ThinkCyte collaborates with joint research group to advance development of stem cell-based therapies

A new publication in the January 4 issue of Stem Cell Reports on a method to improve pluripotent stem cell-based therapies for retinal degenerative diseases

TOKYO, JAPAN, January 24, 2024 /EINPresswire.com/ -- ThinkCyte today announced the publication of a paper in the January 4 issue of Stem Cell Reports on a method to improve pluripotent stem cell-based therapies for retinal degenerative diseases. Together with a joint research group led by Masayo Takahashi, Senior Advisor, Michiko Mandai, Director, and Yasuaki Iwama, Researcher, Research Center at Kobe City Eye Hospital, Sadao Ota, Associate Professor at University of Tokyo, and Hiroko Nomaru, Senior Research Scientist at ThinkCyte, the team describes the development of an approach to increase the purity of retinal progenitor cell (RPC) populations generated from human ES/iPS cells using Ghost Cytometry; an AI-driven, label-free, morphology-based cell sorting technology.

The joint research began at the RIKEN Center for Biosystems Dynamics Research with an aim to advance retinal regenerative medicine and was taken over by Kobe City Eye Hospital. In the publication, 'Label-free enrichment of human pluripotent stem cell-derived early retinal progenitor cells for cell-based regenerative therapies', the team shows that Ghost Cytometry can be used to perform label-free sorting of RPCs from ES/iPS cell-derived retinal organoids. The new approach both improved the purity of isolated RPCs and produced retinal spheroids large enough for transplantation. Furthermore, when iPS cell-derived retinal spheroids were transplanted into a rat model of retinal degeneration, normal photoreceptor cells matured from the graft. The study demonstrates that RPCs that don't have specific cell surface markers can be sorted label-free and retain functional profiles using Ghost Cytometry.

The approach to enriching stem cell-derived therapeutic cells label-free using Ghost Cytometry is expected to improve manufacturing and pre-transplant testing for transplantable cells in retinal degenerative diseases and contribute to the development of transplantable cells with superior therapeutic outcomes.

"With an estimated 2.2 billion people worldwide suffering from vision impairment(1), methods for optimizing stem cell-based approaches for treating ocular diseases is in high demand." said Waichiro Katsuda, Chief Executive Officer at ThinkCyte. "Ghost Cytometry fills a key R&D gap in this space and the results of this research collaboration speak to the tremendous potential of

our technology in ophthalmology and other therapeutic areas where cell-based therapies are being developed."

Open access to the publication can be found at https://doi.org/10.1016/j.stemcr.2023.12.001

References
1. Int J Ophthalmol. 2022; 15(9): 1529–1537. 10.18240/ijo.2022.09.17

About ThinkCyte
ThinkCyte, founded in 2016 with offices in Tokyo, Japan and Redwood City, California is a biotechnology company that develops innovative scientific instruments based on integrated, multidisciplinary technologies to enable life science research, diagnostics, and therapeutic development. The company's flagship product, VisionSort, is the world's first AI-based, dual-mode fluorescence and morphometric cell sorting platform and it partners with major global biopharmaceutical companies and leading academic research institutes to further drive groundbreaking research. For more information, please visit www.thinkcyte.com.

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Willem Westra
ThinkCyte Inc.
+1 617-721-4313
email us here

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