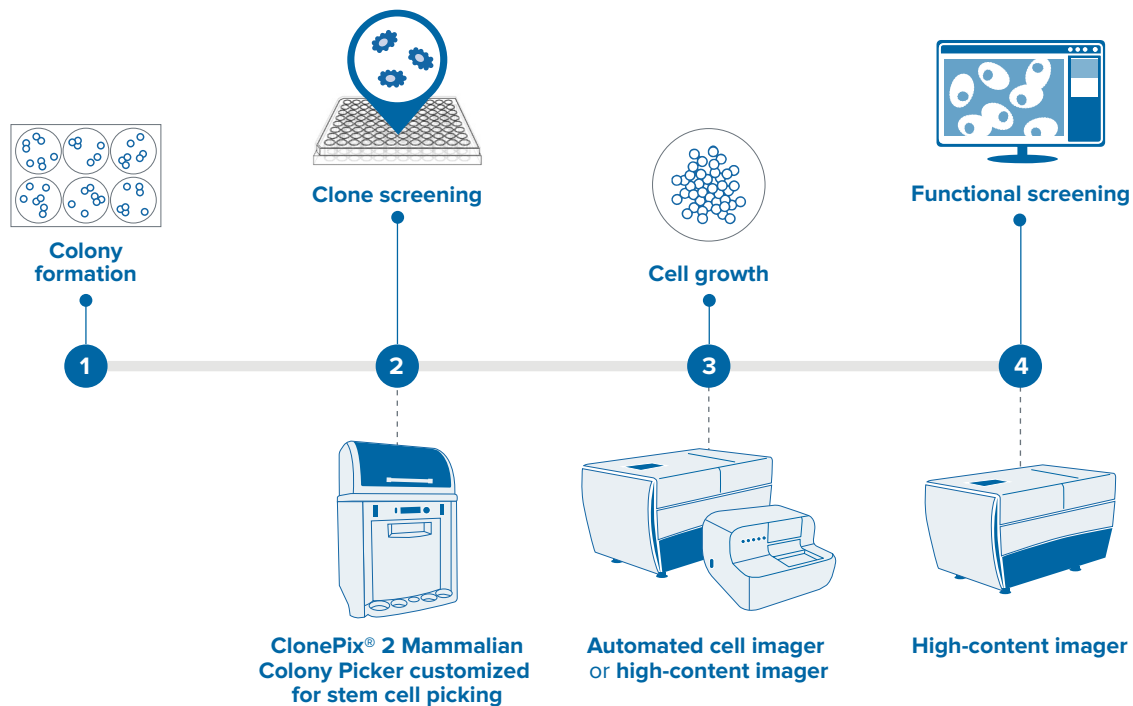


High-throughput stem cell screening

Regenerative medicine has the potential to provide cures for some of the world's most devastating diseases. However, many roadblocks remain when it comes to moving these therapies from the bench to the bedside. A major remaining roadblock is the laborious nature of manually screening through large populations of cells. Automating this process allows a greater number of colonies to be screened—increasing both the number of colonies able to be screened, as well as time spent on more technical parts of the discovery process. The ability to adapt high-throughput screening technologies to stem cell workflows will allow scientists to accelerate their discovery processes and, in turn, move their novel therapeutics down the pipeline more quickly.

Here, we highlight a general workflow and systems for increasing the throughput of stem cell and regenerative medicine workflows.



1 Colony formation

Individual stem cells plated at a low density in 6-well plates allows them to divide and develop into colonies. Plating density is kept low to ensure that colonies are derived from a single parent cell.

2 Clone screening

Clonally-derived stem cell colonies are identified by their desirable morphological characteristics and are picked from the low density 6-well plates into higher density 96-well plates to carry forward with the screening. The ClonePix® 2 Mammalian Colony Picker can be customized with high resolution optics and stem cell specific pins, allowing this established technology to be leveraged in stem cell workflows.

3 Cell growth

Cell growth is determined by monitoring cell division over a given period of time using label-free imaging.

4 Functional screening

In addition to monitoring growth, functional cell based assays can be performed. This can include assays assessing differentiation potential, pluripotency, ability to form 3D organoids, and other desirable traits.

Technology highlight

ClonePix system with stem cell picking



Screen more clones in less time

ClonePix 2 system customized for stem cell picking is faster and more efficient than labor-intensive limiting dilution and FACS. Our sophisticated software and integrated robotics enable a picking speed of > 10,000 clones per day.



Select cells with desirable attributes

Easily screen and select clones based on cell morphology, cell viability, or any marker that is required in your workflow.



Pick colonies with accuracy

Robotic picking reduces risk of colony disturbance. Images of picked clones are stored with data.



To learn more, please contact your regional Molecular Devices technical sales specialist, visit www.moleculardevices.com or call +1.877.589.2214.

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