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Abstract: Generation of functional lung epithelial cells from embryonic stem cells: a possible therapeutic approach for cystic fibrosis

Cystic Fibrosis (CF) is the most common genetic disease in the Caucasian population and despite recent advances in supportive care, there is no cure and median life expectancy for those with CF remains to be in the 30's. The major organ affected by CF is the lung, which develops defective hydration of the airways with impacted mucus and subsequent chronic bacterial infection. Recently, Dr. Weiss has demonstrated the ability to repeat stages of embryologic lung development with MSCs (mesenchymal stem cells) *in vitro* and devised techniques to mature MSCs into definitive endoderm cells, which is the embryologic precursor of lung tissue. Through the use of embryonic stem cells (ESCs) we have been able to create a similar approach, with analogous techniques cells. The use of ESCs provides an alternative approach from the use of MSCs, to generate functional lung epithelium in an effort to provide new advances in the treatment of patients with CF.