selection in immunodeficient mice. They exhibit unique metastatic capacities compared to the parental MDA-MB-231 line, including organ-selective homing, distinct transcriptional profiles, and more aggressive phenotypes. The panel includes lung-, bone-, brain-, and adrenal-selective metastatic derivatives in addition to cell lines with increased capacity for tumor self-seeding, a process in which circulating tumor cells return to and grow in the primary tumor, promoting tumor progression and further metastasis. Subsets of these populations have been engineered to express reporter plasmids, including a novel triple-modality reporter that permits nuclear, fluorescent, and bioluminescence imaging in a single experimental model. Parental line established at MD Anderson.

Advantages

Pure clonal populations of organ-tropic metastatic cells permit the selective study and comparison of biological mechanisms mediating metastasis to specific organs.

In vivo metastatic lesions develop twice as fast and with a three-fold increase in penetrance compared to parental cell line (~6 weeks with ~90% penetrance vs. ~11 weeks with ~30% penetrance), reducing time and cost for each experiment.

Aggressive phenotype allows facile detection of metastatic lesions by imaging and histochemical methods.

These cell lines can be used for both *in vivo* and *in vitro* modeling (i.e. trans-well, Matrigel migration, etc.) of metastasis.

Areas of Application

Research tool to study organ-tropic metastasis and tumor self-seeding

Research tool for screening of potential anti-metastatic and anti-tumor self-seeding therapeutics

Stage of Development

Fully validated as an *in vivo* and *in vitro* research tool

Lead Inventor

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References

Cailleau R, et al. (1974) J Natl Cancer Inst. Sep;53(3):661-74.

Kang Y, et al. (2003) Cancer Cell. June;3(6):537-49.

Minn AJ, et al. (2005) J Clin Invest. Jan;115(1):44-55.

Bos PD, et al. (2009) Nature. Jun 18;459(7249):1005-9. Epub 2009 May 6.

Kim MY, et al. (2009) Cell. Dec 24;139(7):1315-26.

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Stage of Development

Ready to use

Indications

Cancer › Breast

Types

Research Tools › Cell Lines