 13.1 (Indemnity by Partner)."

PART 2 – REFERENCE TO AND EFFECT ON THE AGREEMENT

3.1 **Reference to Agreement.** Upon and after the effectiveness of this Amendment, each reference in the Agreement to "this Agreement", "hereunder", "hereof" or words of like import referring to the Agreement shall mean and be a reference to the Agreement as modified and amended hereby.

3.2 **Effectiveness of Amendment.** Upon execution and delivery of this Amendment by the Parties, the amendments set forth above shall be effective as of the Amendment Effective Date. Except as specifically amended above, the Agreement is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed and shall constitute the legal, valid, binding and enforceable obligations of the Parties.

PART 3 – MISCELLANEOUS

4.1 **Choice of Law; Jurisdiction.** This Amendment will be governed by, and enforced and construed in accordance with, the laws of the State of New York without regard to its conflicts of law provisions. Each of the Parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the state and federal courts of the State of New York for any matter arising out of or relating to this Amendment and the transactions contemplated hereby, and agrees not to commence any litigation relating thereto except in such courts. Each of the Parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any matter arising out of this Amendment or the transactions contemplated hereby in the state and federal courts of the State of New York and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such matter brought in any such court has been brought in an inconvenient forum. The Parties agree that a final judgment in any such matter will be conclusive and may be enforced in other jurisdictions by suits on the judgment or in any other manner provided by law. Any proceeding brought by either

Party under this Amendment will be exclusively conducted in the English language. The United Nations Convention for the International Sale of Goods will not apply to the transactions contemplated herein.

4.2 **Headings.** The heading for each article and section in this Amendment has been inserted for convenience of reference only and is not intended to limit or expand on the meaning of the language contained in the particular article or section.

4.3 **Counterparts.** This Amendment may be executed via electronic and pdf format signatures in three (3) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[Signature page follows]

IN WITNESS THEREOF, duly authorized representatives of the Parties hereto have executed this Amendment as of the date first set forth above.

ASTRAZENECA COLLABORATION VENTURES, LLC

By: /s/ Richard J. Kenny
Name: Richard J. Kenny
Title: Asst Secretary

AMGEN INC.

By: /s/ David A. Piacquad
Name: David A. Piacquad
Title: SVP Business Development

AMENDMENT NO. 6
TO THE
COLLABORATION AGREEMENT

This Amendment No. 6 to the Collaboration Agreement (this "**Amendment**") is entered into as of the 15th day of May, 2020 (the "**Amendment Effective Date**") by and between **Amgen Inc.**, a Delaware corporation with a place of business at One Amgen Center Drive, Thousand Oaks, California 91320 ("**Amgen**"), **AstraZeneca Collaboration Ventures, LLC**, a Delaware limited liability company with a place of business at 1800 Concord Pike, Wilmington, Delaware 19850 ("**AstraZeneca**" or "**Partner**"). Amgen and AstraZeneca are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**".

WHEREAS, Amgen and AstraZeneca entered into that certain Collaboration Agreement, dated as of March 30, 2012, as amended by Amendment No.1 to the Collaboration Agreement, dated October 1, 2014, as further amended by Amendment No.2 to the Collaboration Agreement and Release, dated May 2, 2016, as further amended by Amendment No.3 to the Collaboration Agreement, dated May 27, 2016, as further amended by Amendment No.4 to the Collaboration Agreement, dated October 2, 2016, and as further amended by Amendment No.5 to the Collaboration Agreement, dated January 31, 2018 (collectively, the "**Agreement**"); and

WHEREAS, Amgen and AstraZeneca wish to amend certain terms of the Agreement in connection with the commercialization of AMG 157 in asthma as further provided herein; and

NOW, THEREFORE, in consideration of the mutual promises and covenants hereinafter set forth, the Parties agree to amend the Agreement as follows. Capitalized terms used in this Amendment and not otherwise defined herein shall have the meanings ascribed to such terms in the Agreement.

PART 1 - AMENDMENTS TO CERTAIN TERMS

1. **Amendment to Section 1.38 (Definition of "Critical Matters").** From and after the Amendment Effective Date, Section 1.38 (Definition of "Critical Matters") is hereby amended to (i) delete the word "and" immediately prior to subclause (D), and (ii) add the following language immediately after the words "under Section 7.7 (Budget Deadlocks)" in subclause (D):

> "and (E) in relation to commercialization of AMG 157 in asthma, any matters that are expressly stipulated to be "Critical Matters" by the Parties in a Commercialization Framework approved by the JSC."

2. **Amendment to Section 2.5.2 (JSC Deadlocks).** From and after the Amendment Effective Date, Section 2.5.2 (JSC Deadlocks) is hereby amended to (x) delete the word "and" immediately prior to subclause (iii), and (y) add the following language immediately after the words "in the case of matters under Section 2.5.1.3" in subclause (iii):

"and (iv) in relation to commercialization of AMG 157 in asthma, the applicable activity lead, in the case of any commercial activities expressly delegated to such lead in a Commercial Framework approved by the JSC."

3. **Amendment to Section 4.4 (Distribution).** From and after the Amendment Effective Date, Section 4.4 (Distribution) is hereby amended to add the following language immediately after the second sentence in Section 4.4:

"Notwithstanding the foregoing, the Parties agree that, for the commercialization of AMG 157 in asthma, Amgen will be solely responsible for the distribution of AMG 157 in the United States (and, for clarity, shall be the Distribution Party therein for the commercialization of AMG 157 in asthma) and Partner will be solely responsible for the distribution of AMG 157 in all other countries (and, for clarity, shall be the Distribution Party in such countries for the commercialization of AMG 157 in asthma)."

