



Amgen Presents Several Sub-Analyses At ASBMR From The Ongoing Open-Label Extension Study Of The Pivotal Phase 3 Prolia Fracture Trial

October 14, 2012

Prolia Open-Label Extension Trial Showed Continued Increases in Bone Mineral Density and Low Fracture Incidence Over Six Years

THOUSAND OAKS, Calif., Oct. 14, 2012 /PRNewswire/ -- Amgen (NASDAQ:AMGN) today announced that it has presented data from several Prolia® (denosumab) studies, including data from the open-label extension study of the pivotal Phase 3 fracture trial, which showed continued increases in bone mineral density (BMD) and low fracture incidence over six years. These data, and those from several key studies, were presented at the American Society for Bone and Mineral Research (ASBMR) 2012 Annual Meeting in Minneapolis from Oct. 12-15, 2012.

"The data presented provide additional insight into the long-term clinical profile of Prolia," said Sean E. Harper, M.D., executive vice president of Research and Development at Amgen. "Given the increasing burden of osteoporosis in an aging population, it is important to see that continued Prolia therapy may provide ongoing benefit."

SELECTED ABSTRACTS OF INTEREST INCLUDE:

Abstracts are available on the ASBMR website at www.asbmr.org and updated data have been presented at the meeting.

- **Relationship Between Changes in Bone Mineral Density (BMD) and Incidence of Fracture with 6 Years of Denosumab Treatment**

Lead Author: PD Miller, M.D., University of Colorado Health Science Center and Colorado Center for Bone Research (Abstract No. 1099; Oral Presentation; October 14)

- Nearly all women who received six years of denosumab treatment showed gains in BMD at the lumbar spine, total hip or femoral neck: 95 percent demonstrated gains of greater than six percent at any of these sites. The risk for new or worsening vertebral fracture and nonvertebral fracture decreased with increasing percentage change in total hip BMD over six years.

- **Long-term Denosumab Treatment Maintains Low Incidence of Fracture in Postmenopausal Women ≥ 75 Years with Osteoporosis**

Lead Author: S. Papapoulos, M.D., Leiden University Medical Center (Abstract No. FR0391; Plenary Poster; October 12)

- Despite the increase in age of the patients during the pivotal Phase 3 fracture study extension, denosumab treatment continued to be associated with a low incidence of new vertebral, nonvertebral and hip fractures.
- The incidence of fractures in patients ≥ 75 years in the study extension was similar to what was originally observed in women older than 75 years in the original pivotal Phase 3 fracture study.

- **Effects of 5 Years of Denosumab on Bone Histology and Histomorphometry: FREEDOM Study Extension**

Lead Author: JP Brown, M.D., Laval University and CHUQ (Abstract No. 1134; Oral Presentation; October 14)

- Denosumab treatment through five years resulted in normal bone quality with reduced bone turnover, consistent with its mechanism of action.

About Osteoporosis

Osteoporosis, which causes more than 2 million bone breaks each year, is a growing concern among health professionals as more than 40 million people are either living with, or at risk for developing, the disease. The World Health Organization has officially declared osteoporosis a public health crisis, while the International Osteoporosis Foundation urges governments worldwide to make osteoporosis a healthcare priority.

In the United States (U.S.), the number of fractures due to osteoporosis is expected to rise to more than 3 million by 2025.¹ In 2000, the number of osteoporotic fractures in Europe was estimated at 3.79 million, of which 890,000 were hip fractures.² Since 2001, the incidence of hip fractures in European countries has risen significantly.³

In 2005, osteoporosis-related fractures were responsible for an estimated \$19 billion in cost in the U.S., and this cost is expected to rise to approximately \$25 billion by 2025.¹ The direct medical cost of osteoporotic fractures in Europe is expected to rise from €31.7 billion in 2000 to €76.7 billion in 2050.²

About Prolia

Prolia is the first approved therapy that specifically targets RANK Ligand, an essential regulator of osteoclasts (the cells that break down bone).

