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## HUMAN RESPIRATORY EPITHELIAL CELLS DERIVED FROM THE NASAL TURBINATE EXPRESS MESENCHYMAL STEM CELL MARKERS

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### **Background:**

Respiratory epithelium is the epithelial lining for most of the conducting portion of the respiratory system. The respiratory epithelium is a ciliated pseudo-stratified columnar epithelium with numerous scattered goblet cells and provides an efficient barrier against microorganisms and harmful molecules. In numerous airway diseases, such as rhinitis, asthma, chronic obstructive pulmonary disease and cystic fibrosis, respiratory epithelium is severely damaged and must regenerate to restore its function. Tissue engineering is an emerging field directed toward reconstituting structurally and functionally normal tissues and organs. Stem cell markers are cell surface receptors used to isolate and identify stem cells. Many recent studies have identified set of surface markers that are expressed by mesenchymal stem cells. It is generally agreed that adult human mesenchymal stem cells express CD73, CD90 and CD105 and do not express the hematopoietic stem cell markers CD45. The objective of this study is to detect the mesenchymal stem cells in human respiratory epithelium.

### **Materials & methods:**

Respiratory epitheliums from the nasal turbinates were cultured using co-culture technique and then passaged. Respiratory epithelial cells were examined for the expression of CD73, CD90, CD105 and CD45 at passage 1 and passage 4 using flowcytometry.

### **Results:**

The result showed that respiratory epithelial cells expressed CD73, CD90 and CD105 at passage 1 and passage 4 with no significant difference between passages. There was no expression of CD45.

### **Conclusion:**

This preliminary study indicates that human respiratory epithelial cells from the nasal turbinate expressed mesenchymal stem cell markers and this expression is maintained till passage 4.

### **Keywords:**

nasal, mesenchymal, stem cells, respiratory