Analysis of Vectibix(R) Study Using New Gene Technology Helps to Advance Prospects for Personalized Medicine

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--Nine Genes Beyond KRAS Investigated As Potential Predictive Biomarkers For Metastatic Colorectal Cancer Therapy

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THOUSAND OAKS, Calif., April 18, 2010 /PRNewswire via COMTEX/ --Amgen (Nasdaq: AMGN) today announced detailed results from a new biomarker analysis of the pivotal Phase 3 "408" trial of Vectibix(R) (panitumumab) plus best supportive care (BSC) compared to BSC alone. The analysis used massively parallel, next-generation sequencing technology to investigate whether mutations in nine genes known to be mutated in colorectal cancer, including the previously unanalyzed exon 3 mutation of the KRAS gene, are predictive of response to Vectibix in metastatic colorectal cancer (mCRC). Highlighted results were presented at the opening press conference at the American Association for Cancer Research (AACR) 101st Annual Meeting 2010 in Washington, D.C.

"To our knowledge, this is the first time next-generation sequencing has been used to analyze tumor samples from a Phase 3 clinical trial and demonstrates how advancing technologies can be quickly applied to ongoing clinical research," said Marc Peeters, M.D., Ph.D., Department of Oncology, Antwerp University Hospital and the study's principal investigator. "The *KRAS* gene mutation is a well-established biomarker for a lack of response to anti-EGFR treatment and has played a pivotal role in the advancement of personalized medicine. We are excited to be taking another step forward in the advancement of additional biomarkers with the study results presented today."

The analysis used banked patient tumor samples from the "408" trial, a randomized, Phase 3 study of Vectibix. Tumor samples from 288 patients, which had previously been analyzed for *KRAS* exon 2 mutations, were analyzed in this study for mutations in nine genes: *KRAS* (exon 3), *NRAS*, *BRAF*, *PIK3CA*, *PTEN*, *AKT1*, *EGFR,* beta-catenin *(CINN1B)* and *TP53.* All nine genes are either direct or indirect components of the EGFR signaling pathway.

In this retrospective analysis of Phase 3 data, which included evaluation of *KRAS* exon 3 (codon 61) mutations in addition to the initial *KRAS* exon 2 analysis, Vectibix significantly improved progression-free survival (PFS) in the patients with *KRAS* wild-type (WT) tumors (N=153; hazard ratio [HR]=0.39; 95 percent CI=0.28,0.56) and had no effect on PFS in patients with *KRAS* mutant tumors (N=124; HR=1.03; 95 percent CI=0.71,1.50).

In addition to *KRAS*, mutations in *NRAS*, another member of the RAS gene family, were also associated with lack of response to Vectibix. Patients with *KRAS* WT and *NRAS* WT tumors receiving Vectibix had improved PFS (HR=0.39, 95 percent CI=0.27, 0.56) compared with those receiving BSC, whereas those with *NRAS* mutant tumors did not appear to benefit from Vectibix (HR=1.94, 95 percent CI=0.44, 8.44).

Observed mutation rates in this study were consistent with previous reports in colorectal cancer; however a higher than expected rate of simultaneous mutation of *KRAS* and either *BRAF* or *NRAS* was observed. Further investigation in larger studies is required to determine the predictive value of *BRAF* mutations.

Retrospective subset analyses of mCRC trials have not shown a treatment benefit for Vectibix in patients whose tumors had *KRAS* mutations in codon 12 or 13. Use of Vectibix is not recommended for the treatment of colorectal cancer with these mutations.

For the 288 patient samples, which were balanced between the two treatment arms, the analysis yielded data for an average of 7.85 genes per patient and the data completeness for each gene ranged from 84 percent to 99 percent. One hundred nine tumors had more than one mutant gene, and 20 had more than one mutation in a single gene.

"In addition to the excitement of this being among the first times this technology has been used in Phase 3 research, the superior sensitivity of next-generation sequencing revealed unexpected genotypic complexity in many patient tumors," said Peeters.

The full data will be presented during an oral session on Monday, April 19 at 3:30 p.m. ET.

About Next-Generation Sequencing Technology

Massively parallel, next-generation sequencing technologies have helped to revolutionize genomic biology as these techniques allow millions of DNA sequences to be read simultaneously in a single experiment. This represents a quantum leap beyond the methods that were used to sequence the first human genomes in the 1990s. The fact that each DNA sequence produced in this way represents a single molecule in the original biological specimen being studied means that "deep resequencing" studies such as the "408" analysis can achieve unprecedented sensitivity and quantitative accuracy for tumor mutation detection.

About *KRAS*

Results from studies performed over the last twenty-five years indicate that *KRAS* plays an important role in cell growth regulation. In mCRC, EGFR transmits signals through a set of intracellular proteins. Upon reaching the nucleus, these signals instruct the cancer cell to reproduce and metastasize, leading to cancer progression. Anti-EGFR antibody therapies work by blocking the activation of EGFR, thereby inhibiting downstream events that lead to malignant signaling. However, it is hypothesized that in patients whose tumors harbor a mutated *KRAS* gene, the *KRAS* protein is always turned "on," regardless of whether the EGFR has been activated or therapeutically inhibited. *KRAS* mutations occur in approximately 40 - 50 percent of mCRC patients.

About Vectibix

Vectibix is the first fully human anti-EGFR antibody approved by the United States (U.S.) Food and Drug Administration (FDA) for the treatment of mCRC. Vectibix was approved in the U. S. in September 2006 as monotherapy for the treatment of patients with EGFR-expressing metastatic colorectal carcinoma after disease progression on or following fluoropyrimidine-, oxaliplatin-, and irinotecan-containing chemotherapy regimens.

The effectiveness of Vectibix as a single agent for the treatment of EGFR-expressing, metastatic colorectal carcinoma is based on progression-free survival. Currently no data are available that demonstrate an improvement in disease-related symptoms or increased survival with Vectibix. Retrospective subset analyses of metastatic colorectal cancer trials have not shown a treatment benefit for Vectibix in patients whose tumors had *KRAS* mutations in codon 12 or 13. Use of Vectibix is not recommended for the treatment of colorectal cancer with these mutations.

In December 2007, the European Medicines Agency (EMA) granted a conditional marketing authorization for Vectibix as monotherapy for the treatment of patients with EGFR expressing metastatic colorectal carcinoma with non-mutated (wild-type) *KRAS* after failure of fluoropyrimidine-, oxaliplatin-, and irinotecan-containing chemotherapy regimens. Vectibix has been launched in over 20 EU countries, Russia, Israel, Switzerland, Australia and Canada. Applications in the rest of the world are pending.

Important Product Safety Information

Dermatologic Toxicity: Dermatologic toxicities occurred in 89 percent of patients and were severe (NCI-CTC grade 3 or higher) in 12 percent of patients receiving Vectibix monotherapy.

Infusion Reactions: Severe infusion reactions occurred in approximately 1 percent of patients. Although not reported with Vectibix, fatal infusion reactions have occurred with other monoclonal antibody products.

The most common adverse events of Vectibix are skin rash with variable presentations, hypomagnesemia, paronychia, fatigue, abdominal pain, nausea, and diarrhea, including diarrhea resulting in dehydration.

The most serious adverse events of Vectibix are pulmonary fibrosis, pulmonary embolism, severe dermatologic toxicity complicated by infectious sequelae and septic death, infusion reactions, abdominal pain, hypomagnesemia, nausea, vomiting, and constipation.

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 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 http://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 April 18, 2010 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 health care 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 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.

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