Phase 3 Study Demonstrates Aranesp® (Darbepoetin Alfa) Reduces Red Blood Cell Transfusions In Patients With Myelodysplastic Syndrome (MDS)

February 15, 2016

First Phase 3 Data From Placebo-Controlled Study With an Erythropoiesis-Stimulating Agent (ESA) in Anemic Patients With MDS

Study Met Primary Endpoint and Key Secondary Endpoint of Erythroid Response

THOUSAND OAKS, Calif., Feb. 15, 2016 /PRNewswire/ -- Amgen (NASDAQ:AMGN) today announced that the randomized, double-blind, placebo-controlled Phase 3 Aranesp® (darbepoetin alfa) ARCADE trial met its primary endpoint of reducing the incidence of red blood cell transfusions in anemic patients with low and intermediate-1 risk MDS at the end of the blinded 25-week study period. Aranesp also significantly improved erythroid response, a key measure of the formation of new red blood cells. Detailed results will be submitted to a future medical conference and for publication.

Safety data was consistent with the known safety profile of Aranesp, and the adverse events were generally balanced between treatment arms. The adverse events reported in the Aranesp arm at least five percent more frequently than in the placebo group were fatigue, pyrexia, headache and myalgia.

MDS is among the most common type of bone marrow failure syndromes in adults.[1] The disease occurs when immature blood cells do not mature in the bone marrow. Patients with MDS have fewer healthy white blood cells, red blood cells and platelets, and are at risk of infection, anemia or bleeding.[2] Current treatments for MDS include blood transfusions, chemotherapy and stem cell transplants.

"We are pleased to see positive results from this study, as anemia treatment options for myelodysplastic syndrome are limited and can place a significant burden on patients," said Sean E. Harper, M.D., executive vice president of Research and Development at Amgen.

About the ARCADE Study

The Phase 3 ARCADE trial was a multicenter, randomized, double-blind, placebo-controlled study evaluating Aranesp in 146 patients with low or intermediate-1 risk MDS who had not previously taken ESAs or biologic response modifiers. During a 24-week period, patients received either Aranesp 500 µg (n=97) or placebo (n=49) every three weeks. At week 25, when the primary and key secondary endpoints were assessed, patients underwent an end-of-treatment period (EOTP) visit and could subsequently enter a 48-week active treatment period where all participants crossed over to receive Aranesp, with dose escalation allowed beginning on week 31. Treatment continued until week 72 or 73, and long-term follow up continues to occur every 26 weeks, for a minimum of three years.

About MDS

MDS affects more than 30,000 people in the United States annually.[1] People undergoing certain types of chemotherapy or radiation treatment for cancer may be at increased risk of developing treatment-related MDS.[3] Patients with MDS affecting red blood cells often experience anemia.[4]

About Aranesp® (darbepoetin alfa) in the U.S.

Aranesp® is indicated for the treatment of anemia due to chronic kidney disease (CKD), including patients on dialysis and patients not on dialysis.

Aranesp® is indicated for the treatment of anemia in patients with non-myeloid malignancies where anemia is due to the effect of concomitant myelosuppressive chemotherapy, and upon initiation, there is a minimum of two additional months of planned chemotherapy.

Limitations of Use:
Aranesp® has not been shown to improve quality of life, fatigue, or patient well-being.
Aranesp® is not indicated for use:

- In patients with cancer receiving hormonal agents, biologic products, or radiotherapy, unless also receiving concomitant myelosuppressive chemotherapy.
- In patients with cancer receiving myelosuppressive chemotherapy when the anticipated outcome is cure.
- As a substitute for red blood cell transfusions in patients who require immediate correction of anemia.

Important U.S. Safety Information for Aranesp®

WARNING: ESAs INCREASE THE RISK OF DEATH, MYOCARDIAL INFARCTION, STROKE, VENOUS THROMBOEMBOLISM, THROMBOSIS OF VASCULAR ACCESS AND TUMOR PROGRESSION OR RECURRENCE

Chronic Kidney Disease:

- **In controlled trials, patients experienced greater risks for death, serious adverse cardiovascular reactions, and stroke when administered erythropoiesis-stimulating agents (ESAs) to target a hemoglobin level of greater than 11 g/dL.**
- **No trial has identified a hemoglobin target level, Aranesp® dose, or dosing strategy that does not increase these risks.**
- **Use the lowest Aranesp® dose sufficient to reduce the need for red blood cell (RBC) transfusions.**

Cancer:

