

APPLICATION NOTE

Take advantage of customizable plating patterns for extra flexibility in sample handling with the QPix 460 automated microbial colony picker system

Introduction

Agar-filled QTrays are used for large scale culture and screening of bacterial colonies. With the addition of a 48-well divider, multiple bacteria samples can be separately cultured on the same QTray (Figure 1 left). Typically plating on the QPix 460 is easily performed using QTrays with dividers. However, it is possible to culture multiple bacteria samples on QTrays without dividers as well, but concerns regarding cross-contamination must be overcome. In this note we demonstrate how the QPix™ 460 with customized plating can be used to plate QTrays without dividers while minimizing potential for cross-contamination between samples.

The QPix 460 automated microbial colony picker has the ability to plate samples on to agar-filled QTrays. 96 samples can be plated in 30 minutes. The default QPix 460 plating patterns are designed for plating agar-filled QTrays with dividers. However, the Plating Pattern Editor process in the QPix 460 software allows users to have the flexibility to create custom plating patterns. This makes it possible to create smaller plating patterns which will result in sufficient spacing between samples to prevent contamination when plating on to agar-filled QTrays without dividers.



Figure 1. Agar-filled QTrays. A QTray with dividers (left) and without dividers (right) is shown.

Creating custom plating patterns

The Plating Pattern Editor is located under Plating Processes in the QPix 460 software (Figure 2). Once in the Plating Editor window, a custom plating pattern can be created and added (Figure 3).

Plating *E.coli* on to QTray

After creating the partial spiral plating pattern (Figure 4B), we used the Plating process on the QPix 460 along with the spreading head and pins to plate out *E.coli* diluted out at various concentrations on to a LB agar QTray without dividers. The QPix 460 was programmed to pipet 40µl of each *E.coli* sample and to use the partial spiral plating pattern.

After plating, the QTray was incubated overnight at 37°C. The next day the entire QTray was imaged in white light on the QPix 460 (Figure 5B and 6B).

Benefits

- Customizable plating patterns provide flexibility and prevent cross-contamination in the agar-filled trays used for plating
- Precise plating and spreading of multiple samples
- Fully automated workflow from plating to spreading to picking

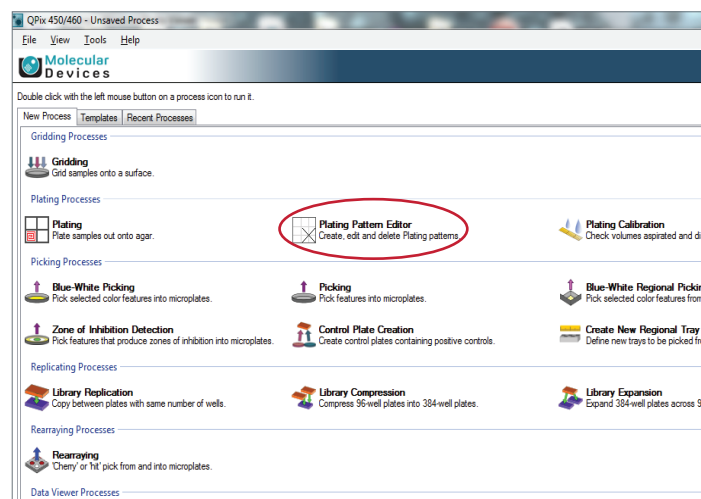


Figure 2. The main window for the QPix 460 software. The Plating Pattern Editor (circled in red) is located under the Plating Processes in the QPix 460 software.

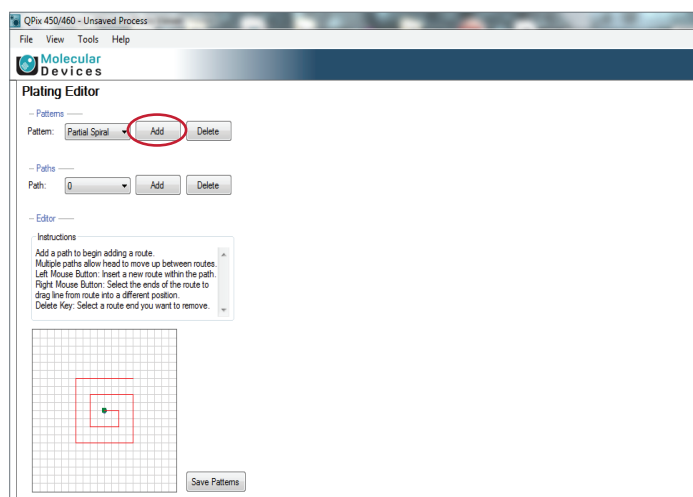


Figure 3. Plating Pattern Editor window. The plating pattern is created within the square grid area. By clicking on add, the custom plating pattern will be saved and available for use on the QPix 460.

