



Lonza

Lonza Group Ltd
Muenchensteinerstrasse 38
4002 Basel, Switzerland

News Release

Avalanche Biotechnologies, Inc. and Lonza Announce Global Manufacturing Collaboration for Adeno-associated Viral Vectors for Gene Therapy

- **Best-in-class production process technology will advance Avalanche's robust clinical program and be available to third parties through Lonza, a premier contract manufacturer of cell and viral-based therapeutics**

San Francisco, Calif., and Houston, TX, 16 May 2012 – Avalanche Biotechnologies, Inc., a leader in the area of long-term protein delivery for ocular diseases, and Lonza, a global leader in the field of biologics manufacturing, today announced a manufacturing collaboration focused on process development and scale-up efforts for the manufacturing of adeno-associated viral (AAV) vectors for gene therapy. AAV vectors are rapidly becoming one of the most promising gene delivery vehicles for the treatment of various diseases including inherited retinal disorders, age-related macular degeneration (AMD), hemophilia B, congestive heart failure, Parkinson's disease and others.

As part of the agreement, Avalanche and Lonza will make the technology available to third parties and share in the revenue. The Avalanche/Lonza manufacturing collaboration will focus on the development and high-yield production of AAV vectors based on a novel technology that uses stable baculovirus. This technology was licensed by Avalanche from Virovek, who will also play a key role in the collaboration.

"We are delighted to have such a skilled and reputable manufacturing partner in Lonza to help us advance our robust research and development programs using AAV to treat macular degeneration and other blinding diseases," said Thomas W. Chalberg, Ph.D., chief executive officer, Avalanche Biotechnologies, Inc. "By making our combined technology available to third parties, we hope to allow the entire AAV field to benefit from this best-in-class production process."

"Lonza's viral-based therapeutic business specializes in the development, GMP production, and fill and finish of multiple classes of viral vaccines and viral vector-delivered therapeutics," said David Enloe, Lonza's Head of Viral-based Therapeutics. "With our recent expansion of additional GMP suites that will increase working volumes up to 2,000L, we are poised for the growth we have seen



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in this sector. We look forward to partnering with Avalanche in this exciting collaboration and we are pleased to be able to add this novel, scalable method for AAV production to our capabilities.”

AAV is a naturally-occurring virus that is not associated with any disease in humans. AAV-based vectors efficiently deliver genes or RNAi to numerous cell types at up to 100 percent efficiency. They are considered highly effective due to their high safety profile, lack of toxicity and ability to efficiently transduce and achieve long-term expression without integration in a wide range of tissues.

Terms of the agreement were not disclosed.

About Avalanche Biotechnologies, Inc.

Founded in 2006, Avalanche Biotechnologies, Inc., is a privately held biotechnology company that develops technologies and products for sustained delivery of therapeutic proteins to the eye to treat wet age-related macular degeneration (AMD), as well as other ophthalmologic disorders. Avalanche’s BioFactory™ technology is a proprietary drug delivery system which uses the body’s own cells to produce therapeutic proteins on an ongoing basis following a single injection. This, in effect, creates a “BioFactory” in the patient’s eye to treat ocular diseases, including wet AMD. For more information, visit avalanchebiotech.com.

About Lonza

Lonza is one of the world’s leading suppliers to the pharmaceutical, healthcare and life science industries. Products and services span its customers’ needs from research to final product manufacture. It is the global leader in the production and support of active pharmaceutical ingredients both chemically as well as biotechnologically. Biopharmaceuticals are one of the key growth drivers of the pharmaceutical and biotechnology industries. Lonza has strong capabilities in large and small molecules, peptides, amino acids and niche bioproducts, which play an important role in the development of novel medicines and healthcare products. Lonza’s viral-based therapeutic business is a leading provider of viral vector manufacturing, with more than 15 years of experience in production of clinical grade vectors made under current good manufacturing practices (cGMP). Lonza’s viral-based services range from process optimization and scale-up, validation and large scale cGMP manufacturing (up to 2,000 liters) through product release testing and fill and finish of multiple types of viral vectors. Lonza is also the world leader in microbial



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control providing innovative, chemistry-based and related solutions to destroy or to selectively inhibit the growth of harmful microorganisms. Its activities encompass the areas of water treatment, personal care, health and hygiene, industrial preservation, materials protection, and wood treatment. In addition, Lonza is a leader in cell-based research, endotoxin detection and cell therapy manufacturing. Furthermore, the company is a leading provider of value chemical and biotech ingredients to the nutrition and agro markets.

Lonza is headquartered in Basel, Switzerland and is listed on the SIX Swiss Exchange and secondary listed on the Singapore Exchange Securities Trading Limited ("SGX-ST"). Lonza is not subject to the SGX-ST's continuing listing requirements. Lonza is subject to the listing rules of the SIX Swiss Exchange, which do not have specific requirements equivalent to the listing rules of the SGX-ST in respect of interested person transactions, acquisition and realizations, and delisting. In 2011, the company had sales of CHF 2.69 billion. Further information can be found at www.lonza.com.

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