

ASSAY TO SCREEN ANTI-METASTATIC DRUGS

SUMMARY

The National Cancer Institute's Mouse Cancer Genetics Program seeks partners interested in collaborative research investigating molecular mechanisms and/or signaling pathways involved in tumorigenesis, angiogenesis and metastasis of breast cancer and its response to therapy.

REFERENCE NUMBER

E-088-2013

PRODUCT TYPE

- Research Materials

KEYWORDS

- cell line
- tumorigenesis
- angiogenesis
- metastasis
- triple negative breast cancer

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Scientists at the NCI's [Mouse Cancer Genetics Program](#) have developed a research tool, a murine cell line model (JygMC(A)) with a reporter construct, of spontaneous metastatic mammary carcinoma that resembles the human breast cancer metastatic process in a triple negative mammary tumor. The assay is useful for screening compounds that specifically inhibit pathways involved in mammary carcinoma and can improve clinical management of triple negative breast cancer that are greatly refractory to conventional chemo and radiotherapy. The key feature of the cell line is that when introduced orthotopically into the mammary gland of immunocompromised mice it produces murine mammary tumors that rapidly metastasize to distant sites, such as lungs, lymph nodes, liver and kidneys. This allows for precise tracking of tumor growth and metastasis.

POTENTIAL COMMERCIAL APPLICATIONS

- Laboratory tool to investigate molecular mechanisms and/or signaling pathways involved in tumorigenesis, angiogenesis and metastasis of breast cancer and its response to therapy (in vivo and in vitro).
- Research tool for high through-put screening of libraries for compounds that specifically inhibit mechanisms and/or signaling pathways involved in metastatic triple negative breast cancer.
- Research tool to optimize therapeutic regimens.

COMPETITIVE ADVANTAGES

Dual report construct: enhanced green fluorescent protein (eGFP) or a fusion of firefly luciferase and eGFP (ffLuc2-eGFP) and mouse Cripto-1 promoter sequence cloned into a vector for reporter assays and/or visualization of molecular mechanisms involved in tumorigenesis of metastatic breast cancer cells.

INVENTOR(S)

Nadia P. Castro (NCI), David S. Salomon (NCI),

<https://ccr.cancer.gov/Mouse-Cancer-Genetics-Program/david-s-salomon> and Frank F. Cuttitta (NCI)

DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

1. Castro, Nadia P. "Role of the Notch signaling in the metastasis of a murine breast cancer model." Abstract presented at the Mammary Gland Biology Gordon Research Conference, Lucca (Barga) Italy, June 10-15, 2012.
2. Castro, Nadia P. "Notch pathway in an experimental model of breast cancer metastasis." Abstract presented at the Sixth AACR Special Conference on Advances in Breast Cancer Research, San Francisco, California, October 12-15, 2011.

PATENT STATUS

- **U.S. Filed:** Research Tool: Patent protection is not being pursued for this technology.

THERAPEUTIC AREA

- Cancer/Neoplasm