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# 2011第四届蛋白质和多肽大会 BIT's 4<sup>th</sup> Annual Protein and Peptide Conference

**主题：蛋白质和多肽领域的新领军者**  
**Theme: New Leaders in Protein and Peptide Science**

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## Title: Alpha-1-Antitrypsin deficiency: Role in Chronic Obstructive Pulmonary Disease

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### Abstract

Chronic Obstructive Pulmonary Disease (COPD) has been predicted to rise to the fifth highest in the global burden of disease by 2020. Chronic respiratory diseases have a pre-eminent role in the health conditions of coalminers and exacerbations of COPD are known to result from increased levels of particulate air pollution. There are two major hypotheses in the pathogenesis of COPD. One is the protease-antiprotease hypothesis, which states that various proteases break down connective-tissue components, particularly elastin, in lung parenchyma to produce emphysema. This theory could explain the mechanism of development of COPD in  $\alpha$ -1-antitrypsin deficiency. The other, nonmutually exclusive, hypothesis is the oxidant-antioxidant theory, which proposes that oxidant stress and reactive oxygen species (ROS), resulting from an oxidant/antioxidant imbalance. One of the risk factors for developing COPD is on account of the environmental triggers in genetically susceptible individuals. Atmospheric pollution from anthropogenic sources such as coal mining, industrial sources is a serious worldwide concern as it is associated with adverse health effects. This research work has been carried out to study the relative prevalence of the disease amongst the people residing in the vicinity of open- cast coal mine areas in Assam, India and also to trace out the genetic susceptibility to the disease in the population. Extensive survey was carried out in the Open- cast coal mine areas in Assam and data were recorded in Questionnaire formats by close interaction with the local people with their consent. Blood samples were collected (random sampling) from large number of villagers residing very near to the coal mine through health camps conducted in the area; and spirometry was carried out. There was significant air pollution in the study site and pulmonary function decline was observed amongst most of the villagers exposed to the study site.

### Biography

Dr. B.G.Unni Scientist G (Biotechnology) and Area Coordinator (Biotechnology/Biological Sciences) did his BSc Biology, MSc and Ph.D. in Biochemistry from Allahabad University and PDF in Molecular Biology from Texas A&M University, USA. Dr. Unni is specialized in Biochemistry Molecular Biology, and Biotechnology and well established in his area of research and has already completed more than 35 years of research in both basic and applied field of research. Dr. Unni got more than 80 research papers 110 abstracts, 35 papers in proceedings, 4 patents, 1 technology. 18 chapters in books, edited three books and guided 14 students for Ph.D. degree. Currently Dr. Unni is looking after the projects sponsored by Department of Science & Technology, GB Pant Institute of Himalayan Environment and Development, Department of Biotechnology, CSIR and Defence Research Laboratory, DRDO, Ministry of Defence, Govt of India. Awards and honours received Fulbright Travel Award/Fellowship, Texas A&M University (USA), Dr. B. M. Das Memorial Science award, Hebrew University Award-Awarded in the area of Juvenile Hormone Research, H.R. Cama Memorial Travel Award, COSTED Travel Award, DAAD- fellowship and Well Mark International Scholarship (USA). Dr. Unni is in the editorial board of more than eight indexed journal in the country. Dr. Unni was nominated to various state and central committees such as High power committee for development of sericulture activities Muga, Eri, Tassar and Mulberry in Assam. Expert in the area of non mulberry sericulture, Ministry of Textiles, Advisory Board, Post graduate Biotechnology programme, Academic Council, Assam Agricultural University, Research Council, Central Silk Board, Ministry of Textiles, Fulbright Academy of Science & Technology, USA, Board of studies- Botany Nagaland University and Biotechnology Saugar University Madhya Pradesh, Fellow, Indian Academy of Neurosciences & Indian Society of Agricultural Biochemists and Scientific Advisor International Foundation of Science, Sweden.

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