



## Amgen To Present New Data At 22nd Congress of the European Hematology Association

June 21, 2017

**Oral Presentation of Phase 3 Data Shows KYPROLIS® (Carfilzomib) and Dexamethasone Improved Median Overall Survival by 7.6 Months Compared to Velcade® (Bortezomib) and Dexamethasone in Relapsed Multiple Myeloma**  
**New Subset Analysis Demonstrates BLINCYTO® (Blinatumomab) More Than Doubled Median Overall Survival Versus Standard of Care Chemotherapy in Adult Patients With Relapsed/Refractory Philadelphia Chromosome-Negative Acute Lymphoblastic Leukemia in First Salvage**

**Oral Presentation of New Data From Head-to-Head Phase 3 Study of XGEVA® (Denosumab) Versus Zoledronic Acid in Time to First On-Study Skeletal-Related Event in Multiple Myeloma Patients**

THOUSAND OAKS, Calif., June 21, 2017 /PRNewswire/ -- Amgen (NASDAQ: AMGN) today announced that new clinical data and analyses from its hematology portfolio will be presented at the 22<sup>nd</sup> Congress of the European Hematology Association (EHA) in Madrid, June 22-25, 2017. Key data will be presented from studies evaluating KYPROLIS® (carfilzomib), BLINCYTO® (blinatumomab), XGEVA® (denosumab) and Nplate® (romiplostim).

"Helping patients live longer is the ultimate goal of all of our oncology therapeutic research and development," said Sean E. Harper, M.D., executive vice president of Research and Development at Amgen. "The KYPROLIS and BLINCYTO overall survival data at EHA are impressive and give us confidence that we are making significant progress finding effective new therapies for these difficult-to-treat cancers."

KYPROLIS® is the first-and-only multiple myeloma therapy to demonstrate superior overall survival in a head-to-head comparison with a current standard of care, extending survival by 7.6 months over Velcade® (bortezomib).<sup>1</sup> These results from the ENDEAVOR trial will be featured in an oral presentation at EHA.

- **Overall Survival of Patients With Relapsed or Refractory Multiple Myeloma Treated With Carfilzomib and Dexamethasone Versus Bortezomib and Dexamethasone in the Randomized Phase 3 ENDEAVOR Trial**  
Abstract #S458, Oral Presentation, Saturday, June 24 at 4:30 p.m. CET in Feria de Madrid, Hall A
- **Updated Results From ASPIRE and ENDEAVOR, Randomised, Open-Label, Multicentre Phase 3 Studies Of Carfilzomib in Patients With Relapsed/Refractory Multiple Myeloma (RRMM)**  
Abstract #P333, Poster Presentation, Friday, June 23 at 5:15 p.m. CET in Feria de Madrid, Poster Area (Hall 7)

A new analysis will be presented from the Phase 3 TOWER study, which demonstrated that in adult patients treated with no prior salvage therapy, BLINCYTO more than doubled median overall survival compared to standard of care chemotherapy in Philadelphia chromosome-negative (Ph-) relapsed or refractory B-cell precursor acute lymphoblastic leukemia (ALL). These data come from a subgroup analysis, and TOWER was not powered to assess overall survival efficacy in this subgroup.

- **Blinatumomab Versus SOC Chemotherapy in First Salvage Compared With Second or Greater Salvage in a Phase 3 Study**  
Abstract #S478, Oral Presentation, Saturday, June 24 at 4:30 p.m. CET in Feria de Madrid, Hall E
- **Exposure-Adjusted Adverse Events Comparing Blinatumomab With Standard of Care Chemotherapy in Adults With Relapsed/Refractory B-Precursor Acute Lymphoblastic Leukemia From a Randomized Phase 3 Study**  
Abstract #P524, Poster Presentation, Saturday, June 24 at 5:30 p.m. CET in Feria de Madrid, Poster Area (Hall 7)
- **Blinatumomab Use in Pediatric and Adolescent Patients With Relapsed/Refractory B-Precursor Acute Lymphoblastic Leukemia From an Open-Label, Multicenter, Expanded Access Study**  
Abstract #P521, Poster Presentation, Saturday, June 24 at 5:30 p.m. CET in Feria de Madrid, Poster Area (Hall 7)

New XGEVA data will be presented during an oral session, highlighting results from a post-hoc, 15-month landmark analysis of the Phase 3 '482 study, the largest international multiple myeloma trial ever conducted. This analysis demonstrated an improved delay in time to first skeletal-related event for the XGEVA treated patients. The study endpoint and the analysis were not powered to determine efficacy.

- **Comparison of Denosumab (DMB) With Zoledronic Acid (ZA) for the Treatment of Bone Disease in Patients (Pts) With Newly Diagnosed Multiple Myeloma; an International, Randomized, Double Blind Trial**  
Abstract #S782, Oral Presentation, Sunday, June 25 at 8:45 a.m. CET in Feria de Madrid, Hall D

On June 16, the U.S. Food and Drug Administration (FDA) accepted for review the XGEVA supplemental Biologics License Application that seeks to expand the currently approved indication for the prevention of skeletal-related events in patients with bone metastases from solid tumors to include patients with multiple myeloma. The Prescription Drug User Fee Act (PDUFA) target action date is Feb. 3, 2018. Data from the '482 study are also the basis of an application for a variation to the marketing authorization submitted to the European Medicines Agency. Currently, XGEVA is not indicated for the prevention of skeletal-related events in patients with multiple myeloma.

