

MMTV-PyMT

Stain Name: FVB/NJGpt-Tg(MMTV-PyMT)/Gpt

Strain Type: Transgenic

Strain Number: T004993

Background: FVB/NJGpt

Description

Mouse mammary tumor virus (MMTV) is an important virus that causes breast tumors in mouse. Using MMTV promoter and enhancer mediates the high expression of oncogenes ERBB2, PyMT, and wnt-1 in mouse mammary gland to produce mammary gland^[1].

MMTV-PyMT transgenic mice express the Polyoma Virus middle T antigen (PyMT) under the direction of the mouse mammary tumor virus promoter/enhancer. Transgenic mice are viable. Based on histopathological examination, it was observed that female mice showed a high incidence of mammary gland tumors at 6 weeks of age, with some cases displaying metastases in the lung and salivary gland. Furthermore, palpable mammary tumors were observed in female mice aged 8-10 weeks. Some male mice developed mammary gland tumors with salivary gland metastasis at 6 weeks age. MMTV-PyMT transgenic mice can be used for study the mammary gland tumors, gonadal tumors, tumor metastasis, and also can be used for screening tumor drugs.

Strategy



Fig 1. Schematic diagram of MMTV-PyMT transgenic mice.

Application

- 1.Cancer Research: Mammary Gland Tumors, Gonadal Tumors , tumor metastasis
- 2.Screen to small-molecule drugs of tumor

Data support

1. Histopathology analysis of mammary tumorigenesis and metastasis from

MMTV-PyMT mice

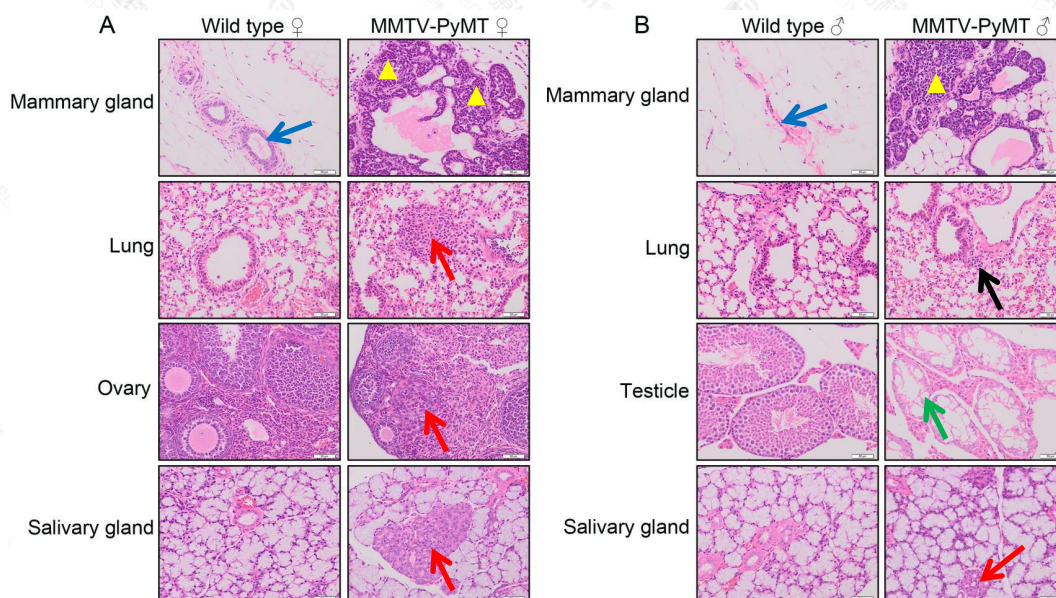


Fig 1. Histopathology of transgenic mice from MMTV-PyMT transgenic mice. The mammary gland, lung and ovary of MMTV-PyMT mice (6 weeks) were examined by HE staining for pathology (200x, bar=50μm). **The results showed that:** Compared to wild type mice, the female mice (Figure A): developed mammary gland tumors with lung, ovarian and salivary gland metastasis.

The male mice (Figure A): developed mammary gland tumors, cancer cells formed solid clumps or stranded cancer nests. Salivary gland metastasis occurred in some mice, a few inflammatory lesions in the bronchi and alveoli of the lung, part of the seminiferous tubule necrosis was seen in the testis, and sperm cells were shed. There was no obvious abnormalities in breast, lung and ovary of wild type mice.

(Note: Black arrow: inflammatory cell infiltration; blue arrow: ductal-like structure; red arrow: breast cancer metastatic; green arrow: convoluted tubule necrosis; yellow triangle: breast cancer nest)

References

1. Guy CT; Cardiff RD; Muller WJ. 1992. Induction of mammary tumors by expression of polyomavirus middle T oncogene: a transgenic mouse model for metastatic disease. Mol Cell Biol 12(3):954-61.