Application Note 201

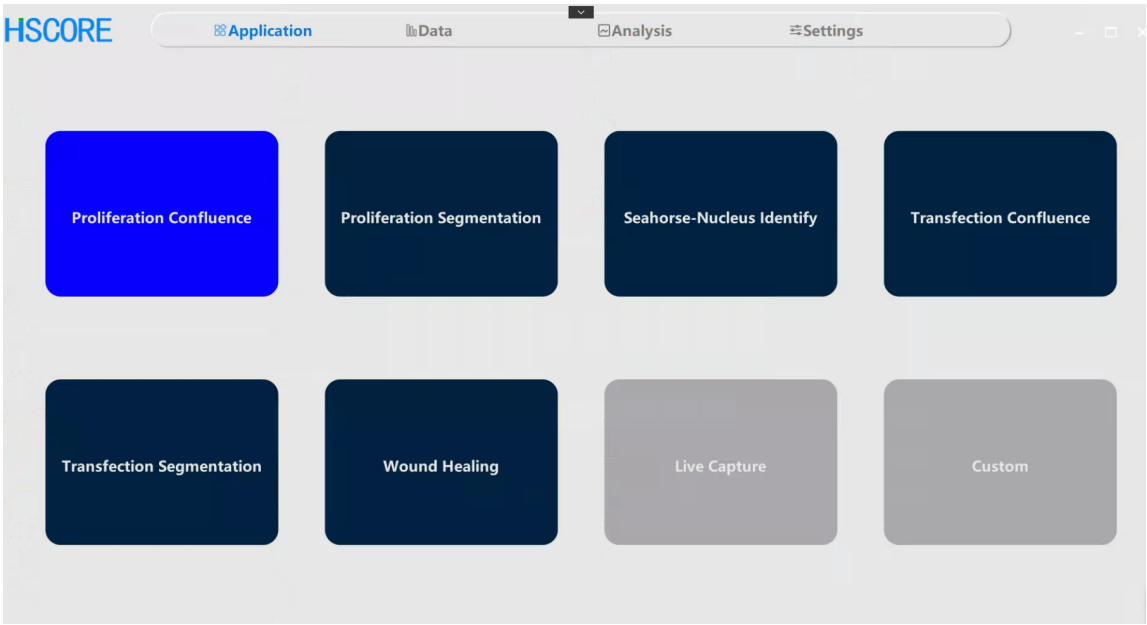
EOS Unlabeled cell segmentation ONE BY ONE

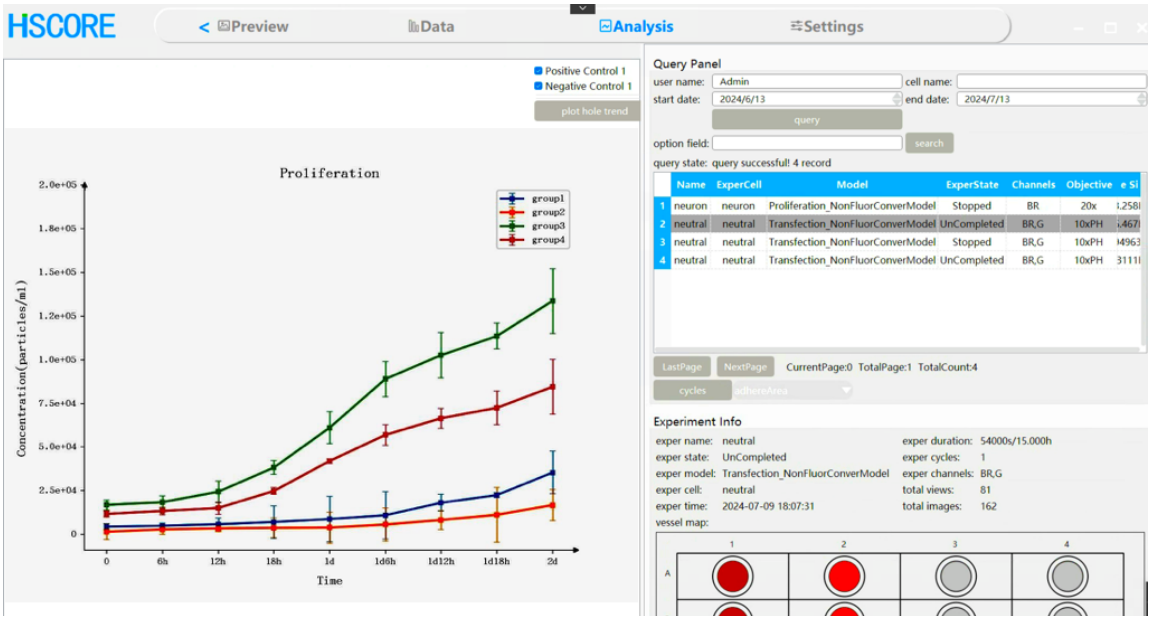
As the most fundamental life activity of cells, cell proliferation detection techniques are widely applied in research fields such as molecular biology, tumor biology, stem cell research, pharmacology, and pharmacokinetics. These techniques provide important data for exploring the rule of cell life activities, the pathogenesis of diseases, disease diagnosis, and treatment. The EOS Long-term Cell Imaging Workstation owns label-free cell proliferation classification application , which solves the pain points in the measurement process. The cell growth curve was formed based on image data. Coupled with a deeply trained AI neural network algorithm model, it can accurately classify various types of cells. It supports whole-well/area capture of 6- to 384-well plates, minimizing human hand to the greatest extent and enabling quantitative analysis of the entire process of cell proliferation.