4. **Addition of Section 5.11 (Non-Solicitation).** From and after the Amendment Effective Date, a new Section 5.11 (Non-Solicitation) is hereby added to the Agreement immediately following the end of Section 5.10 (Sales Force Disruption) and provides as follows:

"5.11 Non-Solicitation. Amgen and Partner agree that, for the period leading up to the Regulatory Approval (if any) by the U.S. Food and Drug Administration and for the twelve month period thereafter, they will not directly or indirectly solicit for employment, induce, encourage, or participate in soliciting, inducing, or encouraging, any United States or Canada field-based commercial or medical employee who is employed by the other Party and who works on a Product that is a respiratory product (such Product, a "Respiratory Product") for the other Party (such employee, a "Respiratory Employee") to terminate his or her relationship with the other Party. For the avoidance of doubt, this Section 5.11 does not prevent Amgen or Partner from hiring a Respiratory Employee from the other Party: (i) if that Respiratory Employee applies to a publicly advertised role without any solicitation, inducement, or encouragement by the hiring Party or (ii) as a result of the recruiting efforts of a professional search firm that is not directed to specifically target the other Party's Respiratory Employees. Further, for the avoidance of doubt, this Section 5.11 does not prevent Amgen or Partner from soliciting for employment, inducing, encouraging, or participating in soliciting, inducing, or encouraging, any employee who previously worked on a Respiratory Product for the other Party and no longer works on a Respiratory Product at the time of the solicitation, inducement or encouragement."

PART 2 – REFERENCE TO AND EFFECT ON THE AGREEMENT

6.1 **Reference to Agreement.** Upon and after the effectiveness of this Amendment, each reference in the Agreement to "this Agreement", "hereunder", "hereof" or words of like import referring to the Agreement shall mean and be a reference to the Agreement as modified and amended hereby.

6.2 **Effectiveness of Amendment.** Upon execution and delivery of this Amendment by the Parties, the amendments set forth above shall be effective as of the Amendment Effective Date. Except as specifically amended above, the Agreement is and shall continue to be in full force and effect and is hereby in all respects ratified and confirmed and shall constitute the legal, valid, binding and enforceable obligations of the Parties.

PART 3 – MISCELLANEOUS

7.1 **Choice of Law; Jurisdiction.** This Amendment will be governed by, and enforced and construed in accordance with, the laws of the State of New York without regard to its conflicts of law provisions. Each of the Parties hereby irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the state and federal courts of the State of New York for any matter arising out of or relating to this Amendment and the transactions contemplated hereby, and agrees not to commence any litigation relating thereto except in such courts. Each of the Parties hereby irrevocably and unconditionally waives any objection to the laying of venue of any matter arising out of this Amendment or the transactions contemplated hereby in the state and federal courts of the State of New York and hereby further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such matter brought in any such court has been brought in an inconvenient forum. The Parties agree that a final judgment in any such matter will be conclusive and may be enforced in other jurisdictions by suits on the judgment or in any other manner provided by law. Any proceeding brought by either Party under this Amendment will be exclusively conducted in the English language. The United Nations Convention for the International Sale of Goods will not apply to the transactions contemplated herein.

7.2 **Headings.** The heading for each article and section in this Amendment has been inserted for convenience of reference only and is not intended to limit or expand on the meaning of the language contained in the particular article or section.

7.3 **Counterparts.** This Amendment may be executed via electronic and pdf format signatures in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[Signature page follows]

IN WITNESS THEREOF, duly authorized representatives of the Parties hereto have executed this Amendment as of the date first set forth above.

ASTRAZENECA COLLABORATION VENTURES, LLC

By: /s/ Mariam Koohdary
Name: Mariam Koohdary
Title: Deputy General Counsel

AMGEN INC.

By: /s/ Murdo Gordon
Name: Murdo Gordon
Title: EVP, Global Commercial Operations

CERTIFICATIONS

I, Robert A. Bradway, Chairman of the Board, Chief Executive Officer and President of Amgen Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Amgen Inc.;

2. Based on my knowledge, this quarterly report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this quarterly report;

3. Based on my knowledge, the financial statements, and other financial information included in this quarterly report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this quarterly report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this quarterly report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this quarterly report based on such evaluation; and

   (d) Disclosed in this quarterly report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 28, 2020

/s/ ROBERT A. BRADWAY

Robert A. Bradway
Chairman of the Board,
Chief Executive Officer and President

CERTIFICATIONS

I, Peter H. Griffith, Executive Vice President and Chief Financial Officer of Amgen Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Amgen Inc.;

2. Based on my knowledge, this quarterly report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this quarterly report;

3. Based on my knowledge, the financial statements, and other financial information included in this quarterly report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this quarterly report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this quarterly report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this quarterly report based on such evaluation; and

   (d) Disclosed in this quarterly report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 28, 2020

/s/ PETER H. GRIFFITH

Peter H. Griffith

Executive Vice President and Chief Financial Officer

Exhibit 32

Certification of Chief Executive Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Amgen Inc. (the "Company") hereby certifies that:

(i) the accompanying Quarterly Report on Form 10-Q of the Company for the period ended June 30, 2020 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: July 28, 2020

/s/ ROBERT A. BRADWAY

Robert A. Bradway
Chairman of the Board,
Chief Executive Officer and President

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Amgen Inc. and will be retained by Amgen Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Certification of Chief Financial Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Amgen Inc. (the "Company") hereby certifies that:

(i) the accompanying Quarterly Report on Form 10-Q of the Company for the period ended June 30, 2020 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: July 28, 2020

/s/ PETER H. GRIFFITH

Peter H. Griffith

Executive Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Amgen Inc. and will be retained by Amgen Inc. and furnished to the Securities and Exchange Commission or its staff upon request.