Understanding a target of quinoline drugs

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The full details about the molecules and mechanisms that underlie the development of autoimmune diseases, such as multiple sclerosis and systemic lupus erythematosus, remain to be discovered. One compound that may have a role in alleviating these conditions is quinoline-3-carboxamide, which is currently being tested in various clinical trials. In this week's *PLoS Biology*, researchers from Lund University, Sweden, the University of Munster in Germany, and the company Active Biotech AB, identify a molecular target for quinoline compounds.

This study shows that quinoline compounds bind to a molecule called S100A9, which is expressed in some white blood cells that are involved in the regulation of immune responses. Furthermore, S100A9 interacts with two known pro-inflammatory receptors (Toll like receptor 4 (TLR4) and receptor of advanced glycation end products (RAGE), and this interaction is inhibited by quinoline compounds.

The published data describe a new mechanism whereby S100A9 can promote pro-inflammation at early stages of immune activation. These findings may lead to an increased understanding of the early steps in the development of autoimmune disease.

Three of Active Biotech's projects (laquinimod, 57-57 and TASQ) belong to the quinoline chemical class of compounds.

More information: Björk P, Björk A, Vogl T, Stenström M, Liberg D, et al. (2009) Identification of human S100A9 as a novel target for

treatment of autoimmune disease via binding to quinoline-3-carboxamides. PLoS Biol 7(4): e1000097. doi:10.1371/journal.pbio.1000097, biology.plosjournals.org/perls … journal.pbio.1000097

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