The Nplate abstracts to be presented at EHA include data from an ongoing, open-label extension study evaluating the safety and efficacy of Nplate in children with immune thrombocytopenia (ITP):

- **Safety and Efficacy of Long-Term Open-Label Dosing of Subcutaneous (Sc) Romiplostim in Children With Immune**

## **Thrombocytopenia (ITP)**

Abstract #P727, Poster Presentation, Saturday, June 24 at 5:30 p.m. CET in Feria de Madrid, Poster Area (Hall 7)

### **• A Single-Arm, Open-Label, Long-Term Efficacy and Safety Study of Subcutaneous (Sc) Romiplostim in Children With Immune Thrombocytopenia (ITP)**

Abstract #P367, Poster Presentation, Friday, June 23 at 5:15 p.m. CET in Feria de Madrid, Poster Area (Hall 7)

Abstracts are currently available on the [EHA website](#).

## **About KYPROLIS® (carfilzomib)**

Proteasomes play an important role in cell function and growth by breaking down proteins that are damaged or no longer needed.<sup>2</sup> KYPROLIS has been shown to block proteasomes, leading to an excessive build-up of proteins within cells.<sup>2</sup> In some cells, KYPROLIS can cause cell death, especially in myeloma cells because they are more likely to contain a higher amount of abnormal proteins.<sup>2,3</sup>

KYPROLIS is approved in the U.S. for the following:

- In combination with dexamethasone or with lenalidomide plus dexamethasone for the treatment of patients with relapsed or refractory multiple myeloma who have received one to three lines of therapy.
- As a single agent for the treatment of patients with relapsed or refractory multiple myeloma who have received one or more lines of therapy.

KYPROLIS is also approved in Argentina, Australia, Bahrain, Canada, Hong Kong, Israel, Japan, Kuwait, Lebanon, Macao, Mexico, Thailand, Colombia, S. Korea, Canada, Qatar, Switzerland, United Arab Emirates, Turkey, Russia, Brazil, India and the European Union. Additional regulatory applications for KYPROLIS are underway and have been submitted to health authorities worldwide.

For more U.S. information, please visit [www.kyprolis.com](http://www.kyprolis.com).

## **Important EU Product Safety Information**

This medicinal product is subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions.

Kyprolis treatment should be supervised by a physician experienced in the use of anti-cancer therapy. The most serious side effects that may occur during Kyprolis treatment include: Cardiac toxicity, pulmonary toxicities, pulmonary hypertension, dyspnea, hypertension including hypertensive crises, acute renal failure, tumor lysis syndrome, infusion reactions, thrombocytopenia, hepatic toxicity, posterior reversible encephalopathy syndrome (PRES) and thrombotic thrombocytopenic purpura/hemolytic uremic syndrome (TTP/HUS). The most common side effects are anemia, fatigue, diarrhea, thrombocytopenia, nausea, pyrexia, dyspnea, respiratory tract infection, cough and peripheral edema.

Please refer to the Summary of Product Characteristics for full European prescribing information.

## **Important U.S. Product Safety Information**

### **Cardiac Toxicities**

- New onset or worsening of pre-existing cardiac failure (e.g., congestive heart failure, pulmonary edema, decreased ejection fraction), restrictive cardiomyopathy, myocardial ischemia, and myocardial infarction including fatalities have occurred following administration of KYPROLIS. Some events occurred in patients with normal baseline ventricular function. Death due to cardiac arrest has occurred within one day of KYPROLIS administration.
- Monitor patients for clinical signs or symptoms of cardiac failure or cardiac ischemia. Evaluate promptly if cardiac toxicity is suspected. Withhold KYPROLIS for Grade 3 or 4 cardiac adverse events until recovery, and consider whether to restart KYPROLIS at 1 dose level reduction based on a benefit/risk assessment.
- While adequate hydration is required prior to each dose in Cycle 1, monitor all patients for evidence of volume overload, especially patients at risk for cardiac failure. Adjust total fluid intake as clinically appropriate in patients with baseline cardiac failure or who are at risk for cardiac failure.
- Patients  $\geq$  75 years, the risk of cardiac failure is increased. Patients with New York Heart Association Class III and IV heart failure, recent myocardial infarction, conduction abnormalities, angina, or arrhythmias may be at greater risk for cardiac complications and should have a comprehensive medical assessment (including blood pressure and fluid management) prior to starting treatment with KYPROLIS and remain under close follow-up.

### **Acute Renal Failure**

- Cases of acute renal failure and renal insufficiency adverse events (including renal failure) have occurred in patients receiving KYPROLIS. Acute renal failure was reported more frequently in patients with advanced relapsed and refractory multiple myeloma who received KYPROLIS monotherapy. Monitor renal function with regular measurement of the serum creatinine and/or estimated creatinine clearance. Reduce or withhold dose as appropriate.

### **Tumor Lysis Syndrome**

- Cases of Tumor Lysis Syndrome (TLS), including fatal outcomes, have occurred in patients receiving KYPROLIS. Patients

with multiple myeloma and a high tumor burden should be considered at greater risk for TLS. Adequate hydration is required prior to each dose in Cycle 1, and in subsequent cycles as needed. Consider uric acid lowering drugs in patients at risk for TLS. Monitor for evidence of TLS during treatment and manage promptly. Withhold KYPROLIS until TLS is resolved.

#### **Pulmonary Toxicity**

- Acute Respiratory Distress Syndrome (ARDS), acute respiratory failure, and acute diffuse infiltrative pulmonary disease such as pneumonitis and interstitial lung disease have occurred in patients receiving KYPROLIS. Some events have been fatal. In the event of drug-induced pulmonary toxicity, discontinue KYPROLIS.

