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MilliporeSigma Helps Accelerate Global Access to Affordable Vaccines

- **Collaboration with Oxford University to develop cost-effective vaccine manufacturing processes, accelerate vaccine availability**
- **Company also planning new vaccine manufacturing facility in Ghana to help country and region address health challenges**

Burlington, Massachusetts, April 12, 2018 — MilliporeSigma today announced a partnership with Oxford University's [Jenner Institute](#) to develop more robust and scalable vaccine manufacturing processes. This partnership, as well as plans to develop a vaccine manufacturing facility in Ghana, further the company's commitment to improving global health by making vaccines more affordable and available.

"This collaboration with the Jenner Institute will facilitate access to affordable vaccines while improving the global response to disease outbreaks," said Udit Batra, CEO of MilliporeSigma. "MilliporeSigma is committed to expanding access to advanced drug therapies, especially in low- and middle-income countries. Together, with our partners, we have shaped how vaccine production is done today and are helping to solve the toughest problems of tomorrow."

Through the collaboration with the Jenner Institute, the partners will improve the manufacturing process for adenovirus vaccines — vaccines based on adenovirus, a type of DNA virus, as a carrier — using MilliporeSigma products, systems and technologies on a real-world feed stream. By applying MilliporeSigma technology, the collaborators aim to develop a cost-effective and transferable manufacturing process that can be used to accelerate vaccine development and manufacturing worldwide.



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“MilliporeSigma is an excellent partner for enhancing our capabilities in adenovirus vaccine development, as the newly developed process should match or exceed our existing process in terms of productivity and purity,” said Adrian Hill, director of the Jenner Institute at Oxford University.

The collaboration should result in a closed process that can be practiced in a cleanroom to minimize contamination, in line with the high biological safety requirements for viral vectors.

“Such improvements should help advance the development of clinical-grade, injectable drug product for use in clinical trials and other research applications,” Hill added.

MilliporeSigma building vaccine facility in Ghana

Separately, MilliporeSigma is developing plans for a vaccine manufacturing facility in Ghana, helping to address significant health challenges in a continent that imports 99 percent of its vaccines. Working with Ridge Management Solutions and other partners, a recently signed memorandum of understanding between MilliporeSigma and Ridge provides the opportunity for Ghana to become the first country in Sub-Saharan Africa to have a dedicated human vaccine manufacturing factory.

“We want to support emerging economies by sharing our expertise, helping them streamline their manufacturing processes while supporting technology transfer and local facility startup,” Batra added.

For more information on how MilliporeSigma collaborates with vaccines communities around the world to solve the toughest challenges in vaccine production, visit www.emdmillipore.com/vaccines.

About the Jenner Institute

The Jenner Institute was founded in November 2005 to develop innovative vaccines against major global diseases. Uniquely it focuses both on diseases of humans and livestock and tests new vaccine approaches in parallel in different species. A major theme is translational research involving the rapid early-stage development and assessment of new vaccines in clinical trials.

The Institute comprises the research activities of over 30 [Jenner Investigators](#) who head leading research groups spanning human and veterinary vaccine research and development. Together the Institute Investigators comprise one of the largest non-profit sector research and development activities in vaccinology.

News Release

Jenner Institute Investigators, through the support of many funders, are developing new vaccine candidates against major global infectious diseases. New vaccines against malaria, tuberculosis and HIV are currently in field trials in the developing world. Research is also underway on livestock vaccines against foot and mouth disease, avian influenza, bovine tuberculosis and other major causes of economic loss. The Institute is a partnership between the [University of Oxford](#) and the [The Pirbright Institute](#) and is the successor to the former Edward Jenner Institute for Vaccine Research. The Institute is supported by the [Jenner Vaccine Foundation](#), a UK registered charity and advised by the [Jenner Institute Scientific Advisory Board](#).

About Ridge Management Solutions

There's a 5 percent chance that a hurricane will cause \$60 billion of insured losses next year and a 1% chance an earthquake will cause \$50 billion of insured loss in the next 12 months. At RMS, we build the simulation models that allow insurers and investors to understand portfolio risks due to catastrophes: natural catastrophes (hurricane, earthquake, flood), terrorism, pandemic, and changes in life expectancy. We are one of the most exciting companies you've probably "never" heard of, unless you're one of our hundreds of clients in the (re)insurance, banking or hedge fund sector. We lead an industry we helped pioneer and ultimately our work makes a true impact on the world at large. How we understand and manage risk affects everybody and our passion is nothing less than creating a more resilient world through a better understanding of catastrophic events.

We are evolving our vision by delivering future solutions in the cloud, our cutting-edge risk management platform "RMS(one)" for the global risk market. RMS(one) will create a holistic and integrated view across the enterprise with one platform for all models, all points of view, and all data. All will be run as equal partners on RMS(one).

RMS has 1,200 employees in 11 countries, including offices in Newark (CA-USA), Noida (India), London (UK), Hoboken (NJ-USA), and Zurich (Switzerland).

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About the Life Science Business of Merck KGaA, Darmstadt, Germany

The Life Science business of Merck KGaA, Darmstadt, Germany, which operates as MilliporeSigma in the U.S. and Canada, has 20,000 employees and 60 manufacturing sites worldwide, with a portfolio of more than 300,000 products enabling scientific discovery. Udit Batra is the global chief executive officer of MilliporeSigma.

Merck KGaA, Darmstadt, Germany completed its \$17 billion acquisition of Sigma-Aldrich in November 2015, creating a leader in the \$125 billion global life science industry.

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 five businesses — Biopharmaceuticals, Consumer Health, Allergopharma, Life Science and Performance Materials — and generated sales of €15.3 billion in 2017. More than 52,000 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 percent interest, the founding family remains the majority owner of the company to this day. The company holds the global rights to the name and the trademark "Merck" internationally except for the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.