Prolia is approved in the U.S. for the treatment of postmenopausal women with osteoporosis at high risk for fracture, defined as a history of osteoporotic fracture, or multiple risk factors for fracture; or patients who have failed or are intolerant to other available osteoporosis therapy.

Prolia is also indicated as a treatment to increase bone mass in women at high risk for fracture receiving adjuvant aromatase inhibitor therapy for breast cancer and in men at high risk for fracture receiving androgen deprivation therapy for nonmetastatic prostate cancer. In these patients with prostate cancer, Prolia reduced the incidence of vertebral fractures.

Prolia is indicated for treatment to increase bone mass in men with osteoporosis at high risk for fracture, defined as a history of osteoporotic fracture, or multiple risk factors for fracture; or patients who have failed or are intolerant to other available osteoporosis therapy.

Prolia is approved in the European Union (EU) for the treatment of osteoporosis in postmenopausal women at increased risk of fractures, and for the treatment of bone loss associated with hormone ablation in men with prostate cancer at increased risk of fractures.

Prolia is approved in the U.S., Canada, Australia and in all 27 EU member states as well as in Norway, Iceland and Liechtenstein. Applications in the rest of the world are pending.

Prolia is administered as a single subcutaneous injection of 60 mg once every six months. For further information on Prolia, including prescribing information and medication guide, please visit: www.prolia.com.

Important U.S. Safety Information

Prolia is contraindicated in patients with hypocalcemia. Pre-existing hypocalcemia must be corrected prior to initiating Prolia. Prolia is contraindicated in women who are pregnant and may cause fetal harm. Prolia is contraindicated in patients with a history of systemic hypersensitivity to any component of the product. Patients receiving Prolia should not receive XGEVA® (denosumab), as both Prolia and XGEVA contain the same active ingredient, denosumab.

Hypocalcemia may worsen with the use of Prolia, especially in patients with severe renal impairment. All patients should be adequately supplemented with calcium and vitamin D. In the pivotal Phase 3 study of women with postmenopausal osteoporosis (n=7808), serious infections leading to hospitalizations were reported more frequently in the Prolia-treated patient group. Serious skin infections, as well as infections of the abdomen, urinary tract and ear, were more frequent in patients treated with Prolia. Patients should be advised to seek prompt medical attention if they develop signs or symptoms of severe infection, including cellulitis. Endocarditis was reported more frequently in the Prolia-treated patient group. Epidermal and dermal adverse events such as dermatitis, rashes and eczema have been reported. Discontinuation of Prolia should be considered if severe symptoms develop.

In clinical trials in women with postmenopausal osteoporosis, Prolia resulted in significant suppression of bone remodeling. The significance of these findings is unknown. The long-term consequences of the degree of suppression of bone remodeling observed with Prolia may contribute to adverse outcomes such as osteonecrosis of the jaw (ONJ), atypical fractures and delayed fracture healing. ONJ and atypical femoral fractures have been reported in patients with Prolia. Patients should be monitored for these adverse outcomes. The most common adverse reactions (≥ 5 percent and more common than placebo) in patients with postmenopausal osteoporosis were back pain, pain in extremity, musculoskeletal pain, hypercholesterolemia and cystitis. The most common adverse reactions in men with osteoporosis were back pain, arthralgia and nasopharyngitis. Pancreatitis has also been reported with Prolia in patients with osteoporosis. The most common (per patient incidence > 10 percent) adverse reactions reported with Prolia in patients with bone loss receiving androgen deprivation therapy for prostate cancer or adjuvant aromatase inhibitor therapy for breast cancer are arthralgia and back pain. Pain in extremity and musculoskeletal pain have also been reported in clinical trials.

The extent to which Prolia is present in seminal fluid is unknown. For men treated with Prolia, there is a potential for fetal exposure if the sexual partner is pregnant. While the risk is likely to be low, patients should be advised of this potential risk.