#### **Pulmonary Hypertension**

- Pulmonary arterial hypertension (PAH) was reported in patients treated with KYPROLIS. Evaluate with cardiac imaging and/or other tests as indicated. Withhold KYPROLIS for PAH until resolved or returned to baseline and consider whether to restart KYPROLIS based on a benefit/risk assessment.

#### **Dyspnea**

- Dyspnea was reported in patients treated with KYPROLIS. Evaluate dyspnea to exclude cardiopulmonary conditions including cardiac failure and pulmonary syndromes. Stop KYPROLIS for Grade 3 or 4 dyspnea until resolved or returned to baseline. Consider whether to restart KYPROLIS based on a benefit/risk assessment.

#### **Hypertension**

- Hypertension, including hypertensive crisis and hypertensive emergency, has been observed with KYPROLIS. Some of these events have been fatal. Monitor blood pressure regularly in all patients. If hypertension cannot be adequately controlled, withhold KYPROLIS and evaluate. Consider whether to restart KYPROLIS based on a benefit/risk assessment.

#### **Venous Thrombosis**

- Venous thromboembolic events (including deep venous thrombosis and pulmonary embolism) have been observed with KYPROLIS. Thromboprophylaxis is recommended for patients being treated with the combination of KYPROLIS with dexamethasone or with lenalidomide plus dexamethasone. The thromboprophylaxis regimen should be based on an assessment of the patient's underlying risks.
- Patients using oral contraceptives or a hormonal method of contraception associated with a risk of thrombosis should consider an alternative method of effective contraception during treatment with KYPROLIS in combination with dexamethasone or lenalidomide plus dexamethasone.

#### **Infusion Reactions**

- Infusion reactions, including life-threatening reactions, have occurred in patients receiving KYPROLIS.
- Symptoms include fever, chills, arthralgia, myalgia, facial flushing, facial edema, vomiting, weakness, shortness of breath, hypotension, syncope, chest tightness, or angina. These reactions can occur immediately following or up to 24 hours after administration of KYPROLIS. Premedicate with dexamethasone to reduce the incidence and severity of infusion reactions. Inform patients of the risk and of symptoms of an infusion reaction and to contact a physician immediately if they occur.

#### **Hemorrhage**

- Fatal or serious cases of hemorrhage have been reported in patients receiving KYPROLIS. Hemorrhagic events have included gastrointestinal, pulmonary, and intracranial hemorrhage and epistaxis. Promptly evaluate signs and symptoms of blood loss. Reduce or withhold dose as appropriate.

#### **Thrombocytopenia**

- KYPROLIS causes thrombocytopenia with recovery to baseline platelet count usually by the start of the next cycle. Thrombocytopenia was reported in patients receiving KYPROLIS. Monitor platelet counts frequently during treatment with KYPROLIS. Reduce or withhold dose as appropriate.

#### **Hepatic Toxicity and Hepatic Failure**

- Cases of hepatic failure, including fatal cases, have been reported during treatment with KYPROLIS. KYPROLIS can cause increased serum transaminases. Monitor liver enzymes regularly regardless of baseline values. Reduce or withhold dose as appropriate.

#### **Thrombotic Microangiopathy**

- Cases of thrombotic microangiopathy, including thrombotic thrombocytopenic purpura/hemolytic uremic syndrome (TTP/HUS), including fatal outcome have occurred in patients receiving KYPROLIS. Monitor for signs and symptoms of TTP/HUS. Discontinue KYPROLIS if diagnosis is suspected. If the diagnosis of TTP/HUS is excluded, KYPROLIS may be restarted. The safety of reinitiating KYPROLIS therapy in patients previously experiencing TTP/HUS is not known.

#### **Posterior Reversible Encephalopathy Syndrome (PRES)**

- Cases of PRES have occurred in patients receiving KYPROLIS. PRES was formerly known as Reversible Posterior Leukoencephalopathy Syndrome. Consider a neuro-radiological imaging (MRI) for onset of visual or neurological symptoms. Discontinue KYPROLIS if PRES is suspected and evaluate. The safety of reinitiating KYPROLIS therapy in patients previously experiencing PRES is not known.

#### **Increased Fatal and Serious Toxicities in Combination with Melphalan and Prednisone in Newly Diagnosed Transplant-ineligible Patients**

- In a clinical trial of transplant-ineligible patients with newly diagnosed multiple myeloma comparing KYPROLIS, melphalan, and prednisone (KMP) vs bortezomib, melphalan, and prednisone (VMP), a higher incidence of serious and fatal adverse events was observed in patients in the KMP arm. KYPROLIS in combination with melphalan and prednisone is not indicated for transplant-ineligible patients with newly diagnosed multiple myeloma.

#### **Embryo-fetal Toxicity**

- KYPROLIS can cause fetal harm when administered to a pregnant woman based on its mechanism of action and findings in animals.
- Females of reproductive potential should be advised to avoid becoming pregnant while being treated with KYPROLIS. Males of reproductive potential should be advised to avoid fathering a child while being treated with KYPROLIS. If this drug is used during pregnancy, or if pregnancy occurs while taking this drug, the patient should be apprised of the potential hazard to the fetus.

