Orthotopic Breast Cancer Model – MDA-MB-231-Z

IN VIVO TESTING SERVICES

➢ Orthotopic tumor models

Implantation of tumor cells into the organ of origin ("orthotopically") allows organotypical interaction between tumor cells and surrounding stroma. It has been shown that this interaction affects growth, differentiation, and drug sensitivity of tumor cells. Moreover, tumor cells can spread to metastatic sites in other organs, with specificities comparable to the human situation. However, it must be emphasized that in most orthotopically implanted *in vivo* models using typical immortalized cell lines metastasis occurs but is very heterogeneous and not detectable in all animals after implantation. Reaction Biology started working on more reliable *in vivo* models to address intentions aiming mainly at metastasis. Nevertheless, analysis of the primary tumors of orthotopically implanted cancer cells gives us a very prospective read out when testing a new compound.

➢ MDA-MB-231-Z cells (CPQ-234)

MDA-MB-231 cells (HTB-26) originate from the mammary gland of a breast adenocarcinoma.

In order to detect orthotopic growth of implanted cells, a luciferase expressing cell line was generated via transfection.

In addition, an in vivo subpopulation was isolated via cell rescue and tissue culturing, since in vivo growth was initially not satisfactory (MDA-MB-231-Z).

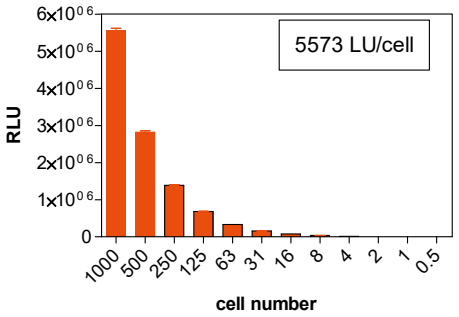

Figure 1: *Luciferase assay. Serial dilutions of a cell lysate were tested for luciferase activity.*

➢ Tumor growth *in vivo*

After orthotopic implantation into the fat pads, the growth of the cells will be monitored by calipering. The animals are randomized into treatment groups according to apparent tumor sizes.
Animal weights are measured three times weekly.
Animal behaviour is monitored daily.

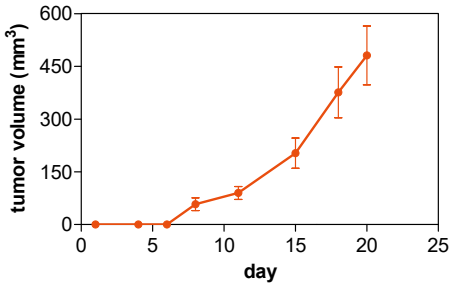

Figure 2: *In vivo Growth. In vivo tumor growth of MDA-MB-231-Z cells, determined by calipering, mean values +/- SEM*

➢ Study example

Mice bearing orthotopically implanted MDA-MB-231-Z tumors were treated with Gemcitabine and Taxotere.

Figure 3: *Treatment. Effect of Gemcitabine and Taxotere on orthotopic tumor growth of MDA-MB-231-Z cells in vivo. In vivo tumor growth was monitored using calipering, mean values +/- SEM.*