

News Release

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Life Science Business of Merck KGaA, Darmstadt, Germany Receives Patent for CRISPR Technology in China

- **Patent in China covers integration of an external DNA sequence into the chromosome of eukaryotic cells**
- **Company to license CRISPR-related patents to interested parties, supports genome-editing research under ethical and legal standards**
- **Foundational CRISPR patents now granted in seven markets, including Canada and Europe**

Darmstadt, Germany, April 23, 2018 – Merck KGaA, Darmstadt, Germany, a leading science and technology company and leader in genome editing, today announced that the Chinese Patent Office has issued a notice granting a patent application for [the company's CRISPR technology](#) used in a genomic-integration method for eukaryotic cells.

“Including China, we have received seven crucial patents for our foundational CRISPR technology, which defines an exciting new path for medical research and treatments for some of the toughest medical conditions, including cancer, hereditary and rare diseases,” said Udit Batra, Member of the Executive Board and CEO, Life Science business of Merck KGaA, Darmstadt, Germany. “As a genome-editing leader, we are actively licensing our integration patents for therapeutic use, basic science research and agricultural biotechnology.”

The Life Science business of Merck KGaA, Darmstadt, Germany, which has a 13-year history in the genome-editing field, has related patent filings for its insertion



CRISPR method in the U.S., Brazil, India and Japan. The company already has had similar key patents granted in Australia, Canada, Europe, Israel, Singapore and South Korea.

This forthcoming patent in China covers chromosomal integration, or cutting of the chromosomal sequence of eukaryotic cells (such as mammalian and plant cells) and insertion of an external or donor DNA sequence into those cells using CRISPR. Scientists can replace a disease-associated mutation with a beneficial or functional sequence — a method important for creating disease models and gene therapy. Additionally, the method can be used to insert transgenes that label endogenous proteins for visual tracking within cells.

CRISPR genome-editing technology, which allows the precise modification of chromosomes in living cells, is advancing treatment options for a variety of medical conditions. CRISPR applications are far-ranging - from identifying genes associated with cancer and rare diseases to reversing mutations that cause blindness.

As a company that has been highly involved in genome-editing innovation, Merck KGaA, Darmstadt, Germany recognizes that genome-editing has resulted in major positive advancements in biological research and medicine. At the same time, the growing potential of gene-editing technologies has opened scientific, legal and societal concerns. As both a user and supplier of gene-editing technology, the businesses of Merck KGaA, Darmstadt, Germany support research with genome editing under careful consideration of ethical and legal standards. The company has established a [Bioethics Advisory Panel](#) to provide guidance for research in which its businesses are involved, including research on or using genome editing, and has defined a clear operational [position](#) taking into account scientific and societal issues while not blocking any promising therapeutic approaches for use in research and applications.

The Life Science business of Merck KGaA, Darmstadt, Germany has made significant contributions to the genome-editing field. It was the first to offer custom biomolecules for genome editing globally (TargeTron™ RNA-guided group II introns and CompoZr™ zinc finger nucleases), driving adoption of these techniques by researchers all over the world. It was also the first to manufacture arrayed CRISPR

libraries covering the entire human genome, accelerating cures for diseases by allowing scientists to explore more questions about root causes.

For more information on the company's work in the genome-editing field, visit <https://www.emdgroup.com/en/stories/350-anniversary-its-all-in-the-genes.html>

and

<http://ar.emdgroup.com/2017/magazine/new-ways-of-identifying-disease>.

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, is a leading science and technology company in healthcare, life science and performance materials. Almost 53,000 employees work to further develop technologies that improve and enhance life – from biopharmaceutical therapies to treat cancer or multiple sclerosis, cutting-edge systems for scientific research and production, to liquid crystals for smartphones and LCD televisions. In 2017, Merck KGaA, Darmstadt, Germany, generated sales of € 15.3 billion in 66 countries. Founded in 1668, Merck KGaA, Darmstadt, Germany, is the world's oldest pharmaceutical and chemical company. The founding family remains the majority owner of the publicly listed corporate group. Merck KGaA, Darmstadt, Germany, holds the global rights to the „Merck“ name and brand. The only exceptions are the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.