#### **ADVERSE REACTIONS**

- The most common adverse reactions occurring in at least 20% of patients treated with KYPROLIS in the combination therapy trials: anemia, neutropenia, diarrhea, dyspnea, fatigue, thrombocytopenia, pyrexia, insomnia, muscle spasm, cough, upper respiratory tract infection, hypokalemia.
- The most common adverse reactions occurring in at least 20% of patients treated with KYPROLIS in monotherapy trials: anemia, fatigue, thrombocytopenia, nausea, pyrexia, dyspnea, diarrhea, headache, cough, edema peripheral.

Please see full prescribing information at [www.kyprolis.com](http://www.kyprolis.com).

#### **About BLINCYTO® (blinatumomab)**

BLINCYTO is a bispecific CD19-directed CD3 T cell engager (BiTE®) antibody construct that binds specifically to CD19 expressed on the surface of cells of B-lineage origin and CD3 expressed on the surface of T cells.

BLINCYTO was granted breakthrough therapy and priority review designations by the FDA, and is now approved in the U.S. for the treatment of Ph-relapsed or refractory B-cell precursor ALL. This indication is approved under accelerated approval. Continued approval for this indication may be contingent upon verification of clinical benefit in subsequent trials.

In November 2015, BLINCYTO was granted conditional marketing authorization in the European Union for the treatment of adults with Ph- relapsed or refractory B-cell precursor ALL.

#### **Important EU BLINCYTO® (blinatumomab) Safety Information**

**This product is subject to additional monitoring in the EU. All suspected adverse reactions should be reported in accordance with the national reporting system.**

The adverse reactions described in this section were identified in the pivotal clinical study (N=189). The most serious adverse reactions that may occur during blinatumomab treatment include: infections (31.7%), neurologic events (16.4%), neutropenia/febrile neutropenia (15.3%), cytokine release syndrome (0.5%), and tumor lysis syndrome (0.5%). The most common adverse reactions were: infusion-related reactions (67.2%), infections (63.0%), pyrexia (59.8%), headache (34.4%), febrile neutropenia (28%), peripheral edema (25.9%), nausea (24.3%), hypokalaemia (23.8%), constipation (20.6%), anaemia (20.1%), cough (18.5%), diarrhea (18.0%), tremor (17.5%), neutropenia (17.5%), abdominal pain (16.9%), insomnia (15.3%), fatigue (15.3%), and chills (15.3%).

Please refer to the Summary of Product Characteristics for full European prescribing information.

#### **Important Safety Information Regarding BLINCYTO® (blinatumomab) U.S. Indication**

##### **WARNING: CYTOKINE RELEASE SYNDROME and NEUROLOGICAL TOXICITIES**

- **Cytokine Release Syndrome (CRS), which may be life-threatening or fatal, occurred in patients receiving BLINCYTO®. Interrupt or discontinue BLINCYTO® as recommended.**

- **Neurological toxicities, which may be severe, life-threatening or fatal, occurred in patients receiving BLINCYTO®. Interrupt or discontinue BLINCYTO® as recommended.**

#### **Contraindications**

BLINCYTO® is contraindicated in patients with a known hypersensitivity to blinatumomab or to any component of the product formulation.

#### **Warnings and Precautions**

- **Cytokine Release Syndrome (CRS):** CRS, which may be life-threatening or fatal, occurred in patients receiving BLINCYTO®. Infusion reactions have occurred and may be clinically indistinguishable from manifestations of CRS. Closely monitor patients for signs and symptoms of serious events such as pyrexia, headache, nausea, asthenia, hypotension, increased alanine aminotransferase (ALT), increased aspartate aminotransferase (AST), increased total bilirubin (TBILI), disseminated intravascular coagulation (DIC), capillary leak syndrome (CLS), and hemophagocytic lymphohistiocytosis/macrophage activation syndrome (HLH/MAS). Interrupt or discontinue BLINCYTO® as outlined in the Prescribing Information (PI).
- **Neurological Toxicities:** Approximately 64% of patients receiving BLINCYTO® in clinical trials experienced neurological toxicities. The median time to onset of any neurological toxicity was 4 days. The most common ( $\geq 10\%$ ) manifestations of neurological toxicity were headache, tremor, dizziness, and altered state of consciousness. Severe, life-threatening, or fatal neurological toxicities occurred in approximately 17% of patients, including encephalopathy, convulsions, speech disorders, disturbances in consciousness, confusion and disorientation, and coordination and balance disorders. The neurological toxicity profile varied by age group. Monitor patients for signs or symptoms and interrupt or discontinue BLINCYTO® as outlined in the PI.
- **Infections:** Approximately 25% of patients receiving BLINCYTO® experienced serious infections, some of which were life-threatening or fatal. Administer prophylactic antibiotics and employ surveillance testing as appropriate during treatment. Monitor patients for signs or symptoms of infection and treat appropriately, including interruption or discontinuation of BLINCYTO® as needed.
- **Tumor Lysis Syndrome (TLS):** TLS, which may be life-threatening or fatal, has been observed. Preventive measures, including pretreatment nontoxic cytoreduction and on-treatment hydration, should be used during BLINCYTO® treatment. Monitor patients for signs and symptoms of TLS and interrupt or discontinue BLINCYTO® as needed to manage these events.
- **Neutropenia and Febrile Neutropenia,** including life-threatening cases, have been observed. Monitor appropriate laboratory parameters during BLINCYTO® infusion and interrupt BLINCYTO® if prolonged neutropenia occurs.
- **Effects on Ability to Drive and Use Machines:** Due to the possibility of neurological events, including seizures, patients receiving BLINCYTO® are at risk for loss of consciousness, and should be advised against driving and engaging in hazardous occupations or activities such as operating heavy or potentially dangerous machinery while BLINCYTO® is being administered.
- **Elevated Liver Enzymes:** Transient elevations in liver enzymes have been associated with BLINCYTO® treatment with a median time to onset of 3 days. In patients receiving BLINCYTO®, although the majority of these events were observed in the setting of CRS, some cases of elevated liver enzymes were observed outside the setting of CRS, with a median time to onset of 15 days. Grade 3 or greater elevations in liver enzymes occurred in 6% of patients outside the setting of CRS and resulted in treatment discontinuation in less than 1% of patients. Monitor ALT, AST, gamma-glutamyl transferase (GGT), and TBILI prior to the start of and during BLINCYTO® treatment. BLINCYTO® treatment should be interrupted if transaminases rise to  $> 5$  times the upper limit of normal (ULN) or if TBILI rises to  $> 3$  times ULN.
- **Pancreatitis:** Fatal pancreatitis has been reported in patients receiving BLINCYTO® in combination with dexamethasone in clinical trials and the post-marketing setting. Evaluate patients who develop signs and symptoms of pancreatitis and interrupt or discontinue BLINCYTO® and dexamethasone as needed.
- **Leukoencephalopathy:** Although the clinical significance is unknown, cranial magnetic resonance imaging (MRI) changes showing leukoencephalopathy have been observed in patients receiving BLINCYTO®, especially in patients previously treated with cranial irradiation and antileukemic chemotherapy.
- **Preparation and administration errors** have occurred with BLINCYTO® treatment. Follow instructions for preparation (including admixing) and administration in the PI strictly to minimize medication errors (including underdose and overdose).
- **Immunization:** Vaccination with live virus vaccines is not recommended for at least 2 weeks prior to the start of BLINCYTO® treatment, during treatment, and until immune recovery following last cycle of BLINCYTO®.
- **Risk of Serious Adverse Reactions in Pediatric Patients due to Benzyl Alcohol Preservative:** Serious and fatal adverse reactions including "gasping syndrome," which is characterized by central nervous system depression, metabolic acidosis, and gasping respirations, can occur in neonates and infants treated with benzyl alcohol-preserved drugs including BLINCYTO® (with preservative). When prescribing BLINCYTO® (with preservative) for pediatric patients, consider combined daily metabolic load of benzyl alcohol from all sources including BLINCYTO® (with preservative) and other drugs containing benzyl alcohol, as the minimum amount of benzyl alcohol at which serious adverse reactions may occur is not

