Transgenic Mice with Prostate-specific Reporter Gene Expression

Tech ID: 20190 / UC Case 2004-600-0

BACKGROUND

Prostate cancer is the second leading cause of cancer deaths among men in the United States. Current treatments include surgery, radiation and anti-androgen therapy, although each option carries with it undesirable side-effects. Development of new pharmaceuticals with which to treat the disease relies on animal models that allow investigators to see easily the effects of a drug on the prostate. Current prostate cancer animal models require sacrificing the animal before the pharmacological effects of a drug can be observed. This makes following a drug at multiple time points tedious and expensive. While the use of cell lines simplifies assaying a drugs potency, it does not provide in situ information. Thus, the development of an animal model that would allow one to assay with ease the effectiveness of lead compounds could greatly accelerate development.

INNOVATION

Scientists at UCLA have developed a transgenic mouse that allows for the direct imaging of the mouse prostate without invasive surgery. By placing a reporter gene under the control of an androgen-specific promoter the transgenic mouse over-expresses the reporter gene specifically in the prostate of the mouse. Thus reporter levels serve as an in situ indicator of androgen-mediated activation of the AR. Detection of the reporter is achieved through the use of commercially available devices. These mice can also be crossed with the c-Myc mouse model of prostate cancer (UC case No. 2002-135), allowing scientists to follow the progression of prostate cancer. This powerful tool can be used to test for pharmacological inhibitors of the androgen receptor as well as the progression of prostate cancer.

APPLICATIONS

- Pharmacological inhibitors of AR can be screened using the transgenic mouse and the effects of the drugs can be efficiently quantified.
- The prostate-specific transgenic mice can be crossed with c-Myc transgenic mice to follow prostate cancer progression in real-time and in situ.

ADVANTAGES

- The activity of the androgen receptor can be easily quantified.
- Changes in the reporter signal can be easily measured in situ.
- The reporter signal can be measured multiple times over a 24-48 hour period without sacrificing the animal.
- The transgenic mouse can be crossed with other transgenic mouse models.
- The reporter signal can be measured in real-time.
- The prostate-specific transgenic mice are more functional than reporter-expressing cell lines.

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- C-myc Transgenic Mouse

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OTHER INFORMATION

KEYWORDS

research tools, transgenic, prostate cancer, imaging, animal model, mice, mouse

CATEGORIZED AS

- **Research Tools**
  - Animal Models

RELATED CASES

2004-600-0

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