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Connexins and pannexins as novel drug targets in the treatment of acute and chronic liver disease

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Gap junctions, which mediate intercellular communication, are key players in liver homeostasis. As a consequence, they are also frequently involved in liver pathology. This equally holds true for connexin hemichannels, the structural precursors of gap junctions, and pannexin channels, connexin-like proteins assembled in a hemichannel configuration. Both connexin hemichannels and pannexin channels facilitate extracellular communication and drive a number of deteriorative processes, such as cell death and inflammation. Connexins, pannexins and their channels underlie a wide spectrum of liver diseases, including acute liver failure, cholestasis, hepatitis, steatosis, liver fibrosis and cirrhosis. This could open promising perspectives for the characterization of new targets for therapeutic purposes in the area of hepatology. This will be demonstrated in this presentation using data generated in my group in the last 2 years. It will be specifically shown that pharmacological inhibition of connexin hemichannels and pannexin channels counteracts the clinical manifestation of acetaminophen-induced acute liver failure and diet-induced non-alcoholic steatohepatitis in mice.

Biography

Mathieu Vinken has a background in pharmaceutical sciences and holds a PhD in experimental hepatology. He is a Professor and registered toxicologist at the Free University Brussels, Belgium. His research interests are situated in the field of connexin and pannexin research and its relevance for the areas of toxicology and hepatology. He is author of more than 100 publications. He is a regularly invited speaker on international conferences and acts as reviewer for several scientific journals. He is a member of 5 scientific societies in the field of toxicology and is Vice-President of the European Society of Toxicology *in vitro*.

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