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## MODELING COMPARISON OF ICR MICE AND BALC MICE MODEL OF GASTRIC CANCER

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**Abstract** The incidence of gastric cancer is high, to better study the pathogenesis of it, developing new medicine, improve the effectiveness of the diagnosis, all need to apply gastric cancer model. Through heterotopic transplantation and think about immune system effect, how to build a better gastric cancer model, to make it more clinical.

**Key words** ICR mice; BALC mice; gastric cancer

**Introduction** Gastric cancer is one of the most common malignant tumors, and is the second leading cause of death, it is necessary to establish a reliable animal model of gastric cancer, in order to explore the etiology, pathogenesis and prevention and cure of gastric cancer. There are two kinds of modeling methods in the experimental animal model of gastric cancer, long-term induction and rapid transplantation. Long-term induction experiment has a long period of time, and now it is transplanted into less model, the problem of immune rejection should be paid attention to in the process of rapid transplantation into the model making method [1]. Nowadays, most of the models of gastric cancer were made by mice, and the grafts were divided into two groups: human and mouse. According to the different immunity of mice, such as the representative of immunodeficient nude mice, and immunocompetent mice, such as ICR mice, and also some inbred strains of mice. Nowadays, many Chinese herbal medicines have been put into effect in the immune system, in this case, nude mouse model has some limitations. In this paper, ICR mice and inbred mice were used as recipients, heterotopic transplantation model was established by human and mouse cells, the comparison model is established to provide reference for related research.

**Material and methods**

1. Cancer cell: MFC rat gastric cancer cells and BGC-823 human gastric cancer cells buy from Boster Biological Technology Company, MFC cell number: CX-211, BGC-823. No. CX0046.

2. Animals: 20 ICR mice, 4-6 weeks old, weight 18-20g. 20 BALC/C mice, 4-6 weeks old, weight 14-16g. Both male and female.

3. Experimental method: After cell culture, the transplanted tumor was inoculated. The cell concentration was  $2 \times 10^6$ /ml. Mice axillary inoculation. Animal grouping: 20 ICR mice were divided into 2 groups, namely, MFC mouse gastric cancer cell line inoculation group and BGC-823 human gastric cancer cell line; 20 BALC mice were equally grouped. After 1 week, the mice were sacrificed after 2 weeks, and the changes of the naked eye and the microscope were observed.

**Results** The BALC mice inoculated with MFC cells had a better survival condition, a slight degree of activity, and no obvious inflammation and adverse reaction. 1 week when the naked eye visible swelling of the armpit, palpation of the quality of hard, poor mobility, anatomy, only visible under the armpit 5 new creatures. Continued feeding for 1 week, we can see a new increase in the armpit of new organisms, hard texture, anatomy can be seen with the same new biological. The second remaining mice and found that the new biological anatomy, and the surrounding tissue tightly, without complete capsule, the mobility of small, nodular, infiltrative growth, invasion and muscle adjacent tissues, after 1 week the average diameter of 0.8cm, maximum diameter of 1.2cm; 2 weeks after the mean diameter of 1.0cm, the maximum diameter of 1.5cm. Light microscopy showed squamous cell carcinoma. After MFC inoculation, the BALC mice were visible at the same

time, the volume of thymus, spleen and liver were increased, and the color of spleen and liver was deepened. There was no obvious growth of new organisms in the other groups, and no tumor like changes were observed under the microscope.

**Discussion** To establish an ideal experimental model is to study the biological characteristics and molecular regulation mechanism of the growth and metastasis of gastric cancer[2]. But in the Chinese herbal medicine in cancer research, not only the direct antitumor effect, which indirectly enhance immunity has attracted more and more attention, which makes the model can not fully meet the needs of experimental mice, should be established to explore other perfect immune function mice model.

Through this experiment we can find that people can not inoculated in BGC-823 gastric cancer cell lines have better immune function in mice, establishment of immune rejection which cannot be directly applied in mouse model of gastric cancer, can be used as the selection of cell lines in vitro study. According to the principle of immune system, mouse MFC cells were inoculated into mice. ICR mice with normal immune system, naturally occurring state closer to the disease, but also because of this, the model of the low success rate, the formation of tumor is not increased and decreased with the time, does not apply to establish mouse model of gastric carcinoma, but it also indicates the influence and the progress of the immune system of tumor formation. Inbred BALC mice, with good effect, as the tumor formed in 1 weeks time, and with the time increased, may be related to immune rejection than ICR mice on low, as preserving the basic immune organs of mice, can meet the research for changes of immune system in the experiment to a certain extent, the basic guarantee the requirement of the experiment, with good reproducibility, can be used as the effective means of modeling.

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## EFFECT OF PINGCHUAN GRANULE ON THE EXPRESSION OF FOXC1 AND FOXC2 IN DLL4/NOTCH PATHWAY IN CHRONIC ASTHMATIC RATS

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**Objective:** This experiment is to approach the mechanisms of Pingchuan Granule to adjust Notch pathway and its treatment of asthma, by observing on the level of FOXC1, FOXC2 western blotting in DLL4/Notch pathway on Chronic asthmatic rats. **Method:** 60 chosen healthy rats were divided into four groups randomly: Blank group (A), model group (B), Dexamethasone injection group (C), Pingchuan Granule group (D), 15 in each group. Replicated Chronic asthmatic rats models by Ovalbumin sensitization. Then detected the level of FOXC1, FOXC2 protein expression by Western blotting. **Result:** The level of FOXC1, FOXC2 protein expression of model groups was much higher than that of blank group ( $p < 0.05$ ), the level of FOXC1, FOXC2 protein expression of Dexamethasone injection group and Pingchuan Granule group both had positive expression, which weren't strong as model group ( $p < 0.05$ ); These two groups were equivalent ( $p > 0.05$ ); **Conclusion:** Pingchuan Granule can inhibit the expression of FOXC1 and FOXC2 in rat models of chronic asthma, and may inhibit angiogenesis / vascular remodeling through the action of DLL4/Notch pathway.

**Keywords:** Pingchuan Granule; chronic asthmatic rat model; DLL4/Notch pathway; FOXC1; FOXC2;

Chronic persistent asthma patients can have different frequency and (or) different degrees of symptoms (wheezing, shortness of breath, cough, chest tightness, etc.) per week. Because of association Notch pathway with angiogenesis / vascular remodeling, assumed that the DLL4/Notch pathway may participate in airway remodeling by joining airway's angiogenesis / vascular remodeling, then affect the pathogenesis of bronchial asthma[1][2].

### 1. Experimental methods

**Grouping:** 60 rats were divided into blank group (A), model group (B), Dexamethasone injection group (C), Pingchuan Granule group (D), 15 in each group.

A group without any intervention; B, C, D group were chronic asthma rat model sensitized by injection of OVA sensitized solution which lasted for six weeks. A group received no treatment; B group received normal saline by gavage; group C was gavaged with dexamethasone; group D fed by Pingchuan Granule. Each group were killed at 24 hours after the last stimulation.

Aimed to determine the level of FoxC1, FoxC2 expression in lung tissue by Western blot.

### 2. Data statistics

The experimental results were processed by statistical software SPSS 16.0, the mean and standard deviation for each