- **ESAs shortened overall survival and/or increased the risk of tumor progression or recurrence in clinical studies of patients with breast, non-small cell lung, head and neck, lymphoid, and cervical cancers.**
- **Because of these risks, prescribers and hospitals must enroll in and comply with the ESA APPRISE Oncology Program to prescribe and/or dispense Aranesp® to patients with cancer. To enroll in the ESA APPRISE Oncology Program, visit www.esa-apprise.com or call 1-866-284-8089 for further assistance.**
- **To decrease these risks, as well as the risk of serious cardiovascular and thromboembolic reactions, use the lowest dose needed to avoid RBC transfusions.**
- **Use ESAs only for anemia from myelosuppressive chemotherapy.**
- **ESAs are not indicated for patients receiving myelosuppressive chemotherapy when the anticipated outcome is cure.**
- **Discontinue following the completion of a chemotherapy course.**

Aranesp® is contraindicated in patients with uncontrolled hypertension, pure red cell aplasia (PRCA) that begins after treatment with Aranesp® or other erythropoietin protein drugs, or serious allergic reactions to Aranesp®.

Use caution in patients with CKD and coexistent cardiovascular disease and stroke. Patients with CKD and an insufficient hemoglobin response to ESA therapy may be at even greater risk for cardiovascular reactions and mortality than other patients. A rate of hemoglobin rise of > 1 g/dL over 2 weeks may contribute to these risks. In controlled clinical trials of patients with cancer, Aranesp® and other ESAs increased the risks for death and serious adverse cardiovascular reactions. These adverse reactions included myocardial infarction and stroke. In controlled clinical trials, ESAs increased the risk of death in patients undergoing coronary artery bypass graft surgery (CABG) and the risk of deep venous thrombosis (DVT) in patients undergoing orthopedic procedures. Control hypertension prior to initiating and during treatment with Aranesp®.

Aranesp® increases the risk of seizures in patients with CKD. Monitor patients closely for new-onset seizures, premonitory symptoms, or change in seizure frequency.

For lack or loss of hemoglobin response to Aranesp®, initiate a search for causative factors. If typical causes of lack or loss of hemoglobin response are excluded, evaluate for PRCA. Cases of PRCA and of severe anemia, with or without other cytopenias that arise following the development of neutralizing antibodies to erythropoietin have been reported in patients treated with Aranesp®. This has been reported predominantly in patients with CKD receiving ESAs by subcutaneous administration. PRCA has also been reported in patients receiving ESAs for anemia related to hepatitis C treatment (an indication for which Aranesp® is not approved). If severe anemia and low reticulocyte count develop during treatment with Aranesp®, withhold Aranesp® and evaluate patients for neutralizing antibodies to erythropoietin. Permanently discontinue Aranesp® in patients who develop PRCA following treatment with Aranesp® or other erythropoietin protein drugs. Do not switch patients to other ESAs.

Serious allergic reactions, including anaphylactic reactions, angioedema, bronchospasm, skin rash, and urticaria may occur with Aranesp®. Immediately and permanently discontinue Aranesp® if a serious allergic reaction occurs.

Adverse reactions (≥ 10%) in Aranesp® clinical studies in patients with CKD were hypertension, dyspnea, peripheral edema, cough, and procedural hypotension. Adverse reactions (≥ 1%) in Aranesp® clinical studies in cancer patients receiving chemotherapy were abdominal pain, edema, and thrombovascular events.

To see the Aranesp® Prescribing Information, including Boxed Warnings, and Medication Guide visit www.aranesp.com.

About Amgen
Amgen is committed to unlocking the potential of biology for patients suffering from serious illnesses by discovering, developing, manufacturing and delivering innovative human therapeutics. This approach begins by using tools like advanced human genetics to unravel the complexities of disease and understand the fundamentals of human biology.

Amgen focuses on areas of high unmet medical need and leverages its biologics manufacturing expertise to strive for solutions that improve health outcomes and dramatically improve people's lives. 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.

For more information, visit www.amgen.com and follow us on www.twitter.com/amgen.

Forward-Looking Statements
This news release contains forward-looking statements that are based on the current expectations and beliefs of Amgen Inc. and its subsidiaries (Amgen, we or us) and are subject to a number of risks, uncertainties and assumptions that could cause actual results to differ materially from those described. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements, including estimates of revenues, operating margins, capital expenditures, cash, other financial metrics, expected legal, arbitration, political, regulatory or clinical results or practices, customer and prescriber patterns or practices, reimbursement activities and outcomes and other such estimates and results. Forward-looking statements involve significant risks and uncertainties, including those discussed below and more fully described in the Securities and Exchange Commission (SEC) reports filed by Amgen Inc., including Amgen Inc.'s most recent annual report on Form 10-K and any subsequent periodic reports on Form 10-Q and Form 8-K. Please refer to Amgen Inc.'s most recent Forms 10-K, 10-Q and 8-K for additional information on the uncertainties and risk factors related to Amgen's business. Unless otherwise noted, Amgen is providing this information as of Feb. 15, 2016, and expressly disclaims any duty to update information contained in this news release.

