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Merck, 10x Genomics launch new option for CRISPR research

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First solution for simultaneous gene perturbation measurement and unbiased single-cell gene expression

Merck, a leading science and technology company, and US based 10x Genomics, Inc.,, a single cell and spatial genomics technologies company, have announced that they have developed a powerful new option for biological experiments.

“Researchers today require more detailed information to better understand the relationship between specific genes and disease,” said Andrew Bulpin, head of Process Solutions, Life Science, at Merck. “Our genome-editing technology combined with 10x Genomics’ Feature Barcode technology will allow researchers to screen single cells using CRISPR libraries. These insights can lead to the identification of novel molecular therapeutic targets and accelerate drug discovery in immuno-oncology, autoimmunity, neurodegeneration and other human diseases.”

The collaboration provides an impactful linking of two innovative technologies: single cell transcriptomics and pooled CRISPR screening. The first commercially offered, ready-to-use tool enables simultaneous measurement of gene perturbation and unbiased gene expression from single cells. Merck is the only company that provides fully tested and validated reagents and workflows to run single-cell screening on 10x Genomics’ platform.

The companies will work together as part of 10x Genomics’ 10x Compatible Partnership Program, a global ecosystem of technologies and solutions that provide customers with the ability to enhance their unique research applications and accelerate discovery. This program has established a broad coalition of technology platforms that together span all aspects of the next-generation sequencing workflow, from sample prep to informatics. The two companies’ combined technologies developed under the 10x Compatible Product Partnership Program are expected to deliver a greater potential for enabling scientific discovery.

"CRISPR-based screening allows researchers to isolate a set of genes and identify their potential as targets for a therapeutic. But, if these experiments are done in bulk, the phenotypes are difficult, or impossible, to resolve,” said Michael Schnall-Levin, senior vice president of R&D and founding scientist at 10x Genomics. "When combined with single cell transcriptomics, each phenotype can be isolated and fully profiled using its gene expression patterns, creating a dynamic view of the genes driving

the phenotype and morphology to better understand the underlying biology."

Merck's 16 years of experience in the genome-editing field has led to the most comprehensive portfolio of CRISPR and other advanced genomics technologies which support every step of genome engineering-facilitated research, from basic research to therapeutic delivery. The company uses this expertise to offer products and services for a range of applications including gene knockout, targeted integration and mutagenesis and genetic screening libraries to support research in immunotherapeutics, oncology and infectious disease, among other fields. Its scientists are committed to developing powerful, unique technologies that expand these applications and accelerate health-related research.

Merck recognizes that genome editing has resulted in major advancements in biological research and medicine. At the same time, the growing potential of genome-editing technologies has opened scientific, legal and societal concerns. The company supports research with genome editing under careful consideration of ethical and legal standards. It 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 developed, defined and transparently published a clear operational Genome-Editing Technology Principle taking into account scientific and societal issues to inform promising therapeutic approaches for use in research applications.