Ras-Driven Conditional Model Of Liver Cancer

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BACKGROUND

Liver cancer is among the most lethal cancers, the third and sixth most frequent cause of cancer death in men and women, respectively. Amongst the several histologically different primary hepatic malignancies, hepatocellular carinoma (HCC) accounts for 70 to 85% of the cases. Animal models that mimic features of liver tumor development in human are invaluable research tools for understanding the mechanism of liver carcinogenesis and developing new drugs for treatment of patients with HCC.

TECHNOLOGY DESCRIPTION

Researchers at the University of California, San Francisco have developed a conditional transgenic mouse model of activated HRAS-driven liver cancer which can be used to model human liver tumor formation and regression. This is a doxycycline regulated system in which treatment of mice with doxycycline turns off transgene expression. Once doxycyclyine treatment is stopped, mice rapidly develop extensive liver tumors consistent with HCC. This model allows for studying different stages of liver tumor formation and regression and is useful for screening and testing novel therapeutics that may impact different stages of tumor progression.

APPLICATIONS

- Useful for screening and testing novel therapeutics including small molecule and nucleic acid-based antagonists

ADVANTAGES

- Allows for regulated expression of the oncogene such that a large cohort of mice can be expected to develop liver tumor with similar kinetics
- Due to the conditional nature of the model, activity of drugs to block tumor formation and/or to elicit tumor regression may be identified

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OTHER INFORMATION

KEYWORDS

Mouse Model, Tumors

CATEGORIZED AS

- **Medical**
  - Disease: Cancer
  - Research Tools
    - Animal Models

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