known. Due to the addition of bacteriostatic saline, 7-day bags of BLINCYTO® solution for infusion with preservative contain benzyl alcohol and are not recommended for use in any patients weighing < 22kg.

### Adverse Reactions

- The most common adverse reactions (≥ 20%) in the safety population studied in clinical trials were pyrexia (66%), headache (34%), nausea (27%), edema (26%), hypokalemia (26%), anemia (25%), febrile neutropenia (24%), neutropenia (22%), thrombocytopenia (20%), and abdominal pain (20%). The safety population included 225 patients weighing 45 kg or more and 57 patients weighing less than 45 kg. For some adverse reactions, there were differences in the incidence rates by age subgroup.
- In patients weighing greater than or equal to 45 kg, serious adverse reactions were reported in 61% of patients. The most common serious adverse reactions (≥ 2%) included febrile neutropenia (9%), pyrexia (6%), sepsis (5%), pneumonia (5%), device-related infection (4%), neutropenia (3%), tremor (3%), overdose (3%), encephalopathy (3%), infection (2%), confusion (3%) and headache (2%).
- In patients weighing less than 45 kg, serious adverse reactions were reported in 51% of patients. The most common serious adverse reactions (≥ 2%) included pyrexia (12%), febrile neutropenia (9%), cytokine release syndrome (4%), convulsion (4%), device-related infection (4%), hypoxia (4%), sepsis (4%), and overdose (4%).

### U.S. Dosage and Administration Guidelines

- BLINCYTO® is administered as a continuous intravenous infusion at a constant flow rate using an infusion pump which should be programmable, lockable, non-elastomeric, and have an alarm.
- It is very important that the instructions for preparation (including admixing) and administration provided in the full Prescribing Information are strictly followed to minimize medication errors (including underdose and overdose).

Please see full Prescribing Information, including **Boxed WARNINGS** and Medication Guide, for BLINCYTO® at [www.BLINCYTO.com](http://www.BLINCYTO.com).

### About XGEVA® (denosumab)

XGEVA targets the RANK Ligand pathway to prevent the formation, function and survival of osteoclasts, which break down bone. XGEVA is indicated for the prevention of skeletal-related events in patients with bone metastases from solid tumors and for treatment of adults and skeletally mature adolescents with giant cell tumor of bone that is unresectable or where surgical resection is likely to result in severe morbidity. XGEVA is also indicated in the U.S. for the treatment of hypercalcemia of malignancy refractory to bisphosphonate therapy. XGEVA is not indicated for the prevention of skeletal-related events in patients with multiple myeloma.

### Important EU Product Safety Information

**Special Warnings and Precautions:** Pre-existing hypocalcaemia must be corrected prior to initiating therapy with XGEVA. Hypocalcaemia can occur at any time during therapy. Monitor calcium prior to initial dose, within two weeks of initial dose and if suspected symptoms of hypocalcaemia occur. Severe symptomatic hypocalcaemia has been reported. Consider additional monitoring of calcium level in patients with risk factors for hypocalcaemia or if otherwise indicated based on clinical condition of the patient. If hypocalcaemia occurs while receiving XGEVA, additional calcium supplementation and additional monitoring may be necessary.

