# Breast tumor model: 4T1(M3)
## syngeneic – metastasizing – orthotopic

IN VIVO TESTING SERVICES

## ➢ Metastasizing mouse tumor models

In metastatic tumor models, tumor spreading originates either from a primary tumor or is artificially induced by intravenous or intracardial tumor cell injection. The metastatic pattern is dependent on the tumor cell line with a preference of lung metastasis in case of intravenous injection. For human tumor cell lines immune-compromised mice are used with the advantage to study classical antitumoral test compounds. In contrast, murine tumor cell lines can be grown in immune-competent mice (syngeneic), providing a functional immune system to assess novel immunotherapeutic approaches.

## ➢ 4T1-M3-luc cells (CPQ-407)

Origin: breast / mouse BALB/c
Description: mammary gland tumor cell line
Modification: in vivo selected subpopulation of the firefly luciferase-expressing cell line 4T1-luc (CPQ-289)

## ➢ Study example

4T1-M3-luc cells are implanted in the mammary fat pad and cell growth is monitored via calipering. The animals are randomized into treatment groups according to the tumor size. During the study, tumor growth is monitored via caliper twice per week, animal behavior is monitored daily and animal weights are measured three times per week. At necropsy, organs of interest are isolated and homogenized and the amount of luciferase-expressing 4T1-M3-luc cells per organ will be quantified via ex vivo luciferase analysis.

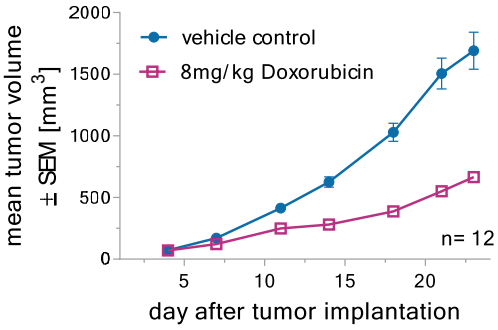


**Figure 1:** 4T1-M3-luc tumor growth after treatment with Doxorubicin monitored by calipering.

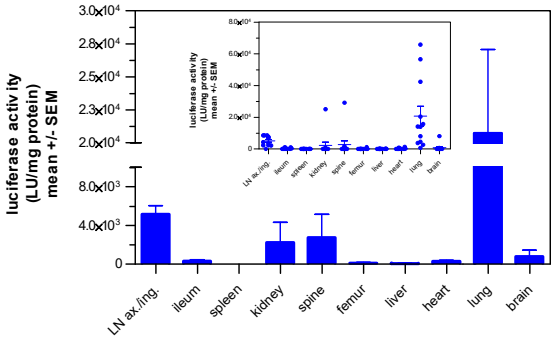


**Figure 2:** Detection of 4T1-M3-luc metastases in different organs monitored by ex vivo luciferase measurement

## ➢ Quality assurance

- Routine authentication of tumor cell lines by STR profiling
- Mycoplasma testing of implanted tumor cells by PCR just prior to implantation
- Routine health monitoring of sentinel animals (according to FELASA guide lines)
- Animal work according to the 5R rules (reduce, refine, replace, responsible, remember)

Note: Graphs depicted are derived from study examples. Each study is a biological system of its own and subject to intrinsic variation.