

Neutraligands of the CXCL12 chemokine blocks asthma in murine models

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Chemokines are small proteins that attract inflammatory cells expressing at their surface the specific chemokine receptors. An emerging class of new compounds with anti-inflammatory properties can be developed, neutralizing the action of chemokines. These small chemicals prevent their actions on the subset of their natural target chemokine receptors. A proof of concept is given by a small molecule that neutralizes CXCL12. CXCL12 is a chemokine implicated in airway inflammation in asthma. CXCL12 binds and activates two G protein coupled receptors, CXCR4 and CXCR7. The CXCL12 neutraligand, chalcone 4 as the lead compound, prevents binding of CXCL12 to CXCR4 and CXCR7 and acts *in vivo* as anti-inflammatory in mouse models of airway hyper eosinophilia and asthma. Strategies to identify and characterize such "neutraligands" will be presented, as well as their potential interest in the therapeutic armamentarium targeting chemokine signalling in asthma. Such a strategy of a small molecule binding the chemokine itself, not the receptor - thus without effect on the cell homeostasis - is an important strategy as far as the airways are concerned since it may be delivered directly to the airways with potency and reduced side effects.

Biography

Nelly is an Inserm Research Director at Inserm (National Institute of Health and Medical research in France). She is working at the Laboratory of Therapeutic Innovation, UMR7200 CNRS-Strasbourg University, located at the Faculty of Pharmacy, Illkirch, France. She is working in the field of asthma and respiratory diseases since 1981 and has published more than 120 publications in peer reviewed journals.

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