Denosumab Demonstrates Superiority Over Zometa(R) in Pivotal Phase 3 Head-to-Head Trial in Breast Cancer Patients With Bone Metastases

July 7, 2009

Denosumab Significantly Delayed the Time to the First Skeletal Related Event and Significantly Reduced First and Subsequent Skeletal Related Events Compared to Zometa

First of Three Pivotal Oncology Trials Comparing Denosumab to Zometa in the Advanced Cancer Setting Meets Primary and Secondary Endpoints

THOUSAND OAKS, Calif., July 7 /PRNewswire-FirstCall/ -- Amgen (Nasdaq: AMGN) today announced that a pivotal, Phase 3, head-to-head trial evaluating denosumab versus Zometa(R) (zoledronic acid) in the treatment of bone metastases in 2,049 patients with advanced breast cancer met its primary and secondary endpoints and demonstrated superior efficacy compared to Zometa. Superiority was demonstrated for both delaying the time to the first on-study Skeletal Related Events (SREs)(fracture, radiation to bone, surgery to bone, or spinal cord compression) (hazard ratio 0.82, 95 percent CI: 0.71, 0.95), and delaying the time to the first-and-subsequent SREs (hazard ratio 0.77, 95 percent CI: 0.66, 0.89). Both results were statistically significant.

Overall, the incidence of adverse events and serious adverse events was consistent with what has previously been reported for these two agents. Of note, osteonecrosis of the jaw (ONJ), which had not been observed in previously reported Phase 3 studies with denosumab, was seen infrequently in both treatment groups. There was no statistically significant difference in the rate of ONJ between the two treatment arms. Infectious adverse events were balanced between the two treatment arms, as was overall survival and the time to cancer progression.

"We are extremely pleased with the outcome of this important study, which shows that denosumab can reduce or delay the serious complications of bone metastases in breast cancer patients better than the current standard of care, and with a favorable benefit/risk profile," said Roger M. Perlmutter, M.D., Ph.D., executive vice president of Research and Development at Amgen. "These results underscore the importance of the RANK Ligand pathway in bone disease, and offer the promise of improved care for patients with advanced breast cancer. We look forward to reviewing the results from a second Phase 3 study of denosumab effects in advanced cancer patients later this year."

Bone metastases, the spread of tumors to the bone, are a serious concern for advanced breast cancer patients, with incidence rates as high as 75 percent. When cancer spreads to the bone, the growing cancer cells weaken and destroy the bone around the tumor. This damage can result in a number of serious bone complications, collectively called SREs.

Full efficacy and safety data will be submitted for presentation at an upcoming medical meeting in the second half of this year.

Study Design

This was an international Phase 3, randomized, double-blind study comparing denosumab with Zometa in the treatment of bone metastases in patients with advanced breast cancer. Patients enrolled in the study were randomized in a one-to-one ratio to receive either 120 mg of denosumab subcutaneously every four weeks (Q4W) or Zometa administered intravenously at a dose of 4 mg single, 15 minute infusion every four weeks as per the labeled use.

In clinical trials testing new medications for bone metastases, treatment success has been measured by whether the bone complications, or SREs, caused by the tumor are reduced or delayed. The primary and secondary endpoints of the denosumab bone metastases studies use a composite endpoint of four SREs - fracture, radiation to bone, surgery to bone, and spinal cord compression - to measure the effectiveness of denosumab versus Zometa.

The primary endpoint was to evaluate if denosumab is non-inferior to Zometa with respect to the first on-study SRE in patients with advanced breast cancer and bone metastases. Secondary endpoints were to evaluate if denosumab was superior to Zometa with respect to the first on-study SRE, as well as first-and-subsequent on-study SREs, and to assess the safety and tolerability of denosumab compared with Zometa.

About Denosumab and Amgen's Research in Bone Biology

Denosumab is the first fully human monoclonal antibody in late stage clinical development that specifically targets RANK Ligand, the essential regulator of osteoclasts (the cells that break down bone). With more than 19,000 patients in trials across indications worldwide, the denosumab development program is the largest ever initiated by Amgen. This broad and deep development program demonstrates Amgen's commitment to researching and delivering pioneering medicines to patients with unmet medical needs. Amgen is studying denosumab in numerous tumor types across the spectrum of cancer induced bone disease. Over 11,000 patients have been enrolled in the denosumab oncology clinical trials testing the drug for bone loss and destruction associated with cancer treatment-induced bone loss in breast and prostate cancers, for the prevention of skeletal related events due to the spread of cancer to the bone in multiple myeloma and multiple solid tumors, and for its potential to delay bone metastases in prostate cancer.

Bone Metastases: Impact and Prevalence

Bone metastases, cancer cells that separate from tumors and migrate to bone tissue where they settle and grow, occur in more than 1.5 million people worldwide.(1) With improvements in cancer care, including earlier diagnosis and new treatment options, leading to increases in survival rates(2), the number of patients developing metastatic disease secondary to a primary cancer is increasing. Bone metastases are a significant problem for patients with certain types of advanced cancer, with incidence rates of nearly 100 percent in myeloma patients and as high as 75 percent in breast and prostate cancer patients.

With bone metastases the growing cancer cells weaken and destroy the bone around the tumor. The damage the tumor has caused to the bone can result in a number of serious complications, collectively called skeletal related events (SREs). These include fracture of a bone, radiation to bone,

surgery to bone, or spinal cord compression. All are serious complications for advanced cancer patients.

The economic burden of U.S. patients with bone metastases is significant and was estimated to be $12.6 billion last year.(3) Patients with bone metastases who experience an SRE incur significantly higher medical costs compared with those who do not experience an SRE.(4)

About Amgen

Amgen discovers, develops 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 and 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, 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 our vital medicines, visit www.amgen.com.

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 July 7, 2009 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 related to our product candidates is preliminary and investigative. Such product candidates are not approved by the U.S. Food and Drug Administration (FDA), and no conclusions can or should be drawn regarding the safety or effectiveness of the product candidates. Only the FDA can determine whether the product candidates are safe and effective for the use(s) being investigated. Further, 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 uses. Healthcare professionals should refer to and rely upon the FDA-approved labeling for the products, and not the information discussed in this news release.

ZOMETA is a registered trademark of Novartis Oncology.

*Editors Note: The FDA has provisionally approved the trade name Prolia(TM) for the proposed indications of treatment and prevention of osteoporosis in postmenopausal women, and treatment and prevention of bone loss in patients undergoing hormone ablation for non-metastatic prostate or breast cancer, for which denosumab is administered twice yearly subcutaneously at a 60 mg dose. The Prolia(TM) trade name is only for these indications and may not apply for other indications of denosumab.

(1) Capanna R, Coia LR, Coleman R. et al. eds. Textbook of Bone Metastases. Hoboken, NJ: Edition: John Wiley and Sons; 2005:105.

(2) Mundy GR. Metastasis to bone: causes, consequences and therapeutic opportunities. Nat Rev Cancer. 2002 Aug;2(8):584-93.

(3) Schulman K and Kohles J. Cancer. 2007;109:2334-2342

(4) GVD/Barber ISPOR 2008 Poster; Schulman 2007; Delea et al. 2006

Amgen, Thousand Oaks
Lisa Rooney, 805-447-6437 (media)
Arvind Sood, 805-447-1060 (investors)

(Logo: http://www.newscom.com/cgi-bin/prnh/20081015/AMGENLOGO)