Patients with severe renal impairment (creatinine clearance < 30ml/min) or receiving dialysis are at greater risk of developing hypocalcaemia; this risk and accompanying elevations in parathyroid hormone increases with increasing degree of renal impairment. Regular monitoring of calcium levels in these patients is especially important.

Osteonecrosis of the jaw (ONJ) has occurred commonly in patients treated with XGEVA. Delay treatment in patients with unhealed open soft tissue lesions in the mouth. A dental examination with preventive dentistry and an individual benefit-risk assessment is recommended prior to treatment. Refer to the SmPC for risk factors for ONJ. Patients should be encouraged to maintain good oral hygiene, receive routine dental check-ups and immediately report oral symptoms during treatment with XGEVA. While on treatment, invasive dental procedures should be performed only after careful consideration and avoided in close proximity to XGEVA administration. The management plan of patients who develop ONJ should be set up in close collaboration between the treating physician and a dentist or oral surgeon with expertise in ONJ.

Atypical femoral fracture (AFF) has been reported in patients receiving XGEVA. Discontinuation of XGEVA therapy in patients suspected to have AFF should be considered pending evaluation of the patient based on an individual benefit risk assessment. XGEVA is not recommended in patients with growing skeletons. Clinically significant hypercalcaemia has been reported in XGEVA-treated patients with growing skeletons weeks to months following treatment discontinuation. Patients being treated with XGEVA should not be treated concomitantly with other denosumab containing medicinal products (for osteoporosis indications) or with bisphosphonates. Patients with rare hereditary problems of fructose intolerance should not use XGEVA.

Adverse reactions in patients receiving XGEVA to prevent the occurrence of skeletal related events: very common (≥ 1/10) dyspnea, diarrhea and musculoskeletal pain; common (≥ 1/100 to < 1/10) hypocalcaemia, hypophosphatemia, tooth extraction, hyperhidrosis and osteonecrosis of the jaw; rare (≥ 1/10,000 to < 1/1000) drug hypersensitivity, anaphylactic reaction, atypical femoral fracture. In three phase III clinical trials, ONJ was confirmed in 1.8% of patients treated with XGEVA and 1.3% of patients treated with zoledronic acid (primary treatment phase). Among subjects with confirmed ONJ, most (81% in both treatment groups) had a history of tooth extraction, poor oral hygiene, and/or use of a dental appliance. Hypocalcaemia was reported in 9.6% of patients treated with XGEVA and 5.0% of patients treated with zoledronic acid. Neutralizing antibodies have not been observed in clinical studies. In the postmarketing setting, severe symptomatic hypocalcaemia (including fatal cases), hypersensitivity (including rare events of anaphylactic reaction) and musculoskeletal pain (including severe cases) have been reported. Please consult the SmPC for a full description of undesirable effects.

**Contraindications:** Severe, untreated hypocalcaemia; hypersensitivity to the active substance or to any of the excipients; unhealed lesions from dental or oral surgery.

## **U.S. Important Safety Information**

### **Hypocalcemia**

Pre-existing hypocalcemia must be corrected prior to initiating therapy with XGEVA®. XGEVA® can cause severe symptomatic hypocalcemia, and fatal cases have been reported. Monitor calcium levels, especially in the first weeks of initiating therapy, and administer calcium, magnesium, and vitamin D as necessary. Monitor levels more frequently when XGEVA® is administered with other drugs that can also lower calcium levels. Advise patients to contact a healthcare professional for symptoms of hypocalcemia.

An increased risk of hypocalcemia has been observed in clinical trials of patients with increasing renal dysfunction, most commonly with severe dysfunction (creatinine clearance less than 30 mL/minute and/or on dialysis), and with inadequate/no calcium supplementation. Monitor calcium levels and calcium and vitamin D intake.

### **Hypersensitivity**

XGEVA® is contraindicated in patients with known clinically significant hypersensitivity to XGEVA®, including anaphylaxis that has been reported with use of XGEVA®. Reactions may include hypotension, dyspnea, upper airway edema, lip swelling, rash, pruritus, and urticaria. If an anaphylactic or other clinically significant allergic reaction occurs, initiate appropriate therapy and discontinue XGEVA® therapy permanently.

### **Drug Products with Same Active Ingredient**

Patients receiving XGEVA® should not take Prolia® (denosumab).

### **Osteonecrosis of the Jaw**

Osteonecrosis of the jaw (ONJ) has been reported in patients receiving XGEVA®, manifesting as jaw pain, osteomyelitis, osteitis, bone erosion, tooth or periodontal infection, toothache, gingival ulceration, or gingival erosion. Persistent pain or slow healing of the mouth or jaw after dental surgery may also be manifestations of ONJ. In clinical trials in patients with osseous metastasis, the incidence of ONJ was higher with longer duration of exposure.

Patients with a history of tooth extraction, poor oral hygiene, or use of a dental appliance are at a greater risk to develop ONJ. Other risk factors for the development of ONJ include immunosuppressive therapy, treatment with angiogenesis inhibitors, systemic corticosteroids, diabetes, and gingival infections.

Perform an oral examination and appropriate preventive dentistry prior to the initiation of XGEVA® and periodically during XGEVA® therapy. Advise patients regarding oral hygiene practices. Avoid invasive dental procedures during treatment with XGEVA®. Consider temporarily interrupting XGEVA® therapy if an invasive dental procedure must be performed.