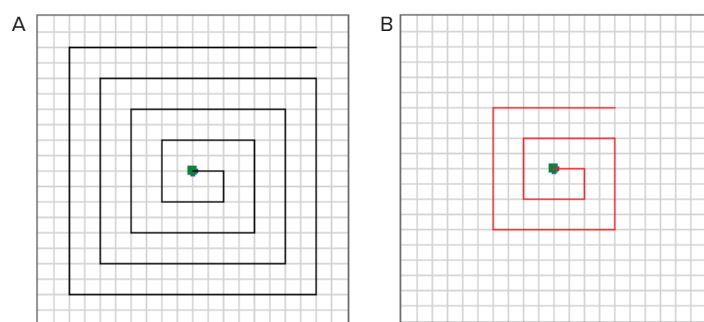


Figure 4. Full and partial spiral plating pattern. A) The default full spiral pattern provided in the QPix software. B) The use of the Plating Pattern Editor in the QPix software allows for the creation of a partial spiral plating pattern that can be used for plating QTrays that do not have dividers.

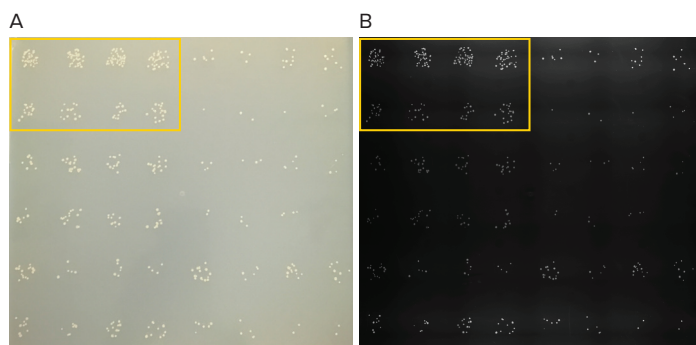


Figure 5. Whole QTray Image. A) A standard camera image and B) QPix 460 white light image of the QTray plated using the partial spiral pattern with different concentrations of *E.coli*. A magnified view of the yellow boxed area is shown in Figure 6.

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Phone: +1-800-635-5577
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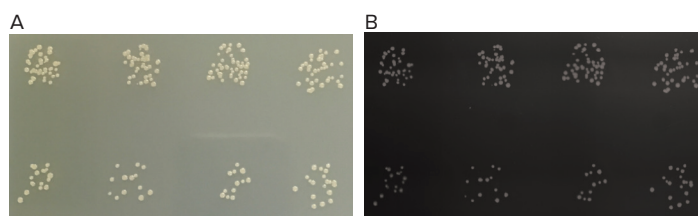


Figure 6. Magnified view of the 8 highest *E.coli* sample concentrations plated on the QTray imaged in Figure 4. The A) standard camera and B) QPix 460 white light magnified images are shown. These samples are distinctly separate from each other with no cross-contamination observed.

Conclusion

Using the partial spiral plating pattern, there is plenty of space between each sample so that the samples remain separate with no colony growth observed in between them. This demonstrates that the QPix 460 is capable of not only plating multiple samples on to QTrays with dividers, but also on to QTrays with no dividers without any cross-contamination. The same partial plating pattern method can be adapted for Nunc™ OmniTrays™ as well.

Product	Configuration	Catalog #
QPix 460	High-throughput screening and objective selection system for microbial colonies	Contact Us
Vented QTray with cover, polystyrene, 240 x 240 x 20 mm	20 per case	X6023
48 Well Dividers for QTray, polystyrene, sterile, individually wrapped	20 per case	X6026
Vented Qtray with cover & 48 Well Divider, polystyrene, 242 x 240 x 20 mm	20 per case	X6029
Replacement pin for streaking head	Each	X4330
Streaking head	8 pins – 3.0 mm diameter	X4345
130 µL ART pipette tips	Pack of 10 boxes	T0130