Validation of next generation microbial colony pickers using fluorescence in a complete workflow solution

Anna Phillips*, Andrea Gough†, Alasdair Robertson*, Sean McDonald*, Lee von Landau*, Steve Game* & Chris Mann*
Molecular Devices LLC, 1311 Orleans Dr, Sunnyvale, CA 94089
*Corresponding author: andrea.gough@moldev.com
†Affiliated or employees at the time of publication drafting but no longer affiliated with Molecular Devices, LLC

Introduction
The new QPix 400 series of microbial colony pickers has been developed and validated to meet the greater needs of today’s researchers. New features include:
- Selective screening for rare clones using multi-channel fluorescence
- Intuitive software to permit use of platforms by anyone in the lab
- Automatic agar height sensor for gentle, accurate picking
- Data tracking of specific clones through the entire workflow
- Greater flexibility of plate combinations and increased capacity for re-arraying and replicating

Applications
- Protein engineering and enzyme evolution
- Protein expression and transformation
- Biofuels and renewable chemicals research
- Phage display
- Metagenomics
- Clone management and library screening

Workflow
Plating
- Plates samples, e.g. transformations
- QPix 460 only

Screening
- Selectively screen by
  - colony characteristics, e.g. size, shape, proximity
  - fluorescent expression of proteins, lipids, etc
- Review entire source plate or tray in a single view

Picking
- Standard picking: collect clones from one heterogeneous population
- Regional picking: collect clones from many different samples – up to 48 samples per QTray

Replicating
- Make direct copies of plates (to same or different plate types)

Gridding
- Array samples onto agar or membrane filters for offline screening, hybridization or blotting
- Compatible with microbes, phage, DNA, PCR products or proteins

Re-arraying (hit-picking)

Summary
World’s first range of microbial colony pickers with fluorescence-based screening capability
- Designed with intuitive, easy to learn software for use by everyone in the lab
- Validated for high rates of success and fidelity at each process