

■ Laboratory for Lung Development and Regeneration

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[Background/Objective]

Research on the respiratory system at the RIKEN laboratory has focused on generating respiratory tissue organoids from mice. To develop an *in vitro* pathology model, uniform organoids are grown in semi-solid support such as Matrigel®. The spheroids are selected and isolated based on morphological assessment, which is an important requirement in 3D culture. The applicability of CELL HANDLER™ in this spheroid transfer process was evaluated by the RIKEN research group.

[Material and Methods]

Respiratory tissue organoids were generated in 75% Matrigel® domes in 24-well cell culture plates, subjected to morphological imaging and subsequently harvested directly from the domes using the CELL HANDLER™.

[Observations obtained]

Organoids which met pre-defined morphological criteria were identified (Fig. 1A), and were picked without contamination with adjacent organoids (Fig. 1B). A representative image of a single organoid transferred to a 96-well cell culture plate is shown in Fig. 2. These data confirmed that only selected organoids were reliably isolated by the CELL HANDLER™. In addition, growth of isolated organoids was observed (data not shown), indicating that no damage was sustained in the transfer process. These data obtained by morphology-based, direct harvesting of organoids from Matrigel® domes demonstrate the applicability of the CELL HANDLER™ in respiratory tissue organoid research.

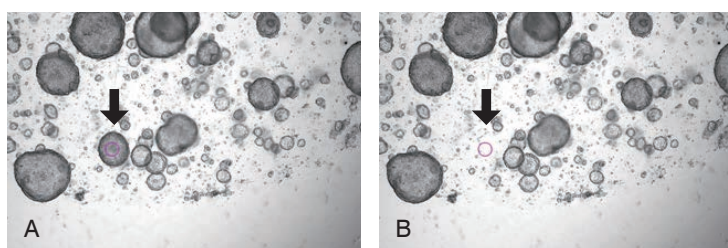


Fig. 1. Images of organoids generated in a Matrigel® dome before (A) and after (B) picking by the CELL HANDLER™. Position of the organoid of interest is indicated by an arrow.

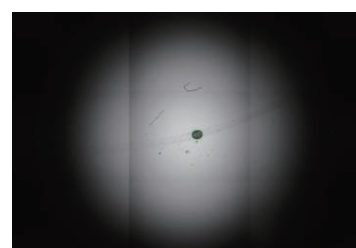


Fig. 2. Image of the organoid harvested.

[Acknowledgement]

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* "Matrigel" is a registered trademark of Corning Inc..

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* For research use only. Not for use in diagnostic or therapeutic procedures. * The specifications are subject to change without notice.
* The above are the results of experiments in our laboratory. The results may vary depending on the work environment, cell type and so on.

