

# Mouse models of cancer for effective personalised immunotherapy

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## Malignant transformation

(in case of colorectal cancer)

Stage I   Stage II   Stage III   Stage IV



Tumor exists

inside the wall



outside the wall



nearby lymph nodes



with other organs  
(often liver and lung)

**Primary tumor** influences systemic immune systems

**Metastatic tumor** influences systemic immune systems

## Generation of mouse models of tumor

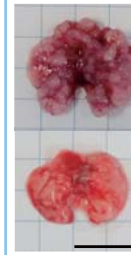
**Primary tumor bearing mice**



7 days after subcutaneous transplantation

14 days after subcutaneous transplantation  
10 mm

**Metastatic tumor bearing mice**



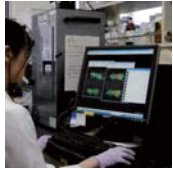
Lung metastases after intravenous transplantation

Healthy lung (Control)  
10 mm

**We can explore innovative experimental therapies and examinations by multiple cases of tumor-bearing mice instead of patients.**

## Examinations & analyses

**In vivo imaging by photo biology**



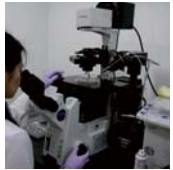
Evaluation of tumor size & metastases

**Culturing of lymphocytes**



Stimulation of lymphocytes

**Histological analysis**



Evaluation of tumor differentiation & infiltration

**Analysis of protein expression**



Analysis of alteration in expression of related protein

**Analysis of immune cells**



Analysis of qualitative alternation in lymphocytes

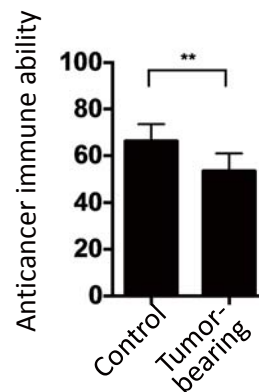
**Analysis of gene expression**



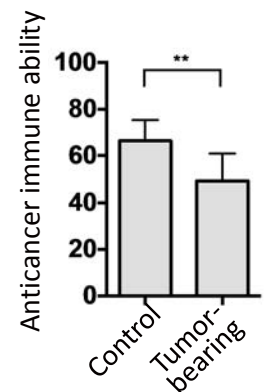
Analysis of alteration in expression of related gene

## Systemic immune systems

**Primary tumor bearing mice**



**Metastatic tumor bearing mice**



We can evaluate changes of systemic immune systems accompanied with malignant & advanced tumor by using many evaluation items.

We can do;

- 1) ethical free examinations.
- 2) evaluation tests to assess novel candidates of cancer drugs or nutrition.
- 3) examinations with different malignant tumor cell lines.
- 4) immunotherapies to different case of tumors.

We can evaluate novel therapies and/or examination methods that reduces side-effects along with systemic immune systems.