Ricoh Announces Strategic Business Partnership with Elixirgen Scientific

Innovative new offerings combine cell differentiation induction and bioprinting technologies to improve efficiency of drug discovery process

TOKYO, Japan – *June 19, 2019* –Ricoh Company, Ltd., (Tokyo, Japan) today announced it has entered into a strategic business partnership with Elixirgen Scientific, Inc., (Baltimore, Maryland, USA), to develop innovative biomedical products and services that support drug discovery based on cell differentiation[*1] technology.

Ricoh and Elixirgen Scientific plan to grow this biomedical business into a 20-billion-yen ($186M) business by 2025.

Together the two companies will support drug discovery through the manufacture and delivery of cells differentiated from induced pluripotent stem (iPS) cells[*2], cell chips[*3] seeded with precisely differentiated cells, and evaluation services for drug responses. As part of the agreement, Ricoh will acquire a 34.5 percent stake in Elixirgen Scientific and launch a biomedical business in North America this year.

Elixirgen Scientific owns Quick-Tissue™ technology[*4] that can induce iPS cells and embryonic stem cells[*5] to various types of cells directly, and this technology achieves highly efficient and homogeneous cell differentiation within just 10 days. It is expected that disease specific iPS cells, which means iPS cells derived from patients with that disease, can be used as a disease model for drug screening. As differentiated cells manufactured in this process have functions close to mature cells[*6], those cells show phenotypes specific to that disease very well. Ricoh's bioprinting technology enables precise control of the number and placement of cells using its inkjet head technology, which has been perfected over the last 40 years.

Nobuhiro Gemma, Fellow, General Manager of HealthCare Business Group, Ricoh Company, Ltd., stated, "We are thrilled to partner with Elixirgen Scientific on this new biomedical development initiative. By combining the technologies from our two companies, it will be possible to produce disease-specific cell chips derived from multiple iPS cell lines, for example. These cell chips can evaluate the diversity of human responses of chemicals at one time in terms of efficacy and toxicity before moving to the clinical trial stage. In the process of drug discovery, this method using the cell chips will greatly improve the entire drug development process because human diversity is considered in the earliest stage."

Ricoh entered the healthcare market with software and services 12 years ago in order to help address issues arising from an aging society, combined with a corresponding reduction in healthcare expenditure, among other operational efficiencies. Ricoh is focused on addressing social challenges, such as those relating to the disparity in the level of healthcare available in different parts of the world. In the area of healthcare, Ricoh focuses on three disciplines: healthcare solutions, medical imaging, and biomedical.

“Ricoh has an established healthcare business with solutions such as its RICOH Regional Health Net; and in the medical imaging area, with its magnetoencephalography solution. We have also been developing technologies such as 3D Bioprinter and reference DNA plates, and with today’s announcement, this agreement establishes Ricoh firmly as a player in the biomedical field,” added Nobuhiro Gemma.

About Ricoh

Ricoh is empowering digital workplaces using innovative technologies and services enabling individuals to work smarter. For more than 80 years, Ricoh has been driving innovation and is a leading provider of document management solutions, IT services, commercial and industrial printing, digital cameras, and industrial systems. Headquartered in Tokyo, Ricoh Group operates in approximately 200 countries and regions. In the financial year ended March 2019, Ricoh Group had worldwide sales of 2,013 billion yen (approx. 18.1 billion USD). For further information, please visit www.ricoh.com.

About Elixirgen Scientific

Elixirgen Scientific is a biotech company specializing in stem cell technology located at the Science + Technology Park at Johns Hopkins in Baltimore, Maryland, USA. In the stem cell industry, the length of time of differentiation from iPS/ES cells to specific cells together with low efficiency are factors that effect cost. Elixirgen Scientific has succeeded in commercializing technology that can shorten the speed of differentiation induction to approximately one week. For further information, please visit https://elixirgenscientific.com/.

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*1 Differentiation: The process in which a cell becomes specialized in order to perform a specific function, as in case of a liver cell, a blood cell or a neuron.

*2 Induced pluripotent stem (iPS) cell: Cell with pluripotency that can introduce several kinds of genes into somatic cells and can differentiate into many cells like ES cells, and has self-replication ability that can be maintained even after division and proliferation.

*3 Cell-chip: Living cells in a well, which is used for drug safety and efficacy testing before any testing on humans or animals.

*4 Quick-Tissue™ Technology: A revolutionary new technology to generate human cells, tissues, and organs using potent cocktails of transcription factors. These cocktails transform cells into high-quality tissues in a scalable, speedy manner. Excellent transcription are using two different ways: synthetic mRNAs or Sendai virus vectors.

*5 Embryonic stem cell: Pluripotent cell that is produced by obtaining and culturing a part of blastocyst stage embryos with slightly advanced development from fertilized eggs of animals.

*6 Mature cell: Cell that has completed natural growth or development.