

Study identifies a role for the metabolism regulator PPAR-gamma in liver cancer

April 10 2017

Liver cancers are a major cause of cancer-related deaths. Large-scale genetic analyses have associated liver cancer with dysregulation of numerous molecular pathways, but disruptions in insulin signaling pathways appear to have a particularly important contribution to liver tumor formation. Obesity is a major risk factor for developing liver cancer, and the nuclear receptor PPAR γ critically controls fat uptake and storage in the liver by regulating the transcription of metabolism-associated genes. However, whether PPAR γ also plays a role in promoting the growth of liver tumors is not clear.

This week in the *JCI*, research led by Ganna Panasyuk at INSERM examined the link between PPAR γ and liver tumor formation. The findings identify a metabolic pathway with pro-tumor effects that can be suppressed by selectively blocking PPAR γ .

Researchers initially observed that increases in PPAR γ expression and activity in human [liver tumors](#) were associated with loss-of-function of the transcription factor hepatocyte nuclear factor 1 α (HNF1 α). In a mouse model, they determined that loss of HNF1 α led to abnormal increases in PPAR γ expression that in turn led to increased tumorigenesis.

Pharmacological activation of PPAR γ in a [mouse model](#) of [liver cancer](#) exacerbated tumor formation; in contrast, treatment with a PPAR γ inhibitor had positive therapeutic effects.

Taken together, these findings demonstrate a role for PPAR γ in the [metabolic pathway](#) disturbances that promote liver tumorigenesis and reveal that PPAR γ is a potential target for anti-tumor therapies to treat liver cancers.

More information: Cecilia Patitucci et al, Hepatocyte nuclear factor 1 α suppresses steatosis-associated liver cancer by inhibiting PPAR γ transcription, *Journal of Clinical Investigation* (2017). [DOI: 10.1172/JCI90327](#)

Provided by JCI

Citation: Study identifies a role for the metabolism regulator PPAR-gamma in liver cancer (2017, April 10) retrieved 15 February 2024 from <https://medicalxpress.com/news/2017-04-role-metabolism-ppar-gamma-liver-cancer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.