Patients who are suspected of having or who develop ONJ while on XGEVA® should receive care by a dentist or an oral surgeon. In these patients, extensive dental surgery to treat ONJ may exacerbate the condition.

### **Atypical Subtrochanteric and Diaphyseal Femoral Fracture**

Atypical femoral fracture has been reported with XGEVA®. These fractures can occur anywhere in the femoral shaft from just below the lesser trochanter to above the supracondylar flare and are transverse or short oblique in orientation without evidence of comminution.

Atypical femoral fractures most commonly occur with minimal or no trauma to the affected area. They may be bilateral and many patients report prodromal pain in the affected area, usually presenting as dull, aching thigh pain, weeks to months before a complete fracture occurs. A number of reports note that patients were also receiving treatment with glucocorticoids (e.g. prednisone) at the time of fracture. During XGEVA® treatment, patients should be advised to report new or unusual thigh, hip, or groin pain. Any patient who presents with thigh or groin pain should be suspected of having an atypical fracture and should be evaluated to rule out an incomplete femur fracture. Patients presenting with an atypical femur fracture should also be assessed for symptoms and signs of fracture in the contralateral limb. Interruption of XGEVA® therapy should be considered, pending a risk/benefit assessment, on an individual basis.

### **Hypercalcemia Following Treatment Discontinuation in Patients with Growing Skeletons**

Clinically significant hypercalcemia has been reported in XGEVA® treated patients with growing skeletons, weeks to months following treatment discontinuation. Monitor patients for signs and symptoms of hypercalcemia and treat appropriately.

### **Embryo-Fetal Toxicity**

XGEVA® can cause fetal harm when administered to a pregnant woman. Based on findings in animals, XGEVA® is expected to result in adverse reproductive effects. Advise females of reproductive potential to use highly effective contraception during therapy, and for at least 5 months after the last dose of XGEVA®. Apprise the patient of the potential hazard to a fetus if XGEVA® is used during pregnancy or if the patient becomes pregnant while patients are exposed to XGEVA®.

### **Adverse Reactions**

The most common adverse reactions in patients receiving XGEVA® with bone metastasis from solid tumors were fatigue/asthenia, hypophosphatemia, and nausea. The most common serious adverse reaction was dyspnea.

The most common adverse reactions resulting in discontinuation were osteonecrosis and hypocalcemia. The most common adverse reactions in patients receiving XGEVA® for giant cell tumor of bone were arthralgia, headache, nausea, back pain, fatigue, and pain in extremity. The most common serious adverse reactions were osteonecrosis of the jaw and osteomyelitis. The most common adverse reactions resulting in discontinuation of XGEVA® were osteonecrosis of the jaw and tooth abscess or tooth infection. The most common adverse reactions in patients receiving XGEVA® for hypercalcemia of malignancy were nausea, dyspnea, decreased appetite, headache, peripheral edema, vomiting, anemia, constipation, and diarrhea.

Denosumab is also marketed as Prolia® in other indications.

Please visit [www.amgen.com](http://www.amgen.com) or [www.xgeva.com](http://www.xgeva.com) for Full U.S. Prescribing Information.

### **About Nplate® (romiplostim)**

Nplate is approved in over 50 countries worldwide, including the U.S., European Union (EU), Canada, Australia, Russia, Mexico, Switzerland, Lichtenstein, Japan, Argentina, Israel, South Korea, Hong Kong, and Chile. Nplate also has received orphan designation for chronic ITP in the U.S. (2003), the EU (2005) and other parts of the world.

Nplate is the first FDA-approved treatment specifically for adult chronic ITP.

In the U.S., Nplate is indicated for the treatment of thrombocytopenia in patients with chronic ITP who have had an insufficient response to corticosteroids, immunoglobulins or splenectomy. Nplate is not indicated for the treatment of thrombocytopenia due to myelodysplastic syndrome (MDS) or any cause of thrombocytopenia other than chronic ITP. Nplate should be used only in patients with ITP whose degree of thrombocytopenia and clinical condition increase the risk for bleeding. Nplate should not be used in an attempt to normalize platelet counts.

In the EU, Nplate is indicated for adult chronic-immune (idiopathic)-thrombocytopenic-purpura (ITP) patients who are refractory to other treatments (e.g. corticosteroids, immunoglobulins).

Nplate was named as a recipient of the U.S. Prix Galien 2009 "Best Biotechnology Product" award and also received the 2009 Scrip Awards for "Best New Drug." Nplate has also been honored with numerous awards throughout the EU, including a 2010 Prix Galien in France in the category of "Drugs for Rare Diseases," and the 2011 Prix Galien in Germany in the category of "Specialist Care." In September 2010, Nplate was awarded the 2010 International Prix Galien Award, an award granted every two years which recognizes the "best of the best" selected from previous national Prix Galien award recipients.

For more information about Nplate, please visit [www.Nplate.com](http://www.Nplate.com).

### **Important EU Nplate® Safety Information**

The EU Summary of Product Characteristics for Nplate lists the following Special Warnings and Precautions: Reoccurrence of thrombocytopenia and bleeding after cessation of treatment, increased bone marrow reticulin, thrombotic/thromboembolic complications, progression of existing MDS (in patients with MDS), medication errors, loss of response to Nplate, and effects on red and white blood cells.

The most common adverse reactions observed include hypersensitivity reactions (including cases of rash, urticarial and angioedema) and headache. As with all therapeutic proteins, there is a potential for immunogenicity.

