**Research Area: Respiratory Medicine (Pulmonary Emphysema)**

Chronic obstructive pulmonary disease (COPD) is a progressive life threatening lung disease that causes breathlessness and predisposes to exacerbations and serious illness. COPD was anticipated to be the fourth most important reason of demise, globally. COPD has been ranked 11th in chronic morbidity in 2002 and is estimated to rise to 7th position by 2030. There are two major diseases that lie under COPD, i.e. pulmonary bronchitis and pulmonary emphysema. Pulmonary emphysema characterized by alveolar wall destruction is resultant of persistent chronic inflammation. Recently only, growth factors like kerotinocyte growth factor (KGF) and hepatocyte growth factor (HGF) and derivative of vitamin-A that is all-trans retinoic acid have been reported to reverse emphysema in rodent models. However, the underlying molecular mechanisms behind the progression of emphysema disease and therapeutic potential of growth factors and ATRA in tissue regeneration are so far unknown. Hence, my research is interested in identifying all those various molecular pathways which plays important role in: 1) progression of pulmonary emphysema and 2) alveoli tissue regeneration.

**Emerging scenario:** The current treatment options for emphysema aim at easing and preventing the disease, but none of them work towards the reversal of disease to normal. Alveolar epithelium tissue regeneration is the only hope to cure emphysema; therefore, there is an urgent requirement for a development of therapy option which must have a potential to repair the lost alveolar septa. In this regard, few potential molecules/regenerative therapies are under development such as use of retinoids and use of various growth factors. The preliminary data regarding protective and therapeutic potential roles of KGF and ATRA in emphysema condition have already been explored and reported in our previous studies. However, the tissue regeneration in emphysema condition is still a major challenge and therefore, keeping this issue in priority, the propose objective is to investigate the synergistic therapeutic potential of KGF and ATRA in alveolar wall regeneration and maintenance programs in emphysema condition in more systematic and effective manner. I believe in that, such recovery of lost alveolar septa tissue may raise a possibility to treat patients of emphysema in future.

**Expert in COPD:**

1) Dr Amit Kumar Tyagi

Scientist E, INMAS

Institute of Nuclear Medicine and Allied Sciences (INMAS)

Defence Research and Development Organisation (DRDO)

Timarpur, Delhi 110054, INDIA, Mob. 9873803015

2) Prof. AB [Bhome](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhome%20AB%5BAuthor%5D&cauthor=true&cauthor_uid=22754670),

Area: COPD

Pulmonary Critical Care Sleep Medicine,

B.V. Medical College, Pune 411043, India.

3) Dr. Ritu Kulshrestha, Assistant Professor

Area: Respiratory medicine

Department of Pathology

V.P. Chest Institute, University of Delhi, Delhi - 110007

Email: [ritukumar71@yahoo.com](mailto:ritukumar71@yahoo.com)