

SÉMINAIRES ET CONFÉRENCES



Tony Antakly

Département de biochimie et médecine moléculaire,
Université de Montréal

Biochemical and pharmacological studies on a novel anti-inflammatory urinary compound

We previously described HIP or (HCG Inhibitory Product) discovered as a “contaminant” that piggy backs on the hormone HCG found in the urine of pregnant females. This entity of low molecular weight compounds displays anti-Kaposi sarcoma effects. We continued analysis of this family of urinary molecules using biochemical techniques including mass spectroscopy, metabolomics, NMR, molecular fractionation, bioassays, etc. This led to the identification of a relevant bioactive molecular entity (named HIP-2). This low molecular weight compound is potentially useful to treat inflammation and cancer. It also functions as an HDAC inhibitor (histone deacetylase inhibitor), and a nuclear receptor (PPAR gamma) activator. We have now tested HIP-2 in different animal models of inflammation. The first one is a chronic, surgically (or chemically) induced rat knee osteoarthritis. The second one is an acute, paw carrageenan mouse model. Following a series of functional (e.g. pressure application measurements, von Frey tests), paw edema, histo-pathology, and biomarker tests, we found that HIP-2 indeed possesses potent anti-inflammatory and analgesic properties and inhibit cytokine and chemokine production. Furthermore, histo-pathological evaluation of the osteoarthritic knee and inflamed paw tissues was performed to determine effects on local inflammation, inflammatory cell infiltration, bone and cartilage damage / degradation. Importantly, in contrast to existing treatments, the animal pathology data consecutive to these tests indicate that HIP-2 can prevent or reverse structural damage caused by osteoarthritis to cartilage and bone on one hand and significantly reduce the number and functionality of inflammatory cells at the lesion site. Interestingly, modulation of inflammatory pathways seems to involve markers not previously recognized for their anti-inflammatory effects. Further studies on the signaling pathways and the clinical development of HIP-2 are under way.



Faculté de médecine
Département de biochimie
et médecine moléculaire

Université 
de Montréal

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**Pavillon Roger-Gaudry
Salle : G-1015**

Invité de Gerardo Ferbeyre

Tél : (514) 343-7571 courriel gerardo.ferbeyre@umontreal.ca