



ClonePix 2

Mammalian Colony Picker enhanced
for monoclonality verification

Tailored to your fit your workflow needs

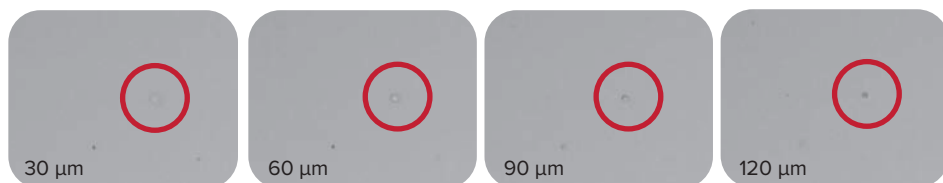
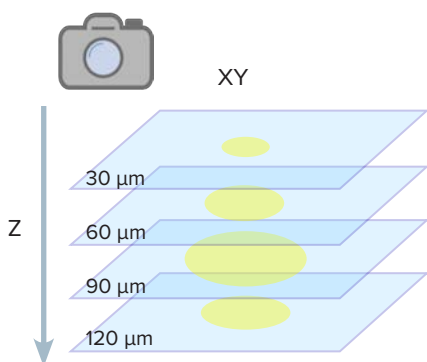
Same ClonePix workflow, now enhanced with high resolution single cell imaging capability on day 0

The enhanced ClonePix 2 system can automatically screen and pick clones that are both high producing and monoclonal—all in one system*

Obtain a comprehensive view of isolated single cells both in XY and Z dimensions on day 0 with the rapid Z-stack acquisition feature, which takes 2,400+ high-resolution, Z-plane images per microwell and rapidly compiles them into an image stack.

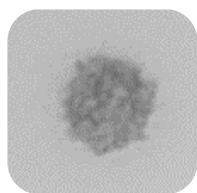
On the day of picking, colonies of interest are identified based on productivity data generated from the enhanced ClonePix™ system. These colonies' origins can be traced back to single-cell images from day 0, allowing seamless assessment of a colony's monoclonality and productivity prior to picking.

Day 0

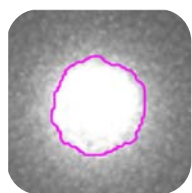


Confident identification of single cells is provided by a high precision XY stage mechanism and Z-step motor, which enable accurate alignment of images in XY and Z dimensions, respectively. Imaging over multiple planes decreases the likelihood of misidentifying objects by screening for nearby cells in 3 dimensions instead of 2. Clones can also be visualized in greater details with over 4X increase in resolution compared with previous versions of the ClonePix systems.

Day of picking



Colonies are assessed for productivity *in situ* using fluorescence



Automatically associates high-value colonies to day 0 image data



Outline of colony is compared to day 0 image

The enhanced ClonePix system links high-value colony with its day 0 image for automated assessment of single-cell derived clones.

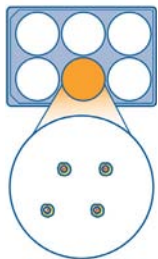
Key benefits

- Reduce screening time from two rounds to one by providing image-based evidence of clonality
- Rapid Z-stack acquisition feature allows detection of single cells throughout the medium volume, not just a single focal plane, on day 0
- Simplified workflow from single cell identification and productivity screening with the all-in-one system

Automated determination and picking of single-cell derived clones using the enhanced ClonePix 2 system

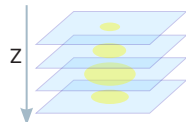
Day 0 imaging

Plate cells at low density into semi-solid medium

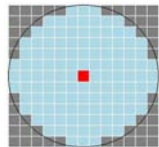


Single cells are compartmentalized by semi-solid medium

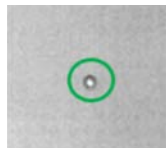
Z-stack imaging on day 0



Rapid Z-stack acquisition provides images of single cells



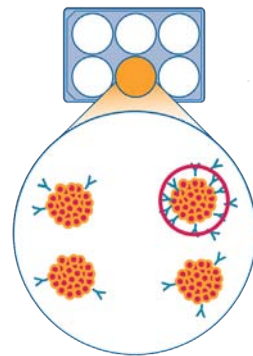
User can select specific locations or whole well to capture Z-stack



Z-stack acquisition at a single field-of-view

Day 1–14 imaging

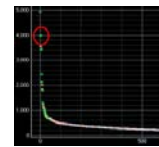
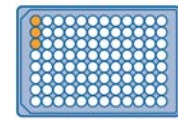
Let colonies grow for a number of days; optional imaging on subsequent days during this period



