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## MOLECULAR PATHOGENESIS IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE DUE TO BIOMASS SMOKE EXPOSURE

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In Chronic Obstructive Pulmonary Disease (COPD), inhaled particles and gases trigger an inflammatory response, favoring tissue proliferation in small airways and tissue destruction in lung parenchyma, in addition to the recruitment of immune cells to these compartments. COPD mortality and morbidity have increased significantly worldwide in recent decades. Although cigarette smoke is still considered the main risk factor for the development of the disease, estimates suggest that between 25% and 33% of COPD patients are non-smokers. Among the factors that may increase the risk of developing COPD, biomass smoke (BS) has been proposed as one of the most important, affecting especially women and children in developing countries. Despite the epidemiological evidence linking exposure to BS with adverse health effects, the specific cellular and molecular mechanisms by which this pollutant can be harmful for the respiratory and cardiovascular systems remain unclear. However, a considerable amount of evidence has shown the potential of BS as an enhancer of lung inflammation. On the other hand, an impairment of some innate immune responses after BS exposure has also been described. Regarding the mechanisms by which biomass smoke alters the innate immune responses, three main classes of cell surface receptors, the toll-like receptors, the scavenger receptors and the transient receptor potential channels have shown the ability of transducing signals initiated after BS exposure. This paper is a comprehensive review of the immunomodulatory effects described after the interaction of BS components with pulmonary cell receptors, under a COPD-oriented point of view.

### Biography

Jordi Olloquequi completed his PhD in 2010 from the Department of Cell Biology of the University of Barcelona in collaboration with the Vall d'Hebron Hospital Research Institute (VHIR). After a postdoctoral research in that very group, he became Associate Professor at the University of Barcelona, Spain. At present, Dr. Olloquequi is a full professor at Universidad Autónoma de Chile. He is the Principal Investigator of a research project funded by the Chilean National Science and Technology Fund (CONICYT). His main research line aims to study the connection between inflammatory processes and disease, specially those in the respiratory and nervous systems.

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