Orthotopic syngeneic melanoma tumor model – B16-F10

Orthotopic tumor and metastasising mouse models

In contrast to subcutaneously engrafted cells, cells proliferating inside the organ of their origin ("orthotopically") spread to metastatic sites in other organs, with specificities comparable to the human situation. Besides allowing the cells to spread, vascularization or the organotypical stromal interactions that are allowed to occur in such orthotopic models have also been shown to affect the growth, differentiation, and drug sensitivity of tumor cells.

B16-F10 cells (CPQ-365)

B16-F10 cells (ATCC CRL-6475) originate from spontaneous melanoma of the skin of C56Bl/6J male mice. This subline shows higher metastatic capacities (Clin.Exp.Metastasis 19: 369, 2002) e.g. as lung metastases.

In order to detect the orthotopically implanted cells, a luciferase expressing cell pool was generated via transduction of a luciferase-neomycin construct and subsequent neomycin selection.

In vivo bioluminescence measurement

B16-F10 Luc cells are implanted intradermally, and cell growth will be monitored via caliper or in vivo bioluminescence imaging (BLI). Using tumor volume or BLI, the animals are randomized into treatment groups according to apparent tumor sizes.

Moreover, once treatment is initiated, effects on the total tumor volume or in vivo bioluminescence signal, and thus potential metastatic loci (here mainly the lung or spleen) may be monitored.

Study example

Mice bearing orthotopically implanted B16-F10 tumors were treated intravenously with Gemcitabine