A neat and smooth workflow

The independent EOS application app is easy to use. The capture view, cycle, and objectives(4x, 10x, 20x, with 40x expansion supported) can all be set on the software without the need for manual adjustment. After the settings are completed, the instrument automatically collects images. The deeply trained AI neural network algorithm of EOS automatically identifies the cell boundaries and generates a curve about the number of cells (/mm2) based on the flow of time .

The EOS Long-term Cell Imaging Workstation is friendly for high-throughput drug screening. It can independently analyze the cell proliferation curves of individual wells in 96- to 384-well plates. The data results are presented in the form of a dataset, enabling compound screening or condition identification in a fast and simple way.

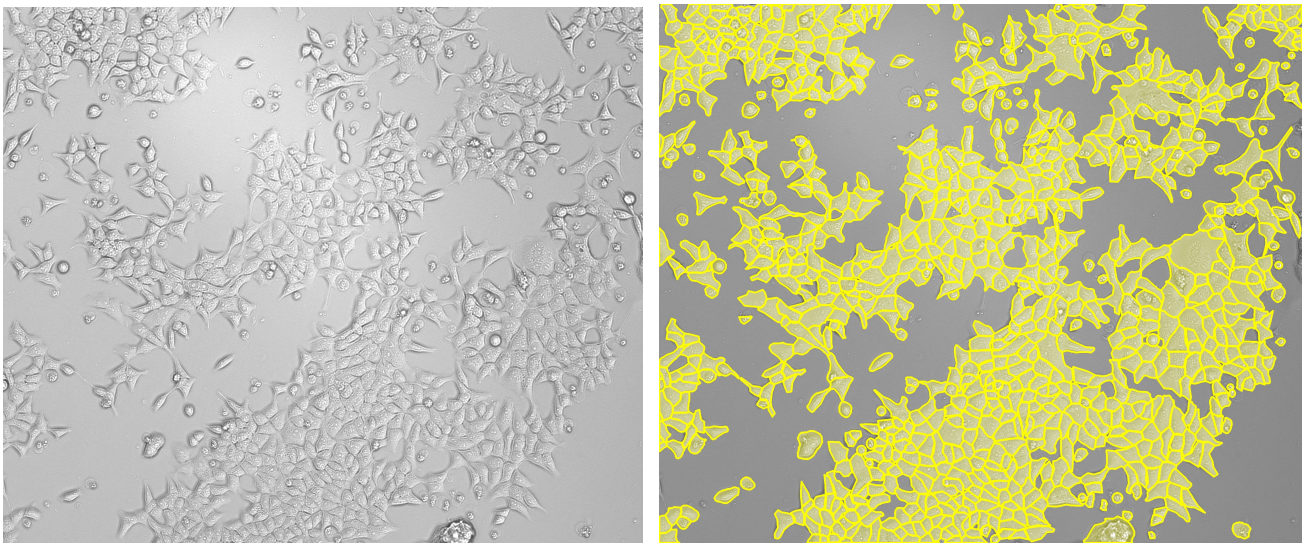




EOS boldly adopts the customer-friendly app model. This simplifies the operation process and changes customers' perception that traditional imaging equipment software is complex and difficult to master.

High-precision label-free cell classification and counting

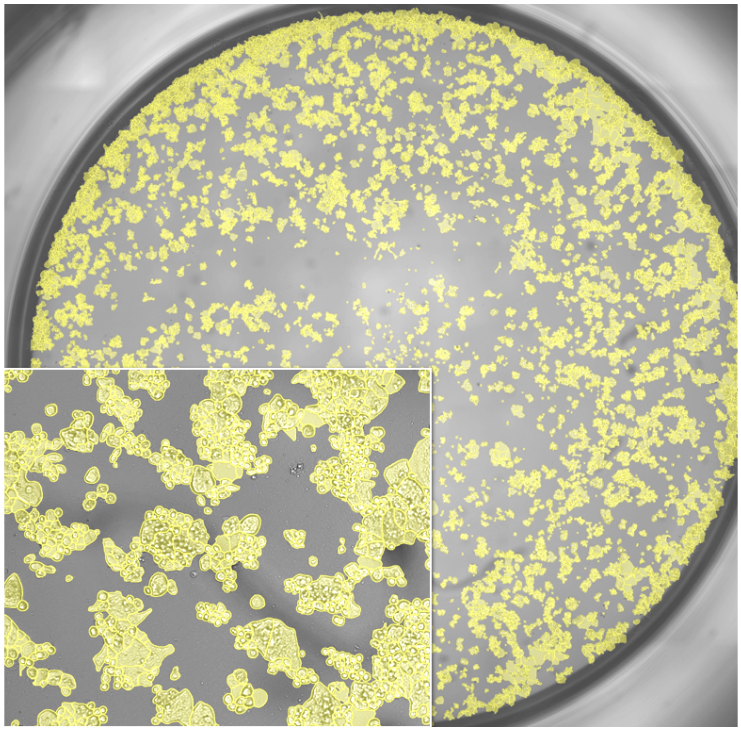
The vast majority of adherent cells have different morphologies. They may present relatively complex shapes such as slender fusiform or synapse-like. At the same time, some semi-adherent and semi-suspended cells are mixed with round suspended cells. Conducting precise label-free classification of these cells is a relatively difficult task. The label-free cell proliferation classification AI algorithm equipped in EOS has undergone in-depth training with a large amount of data from multiple groups of models. It can meet the segmentation requirements of the vast majority of cell types without the need for manual parameter adjustment.



Enter the Proliferation Segmentation APP to experience precise one-by-one analysis

Whole-well capture and analysis

The EOS cell proliferation analysis is not limited to capture at specific locations selected within the well plate. The instrument can be set to the area mode or the whole-well mode to conduct unified analysis of cells in a specific area or the entire well, enabling every cell to realize its value.



Perform a whole-well scan of 96 wells at 4x magnification. The AI-powered seamless stitching algorithm and label-free segmentation can meet users' absolute quantification requirements for the number of cells in the whole well. By capturing the whole-well images, no important information will be missed.

Conclusion

The cell proliferation module of the EOS Long-term Cell Imaging Workstation non-invasively and dynamically monitors changes in cell proliferation values based on image algorithms. Through high-precision AI analysis and whole-well/area capture modes, it significantly reduces human operation, improves data accuracy and stability, and eliminates reagent/environmental interference. The neat workflow and high-precision analysis technology offer you a new experience in cell proliferation analysis.

For more questions and applications, please contact us in the following ways.
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