Important EU Safety Information

The most common adverse reactions with Prolia were urinary tract infection, upper respiratory tract infection, sciatica, cataracts, constipation, rash and pain in extremity. The most serious adverse reactions were those of skin infections, predominantly cellulitis, reported more commonly in the Prolia group compared with placebo (0.4 percent vs. 0.1 percent) in postmenopausal osteoporosis studies. In breast and prostate cancer studies, serious adverse reactions of skin infection were similar in the Prolia and placebo groups (0.6 percent vs. 0.6 percent). In the Phase 3 placebo-controlled clinical trial in patients with prostate cancer receiving ADT, an imbalance in cataract adverse events was observed with Prolia compared with placebo (4.7 percent vs. 1.2 percent placebo). No imbalance in cataract adverse events was observed in postmenopausal women with osteoporosis or in women undergoing aromatase inhibitor therapy for nonmetastatic breast cancer.

Prolia may lead to hypocalcaemia. Hypocalcaemia must be corrected by adequate intake of calcium and vitamin D before initiating therapy. ONJ has been reported rarely in clinical studies in patients receiving denosumab at a dose of 60 mg every 6 months for osteoporosis. In the post-marketing setting, rare events of drug-related hypersensitivity have been reported in patients receiving Prolia.

Denosumab Commercialization Collaborations

In July 2009, Amgen and GlaxoSmithKline announced a collaboration agreement to jointly commercialize Prolia for postmenopausal osteoporosis in Europe, Australia, New Zealand and Mexico once the product is approved in these countries. Amgen will commercialize Prolia's postmenopausal osteoporosis and potential oncology indications in the U.S. and Canada and for all oncology indications in Europe and in other specified markets.

In addition, GlaxoSmithKline will register and commercialize denosumab for all indications in countries where Amgen does not currently have a commercial presence, including China, India and South Korea but excluding Japan. The structure of the collaboration allows Amgen the option of an expanded role in commercialization in both Europe and certain emerging markets in the future.

Amgen and Daiichi Sankyo Company, Limited have a collaboration and license agreement for the development and commercialization of denosumab in Japan.

About Amgen

Amgen discovers, develops, manufactures and delivers innovative human therapeutics. A biotechnology pioneer since 1980, Amgen was one of the first companies to realize the new science's promise by bringing safe, effective medicines from lab to manufacturing plant to patient. Amgen therapeutics have changed the practice of medicine, helping millions of people around the world in the fight against cancer, kidney disease, rheumatoid arthritis, bone disease and other serious illnesses. With a deep and broad pipeline of potential new medicines, Amgen remains committed to advancing science to dramatically improve people's lives. To learn more about our pioneering science and vital medicines, visit www.amgen.com. Follow us on [www.twitter.com/amgen](https://twitter.com/amgen).

Forward Looking Statements

This news release contains forward-looking statements that are based on management's current expectations and beliefs 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, including Amgen's most recent annual report on Form 10-K and most recent periodic reports on Form 10-Q and Form 8-K. Please refer to Amgen's most recent Forms 10-K, 10-Q and 8-K for additional information on the uncertainties and risk factors related to our business. Unless otherwise noted, Amgen is providing this information as of Oct. 14, 2012 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 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 products liability claims. 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 are affected by the reimbursement policies imposed by third-party payors, 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 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 and there can be no guarantee of our 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.

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 (FDA) 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. Only the FDA can determine whether the products are safe and effective for these use(s). Healthcare professionals should refer to and rely upon the FDA-approved labeling for the products, and not the information discussed in this news release.

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(Logo: <http://photos.prnewswire.com/prnh/20081015/AMGENLOGO>)

References

¹National Osteoporosis Foundation. "Fast Facts." Available at: <http://www.nof.org/node/40>. Last accessed on 9 October 2012.

²International Osteoporosis Foundation. "Facts and Statistics." Available at: <http://www.iofbonehealth.org/node/11862#category-16>. Last accessed on 9 October 2012.

³International Osteoporosis Foundation. "Osteoporosis in the European Union in 2008: Ten years of progress and ongoing challenges." Available at <http://www.iofbonehealth.org/osteoporosis-european-union-ten-years-progress-and-ongoing-challenges-2008> Last accessed on 9 October 2012.

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