Role of ZIP8 in regulation of liver function

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Abstract

Trace elements, such as zinc, manganese and selenium, are essential for human health. These elements are regulated via membrane transporters for cellular functions. My study is focused on ZIP8, a multi-functional membrane transporter, which facilitates cellular uptake of these elements. In the past five years, I have studied the role of ZIP8 regulation on liver physiology and pathology under various stimuli. My work demonstrates that 1) ZIP8 deficiency induces acute and chronic liver disorders via modulating selenium influx. 2) Lack of ZIP8 disturbs methionine metabolism and exacerbates alcoholic responses, characterized in a ZIP8-liver specific knockout mouse model. 3) ZIP8 overexpression triggers a dysregulation in glycogen metabolism within the liver. From these findings, I conclude that ZIP8 plays a significant role in liver health by maintaining trace element homeostasis, redox balance and immune response. My goal in the future is to continue along this field in order to further elucidate the mechanisms of trace element transportation and its relation to human disease.