Study on the impact of Toll-like Receptor 4 (TLR4) modulation in rare inflammatory-fibrotic diseases

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Abstract:

Fibrosis is an outcome of the repair response to tissue damage caused by inflammation. When the fibrotic process is excessive or dysregulated it leads to a pathological condition that can affect different organs and functions. My PhD project is focused on the possibility of having therapeutics targeting rare diseases in which the inflammation based on TLR4 activation plays a fundamental role.[1]

Idiopathic Pulmonary Fibrosis (IPF) is rare fibrotic pathology in which a pivotal role of TLR4-mediated inflammation has been observed [2]. The recent discovery of a complex crosstalk between fibrosis progression and inflammatory pathways underlines the central role of TRL4 and its potential as new drug target[3]. Here I propose an in vitro screening on cellular models of fibrosis of a variety of synthetic TLR4 antagonists to identify new potential drugs targeting fibrotic (rare) diseases.