No forward-looking statement can be guaranteed and actual results may differ materially from those we project. Discovery or identification of new product candidates or development of new indications for existing products cannot be guaranteed and movement from concept to product is uncertain; consequently, there can be no guarantee that any particular product candidate or development of a new indication for an existing product will be

successful and become a commercial product. Further, preclinical results do not guarantee safe and effective performance of product candidates in humans. The complexity of the human body cannot be perfectly, or sometimes, even adequately modeled by computer or cell culture systems or animal models. The length of time that it takes for us and our partners to complete clinical trials and obtain regulatory approval for product marketing has in the past varied and we expect similar variability in the future. We develop product candidates internally and through licensing collaborations, partnerships and joint ventures. Product candidates that are derived from relationships may be subject to disputes between the parties or may prove to be not as effective or as safe as we may have believed at the time of entering into such relationship. Also, we or others could identify safety, side effects or manufacturing problems with our products after they are on the market. Our business may be impacted by government investigations, litigation and product liability claims. If we fail to meet the compliance obligations in the corporate integrity agreement between us and the U.S. government, we could become subject to significant sanctions. We depend on third parties for a significant portion of our manufacturing capacity for the supply of certain of our current and future products and limits on supply may constrain sales of certain of our current products and product candidate development.

In addition, sales of our products (including products of our wholly-owned subsidiaries) are affected by the reimbursement policies imposed by third-party payers, including governments, private insurance plans and managed care providers and may be affected by regulatory, clinical and guideline developments and domestic and international trends toward managed care and healthcare cost containment as well as U.S. legislation affecting pharmaceutical pricing and reimbursement. Government and others' regulations and reimbursement policies may affect the development, usage and pricing of our products. In addition, we compete with other companies with respect to some of our marketed products as well as for the discovery and development of new products. We believe that some of our newer products, product candidates or new indications for existing products, may face competition when and as they are approved and marketed. Our products may compete against products that have lower prices, established reimbursement, superior performance, are easier to administer, or that are otherwise competitive with our products. In addition, while we and our partners routinely obtain patents for our and their products and technology, the protection of our products offered by patents and patent applications may be challenged, invalidated or circumvented by our or our partners' competitors and there can be no guarantee of our or our partners' ability to obtain or maintain patent protection for our products or product candidates. We cannot guarantee that we will be able to produce commercially successful products or maintain the commercial success of our existing products. Our stock price may be affected by actual or perceived market opportunity, competitive position, and success or failure of our products or product candidates. Further, the discovery of significant problems with a product similar to one of our products that implicate an entire class of products could have a material adverse effect on sales of the affected products and on our business and results of operations. Our efforts to integrate the operations of companies we have acquired may not be successful. We may experience difficulties, delays or unexpected costs and not achieve anticipated benefits and savings from our ongoing restructuring plans. Our business performance could affect or limit the ability of our Board of Directors to declare a dividend or our ability to pay a dividend or repurchase common stock.

The scientific information discussed in this news release relating to new indications for Amgen's products is preliminary and investigative and is not part of the labeling approved by the U.S. Food and Drug Administration for the products. The products are not approved for the investigational use(s) discussed in this news release and no conclusions can or should be drawn regarding the safety or effectiveness of the products for these uses.

CONTACT: Amgen, Thousand Oaks
Kristen Davis, 805-447-3008 (Media)
Kristen Neese, 805-313-8267 (Media)
Arvind Sood, 805-447-1060 (Investors)

References:

1. Bajar R et al. Recent developments in myelodysplastic syndromes. *Blood*. 2014; 124(18):2793-803.
2. National Cancer Institute. Myelodysplastic Syndromes Treatment (PDQ®). http://www.cancer.gov/types/myeloproliferative/patient/myelodysplastic-treatment-pdq#section/_1. Accessed February 5, 2016.
3. Kurtin et al. Patient and Family Resources for Living With Myelodysplastic Syndromes. *Clin J Oncol Nurs*. 2012;16 Suppl:58-64.
4. Myelodysplastic Syndromes Foundation. Understanding Myelodysplastic Syndromes (MDS). http://www.mds-foundation.org/what-is-mds/. Accessed February 5, 2016.

Logo - http://photos.prnewswire.com/prnh/20081015/AMGENLOGO