

News Release

Your Contact

gangolf.schrimpf@emdgroup.com

Phone: +49 6151 72-9591

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Merck KGaA, Darmstadt, Germany Granted 20 CRISPR Patents Total Worldwide

- **Patent offices in Europe, Israel, South Korea and U.K. issue seven additional grants for company's CRISPR genome-editing technology**
- **Company has 20 allowed CRISPR patents to date across nine different geographies**

Darmstadt, Germany, August 19, 2019 – [Merck KGaA, Darmstadt, Germany](#), a leading science and technology company, today announced that the European, Israeli, South Korean and U.K. intellectual property offices have issued formal notices allowing its Life Science business' patent application claims covering CRISPR gene-editing technology, bringing the number of patents to 20 worldwide.

"It is encouraging to see this important body of scientific work recognized with the grants of these latest CRISPR patents," said Udit Batra, member of the Executive Board, and CEO, Life Science business of Merck KGaA, Darmstadt, Germany. "Our ambition is to continue growing our CRISPR intellectual property portfolio with technologies such as paired Cas9 nickases, for reducing off-target effects, and proxy-CRISPR, which offers researchers more experimental options to accelerate drug development and access to new therapies."

Details on the latest patent awards for the company's Life Science business are as follows:

- European Patent Office — Patent allowances for:
 - Vectors for CRISPR integration. The newly allowed claims cover vector compositions to support CRISPR delivery and expression in eukaryotic

Page 1 of 3



News Release

cells, including viral delivery methods broadly used in both cancer research (lentivirus) and human therapeutic applications (adeno-associated virus, or AAV).

- proxy-CRISPR technology, which provides access to modify difficult-to-reach genomic regions, expanding CRISPR design options. This approach also allows a reduction in off-target effects.
- Engineered Ribonucleic Acid (RNA)-guided endonuclease and protein-RNA complexes.
 - These two newly allowed claim sets cover compositions that can be used for [gene knock-in](#) and [gene knock-out](#).
- Israeli IP Office — Patent allowance for:
 - Paired Nickase technology, to reduce off-target effects. Paired nickases represent a significant step in increasing genome-editing safety.
- South Korean IP Office — Patent allowance for:
 - Paired Nickase technology.
- U.K. (IP) Office — Patent allowance for:
 - proxy-CRISPR technology.

In addition to Europe, Israel, U.K and South Korea, the Life Science business of Merck KGaA, Darmstadt, Germany has CRISPR-related patents in the following regions: U.S., Canada, Australia, China and Singapore. The business was awarded its first foundational patent in Australia covering CRISPR integration in 2017, and its first U.S. CRISPR patent for proxy-CRISPR in 2019.

Earlier, the business announced different CRISPR patents in [Europe in 2017](#) and in [South Korea and Israel in 2018](#).

On July 18, 2019, Merck KGaA, Darmstadt, Germany announced a [CRISPR licensing framework with Broad Institute of MIT and Harvard](#) to offer non-exclusive licenses to CRISPR IP under their respective control for use in commercial research and product development. This new framework aims to simplify and accelerate scientific access to CRISPR IP.

News Release

On July 19, 2019, the Life Science business filed a petition with the U.S. Patent and Trademark Office requesting an interference proceeding between CRISPR-Cas9 patents it applied for in 2012 and patents that UC Berkeley has applied for or been awarded.

The Life Science business of Merck KGaA, Darmstadt, Germany has been at the forefront of innovation in the field for 15 years, with experience spanning from discovery to manufacturing.

Merck KGaA, Darmstadt, Germany supports research with genome editing under careful consideration of ethical and legal standards, and has established an independent, external [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 to inform promising therapeutic approaches for use in research and applications.

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across healthcare, life science and performance materials. Around 52,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2018, Merck KGaA, Darmstadt, Germany, generated sales of €14.8 billion in 66 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany operate as EMD Serono in healthcare, MilliporeSigma in life science, and EMD Performance Materials. Since its founding 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company.