

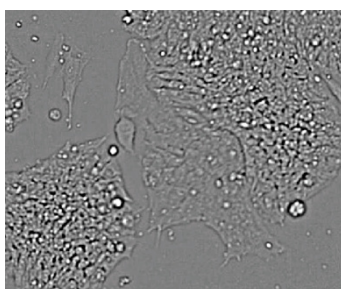
SCREEN Develops Cell Image Analysis Software That Utilizes Deep Learning

Enables Non-invasive Quantitative Analysis of Differentiated Stem Cells

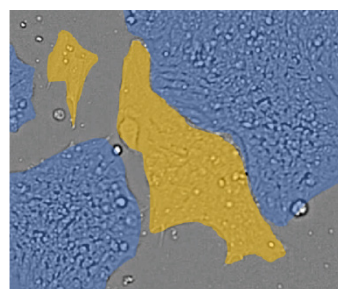
Kyoto, Japan – November 19, 2018 – SCREEN Holdings Co., Ltd. has finalized development of new cell image analysis software that uses deep learning technologies to evaluate differences in levels of cell characteristics. The software is expected to make a significant contribution to the performance of image analysis for stem cells and organoids¹ and will be bundled with SCREEN's Cell³iMager duos, an advanced system for the imaging and analysis of cellular morphologies. The package is scheduled for release in November.



Cell³iMager duos



iPS cell



Automatic evaluation of
undifferentiated and undifferentiated
deviated cells

Please download the photos from
www.screen.co.jp/press/download/HD181119-1.zip

In recent years, medical and drug development technologies have shown remarkable progress, supported by the rapid advances made in relation to research and medical devices. This growth is expected to continue, with both drug development and regenerative medicine becoming mainstream, thanks to discoveries such as iPS and ES cells. However, to make this possible, it will be necessary to first develop a wide range of cells and then to culture them on a large scale. In terms of non-invasive² quality management, this has seen the requirement for more accurate and high-precision cellular image recognition emerge as a key issue.

In response to these needs, SCREEN has developed sophisticated image analysis software that utilizes deep learning technologies. The software is to be made available with SCREEN's Cell³iMager duos, a cutting-edge system that allows imaging and analysis of cellular morphologies. The device has an impressive track record with respect to organoid and stem cell research, where it now enables the accurate identification of differentiated cells cultured from iPS and human stem cells.

Cell³iMager duos's image input section allows clear, high-speed acquisition of the entire surface of cell culturing plates while significantly reducing any losses in imaging range and time. The resulting large-scale image data combined with the system's new deep learning technologies enable precise analysis that supports highly reproducible cell evaluation and quality management. The installation of the software allows the optimization of culturing conditions and performance of a wide variety of analyses, including non-invasive quantification of morphological characteristics and quality assessments of differentiated cells.

SCREEN's development of this new deep learning analysis software is expected to significantly expand the company's business interests in the cell imaging field, an area that continues to show strong growth in demand. It is also expected to drive further expansion in this rapidly diversifying field.

1. Organoids are simplified versions of internal organs produced in vitro in three dimensions.
2. Non-invasive techniques eliminate the potential for damaging organisms and ensure the homeostasis of their internal environment is not disturbed.

Contact:

SCREEN Holdings Co., Ltd.
screen_lifescience@emis.screen.co.jp