

News Release

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EMD Millipore Expands Provantage® Biodevelopment Services with Addition of Provantage® Clone Generation Service

- **Accelerates time to the clinic by delivering high quality, high expressing cell lines**
- **Flexible production platform offers choice of DG44 or CHO-S cell lines**
- **Fully documented clones meet traceability requirements for clinical production, IND submission and manufacturing**

Billerica, Massachusetts, June 15, 2015 – [EMD Millipore](http://www.emdmillipore.com), the Life Science business of Merck KGaA of Darmstadt, Germany, today announced expansion of its Provantage® Biodevelopment Services to include a Clone Generation Service. With this addition, the Company now provides a full range of services for optimizing yield, productivity, consistency and efficiency of clinical scale drug products.

The new Clone Generation Service includes expression of recombinant proteins such as hormones, growth factors and mono- and bi-specific monoclonal antibodies. Customers can choose from DG44 and CHO-S cell lines, both of which are widely used for reliable and high-yield production of biologics. Availability of two cell lines offers greater flexibility to meet both the technical requirements and business objectives of customers. While the DG44 cell line offers freedom for process development, the CHO-S line can be more cost effective. Our team works with customers to evaluate specific needs and select the best approach.

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Every clone generation is fully documented to ensure traceability from the source and demonstrate that the cell is clonal, making the cells usable for clinical production, IND submission and acceptance.

“Development of a high-quality, high-expressing cell line is a critical, early step in the production of a biologic drug,” said Udit Batra, president and CEO of EMD Millipore. “The cell line not only defines the product, but also drives much of the yield and titer during bioproduction. Our Provantage® team and services optimize clone generation as well as the entire clinical scale process, setting the stage for manufacturing success.”

Clone generation includes DNA synthesis of the sequence encoding the biologic, cloning of the sequence in a vector, transfection, and preparation of stable pools of producing cells, amplification of the expression cassette and subcloning of high-producing cells. The final deliverable is a pre-master cell bank of high-producing clones and a cell line generation report.

Provantage® Biodevelopment services also include media and feed screening to optimize titer and yield. In addition to upstream services, small scale production for preclinical studies, process development and production of GMP batches support development of the drug manufacturing process.

For more information, please visit www.emdmillipore.com/provantage.

About EMD Millipore

EMD Millipore is the U.S. Life Science subsidiary of Merck KGaA, Darmstadt, Germany. As part of the global Life Science business of Merck KGaA, Darmstadt, Germany, EMD Millipore offers a broad range of innovative, performance products, services and business relationships that enable our customers' success in research, development and production of biotech and pharmaceutical drug therapies. Through dedicated collaboration on new scientific and engineering insights, and as one of the top three R&D investors in the life science tools industry, the Life Science business of Merck KGaA, Darmstadt, Germany, serves as a strategic partner to customers and helps advance the promise of life science. Headquartered in Billerica, Massachusetts, the global business has around 10,000 employees, operations in 66 countries and 2014 revenues of €2.7 billion.

For more information, please visit www.emdmillipore.com.

About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, is a leading company for innovative and top-quality high-tech products in healthcare, life science and performance materials. The company has six businesses – Biopharmaceuticals, Consumer Health, Allergopharma, Biosimilars, Life Science and Performance

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Materials – and generated sales of € 11.3 billion in 2014. Around 39,000 employees work in 66 countries to improve the quality of life for patients, to foster the success of customers and to help meet global challenges. Merck KGaA, Darmstadt, Germany, is the world's oldest pharmaceutical and chemical company – since 1668, the company has stood for innovation, business success and responsible entrepreneurship. Holding an approximately 70% interest, the founding family remains the majority owner of the company to this day. Merck KGaA, Darmstadt, Germany holds the global rights to the Merck name and brand. The only exceptions are Canada and the United States, where the company operates as EMD Serono, EMD Millipore and EMD Performance Materials.

For more information, please visit www.emdgroup.com