**Please refer to the Summary of Product Characteristics for full European prescribing information.**

### **Important U.S. Nplate® Safety Information**

#### **Risk of Progression of Myelodysplastic Syndromes to Acute Myelogenous Leukemia**

- In Nplate® clinical trials of patients with myelodysplastic syndromes (MDS) and severe thrombocytopenia, progression from MDS to acute myelogenous leukemia (AML) has been observed.
- Nplate® is not indicated for the treatment of thrombocytopenia due to MDS or any cause of thrombocytopenia other than chronic ITP.

#### **Thrombotic/Thromboembolic Complications**

- Thrombotic/thromboembolic complications may result from increases in platelet counts with Nplate® use. Portal vein thrombosis has been reported in patients with chronic liver disease receiving Nplate®.
- To minimize the risk for thrombotic/thromboembolic complications, do not use Nplate® in an attempt to normalize platelet counts. Follow the dose adjustment guidelines to achieve and maintain a platelet count of  $\geq 50 \times 10^9/L$ .

#### **Loss of Response to Nplate®**

- Hyporesponsiveness or failure to maintain a platelet response with Nplate® should prompt a search for causative factors, including neutralizing antibodies to Nplate®.
- To detect antibody formation, submit blood samples to Amgen (1-800-772-6436). Amgen will assay these samples for antibodies to Nplate® and thrombopoietin (TPO).
- Discontinue Nplate® if the platelet count does not increase to a level sufficient to avoid clinically important bleeding after 4 weeks at the highest weekly dose of 10 mcg/kg.

#### **Laboratory Monitoring**

- Obtain CBCs, including platelet counts, weekly during the dose adjustment phase of Nplate® therapy and then monthly following establishment of a stable Nplate® dose.
- Obtain CBCs, including platelet counts, weekly for at least two weeks following discontinuation of Nplate®.

#### **Adverse Reactions**

- In the placebo-controlled trials, headache was the most commonly reported adverse drug reaction, occurring in 35% of patients receiving Nplate<sup>®</sup> and 32% of patients receiving placebo. Headaches were usually of mild or moderate severity.
- Most common adverse reactions (≥ 5% higher patient incidence in Nplate<sup>®</sup> versus placebo) were Arthralgia (26%, 20%), Dizziness (17%, 0%), Insomnia (16%, 7%), Myalgia (14%, 2%), Pain in Extremity (13%, 5%), Abdominal Pain (11%, 0%), Shoulder Pain (8%, 0%), Dyspepsia (7%, 0%), and Paresthesia (6%, 0%).
- Nplate<sup>®</sup> administration may increase the risk for development or progression of reticulin fiber formation within the bone marrow. This formation may improve upon discontinuation of Nplate<sup>®</sup>. In a clinical trial, one patient with ITP and hemolytic anemia developed marrow fibrosis with collagen during Nplate<sup>®</sup> therapy.

Please see full U.S. Prescribing Information and Medication Guide at [www.Nplate.com](http://www.Nplate.com).

#### **About Amgen's Commitment to Oncology**

Amgen Oncology is committed to helping patients take on some of the toughest cancers, such as those that have been resistant to drugs, those that progress rapidly through the body and those where limited treatment options exist. Amgen's supportive care treatments help patients combat certain side effects of strong chemotherapy, and our targeted medicines and immunotherapies focus on more than a dozen different malignancies, ranging from blood cancers to solid tumors. With decades of experience providing therapies for cancer patients, Amgen continues to grow its portfolio of innovative and biosimilar oncology medicines.

#### **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 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](http://www.amgen.com) and follow us on [www.twitter.com/amgen](http://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. 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 reports filed by Amgen, including our most recent annual report on Form 10-K and any subsequent periodic reports on Form 10-Q and Form 8-K. Unless otherwise noted, Amgen is providing this information as of the date of this news release and does not undertake any obligation to update any forward-looking statements contained in this document as a result of new information, future events or otherwise.

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 to complete clinical trials and obtain regulatory approval for product marketing has in the past varied and we expect similar variability in the future. Even when clinical trials are successful, regulatory authorities may question the sufficiency for approval of the trial endpoints we have selected. 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 results may be affected by our ability to successfully market both new and existing products domestically and internationally, clinical and regulatory developments involving current and future products, sales growth of recently launched products, competition from other products including biosimilars, difficulties or delays in manufacturing our products and global economic conditions. In addition, sales of our products are affected by pricing pressure, political and public scrutiny and 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. Furthermore, our research, testing, pricing, marketing and other operations are subject to extensive regulation by domestic and foreign government regulatory authorities. 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. In addition, our business may be impacted by the adoption of new tax legislation or exposure to additional tax liabilities. 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. Further, while we routinely obtain patents for our products and technology, the protection offered by our patents and patent applications may be challenged, invalidated or circumvented by our competitors, or we may fail to prevail in present and future intellectual property litigation. We perform a substantial amount of our commercial manufacturing activities at a few key facilities and also depend on third parties for a portion of our manufacturing activities, and limits on supply may constrain sales of certain of our current products and product candidate development. In addition, we compete with other companies with respect to many of our marketed products as well as for the discovery and development of new products. Further, some raw materials, medical devices and component parts for our products are supplied by sole third-party suppliers. Certain of our distributors, customers and payers have substantial purchasing leverage in their dealings with us. 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 acquire other companies or products and to integrate the operations of companies we have acquired may not be successful. We may not be able to access the capital and credit markets on terms that are favorable to us, or at all. We are increasingly dependent on

information technology systems, infrastructure and data security. Our stock price is volatile and may be affected by a number of events. 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 our common stock.

The scientific information discussed in this news release relating to new indications for our 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)

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