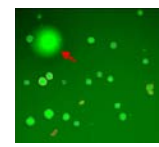
Clone productivity can be observed based on fluorescence intensity

Day of picking

Screen and pick high-value clones based on fluorescence ranking and single-cell origin

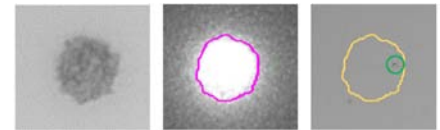


Clone Ranking



Clone Selection

Determining single-cell derived colonies



Fusion software associates colony with day 0 images for automated assessment of single-cell derived clones. User selects the clones that will be picked.

Picking single-cell derived clones made easier

Associating single-cell image data acquired on day 0 to the colony growth (yellow outline) allows evaluation of a clone's origin prior to picking. An algorithm assigns a monoclonality confidence score to all high-value clones. Users can pick clones that are monoclonally derived with confidence.

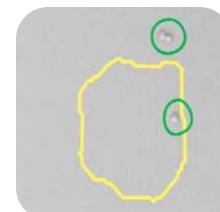
This enhanced ClonePix approach can reduce the timelines by half as the need for a second round of cloning to demonstrate clonality is no longer necessary.

Monoclonal

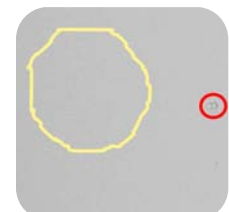


Certainty score = 0.92

Not monoclonal



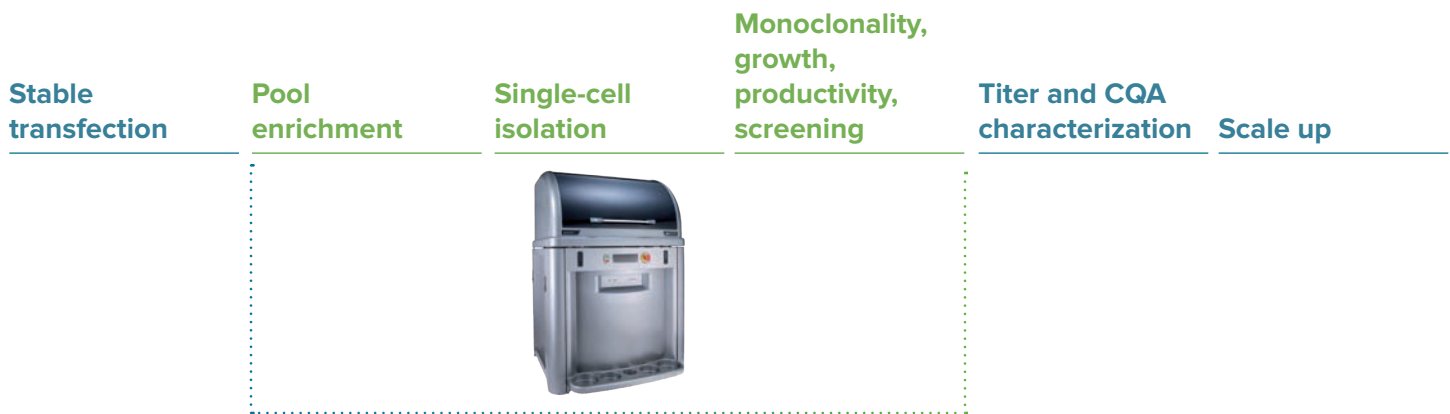
Certainty score = 0.11



Certainty score = 0.06

Fusion software assigns a certainty score to each colony based on picking day colony location and single cell Z-stack images at day 0. The threshold of determining monoclonality from the certainty score is variable based on user-defined inputs.

Accelerate cell line development timelines by integrating multiple steps into a single step

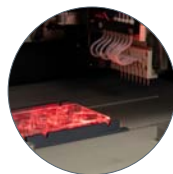


Explore modifications to fit your needs

The Molecular Devices team has successfully tailored the ClonePix 2 systems for customers on request to include customized software and hardware*.

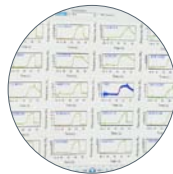
*Price, time to deliver, and specifications will vary based on mutually agreed technical requirements. Solution requirements may cause adjustment to standard performance.

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