

Novel Breast Cancer Cells That Stably Express a New Orange-red Fluorescent Protein Provides Facile Tracking of Metastatic Progression In Live Animal Model Systems

Published date: Oct. 7, 2014

Technology description

Technical Details:

Modeling human disease states in mice has a profound impact on our understanding of disease progression and treatment development. The need for noninvasive longitudinal monitoring of such model systems has resulted in the development of small animal imaging technologies. Endogenously expressed fluorescence protein-based optical imaging has the advantage of not requiring administration of an enzymatic substrate, targeted fluorescent or radionuclide reporter, nor a contrast agent. JHU researchers have developed a novel breast cancer cell line that stably expresses a new orange-red fluorescent protein reporter. These cells can be used to generate tumor xenografts with endogenous fluorescence that can be tracked; e.g., with real-time optical imaging in live animals, microscopic detection in whole tissue samples, and in blood samples or from mixed tissue cultures with fluorescence activated cell sorting. The use of these cells in a metastatic breast cancer model where metastases were tracked in real-time from mammary fat pad xenografts into the lung regions and lymph nodes of severe combined immunodeficient (SCID) mice has proven their utility. These cells have greatly improved sensitivity over those expressing the green fluorescence protein (GFP).

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