

MOUSE MODEL OF HEPATOCELLULAR CARCINOMA

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Technology description

Researchers at the University of California have developed a mouse model of HCC that will be useful in the design of new therapeutics for the treatment of liver cancer. Overexpression of the human Met receptor tyrosine kinase in hepatocytes (known to occur in human HCC) results in the formation of HCC in the transgenic mice. This HCC model develops hyperplasia with multiple characteristics of human HCC precursors and leads to the development of the trabeculae typical of advanced HCC. The incidence of HCC was 60% by one year of age. Additionally, administration of doxycycline results in suppression of Met expression and full regression of the tumors, providing a control for therapeutic treatment with novel compounds. This animal model provides a crucial reagent for the testing and development of novel compounds against not only the Met oncogene but also against a HCC model that closely mimics the human cancer.

Hepatocellular carcinoma (HCC) is the most common form of liver cancer worldwide and accounts for three out of every four cases of primary liver cancer. HCC is the fifth most common cancer worldwide with a global incidence of one million cases each year. Although less common in the US than Asia and Africa, where HCC is the most common cancer in some countries, global incidence is increasing with the US having a three-fold increase in the last decade. This trend is especially alarming due to the poor prognosis associated with HCC. The overall five-year relative survival rate from liver cancer is about 7%, with the only curative options being surgery or liver transplantation. Alternative treatments include embolization, radiation therapy, and chemotherapy; however, liver cancer does not respond favorably to most currently available chemotherapeutic agents and doxorubicin and cisplatin remain the most effective agents. The increasing incidence of HCC, poor survival rate, and lack of treatment options necessitate the development of better treatments for HCC. A mouse model of HCC has been created, and validated, which closely mimics the development of HCC in patients and will be an important tool for the development of new therapeutics.

Other Information

Activation of the Met Receptor by Cell Attachment Induces and Sustains Hepatocellular Carcinomas in Transgenic Mice

Application area

Hepatocellular carcinoma (HCC) mouse model that mimics the progression of human HCC Tumorigenesis due to overexpression of Met RTK, as often occurs in human HCC Animal model useful for screening and testing novel therapeutics against Met RTK and HCC

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