

## Development of Alveolar Epithelial Type II Cells from Human Induced Pluripotent Stem Cells

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It is well known that some drugs cause pulmonary toxicities, such as interstitial pneumonia and it is important to minimize the risk of the drug-induced respiratory diseases for patient safety. However, it is difficult to obtain human lung cells and culture the cells for a long-term period to explore the mechanistic approach for the adverse effects. In this study, we tried to induce alveolar epithelial type II (AT2) cells from human induced pluripotent stem cells (iPSCs) using two-dimensional culture method. Differentiation was performed by mainly two steps; the first step was to generate lung progenitor cells and the second step was to induce AT2 cells from lung progenitor cells. The differentiated cells were collected, extracted RNA, and characterized by quantitative real-time PCR. We found that the differentiated cells from human iPSCs expressed AT2 cell markers, such as surfactant protein C, surfactant protein B, ATP binding cassette subfamily A member 3, and solute carrier family 34 member 2, suggesting the cells exhibit AT2-like properties. We are currently working on drug-induced pulmonary toxicities using AT2 cells.