Title
P5-02-05: Real-Time Subcellular Imaging of Breast Cancer Cell Attachment in Blood Vessels Using GFP-Labeled Paxillin in Live Mice.

Journal
Cancer Research, 71(24_Supplement)

ISSN
0008-5472

Authors
Suetsugu, A
Digman, M
Gratton, E
et al.

Publication Date
2011-12-15

DOI
10.1158/0008-5472.sabcs11-p5-02-05

Cancer Research

Poster Session Abstracts

P5-02-05: Real-Time Subcellular Imaging of Breast Cancer Cell Attachment in Blood Vessels Using GFP-Labeled Paxillin in Live Mice.

A Suetsugu, M Digman, E Gratton, H Moriwaki, S Saji, M Bouvet, and RM Hoffman

DOI: 10.1158/0008-5472.SABCS11-P5-02-05 Published December 2011

Abstracts: Thirty-Fourth Annual CTRC-AACR San Antonio Breast Cancer Symposium-- Dec 6-10, 2011; San Antonio, TX

Abstract

Background: Paxillin is involved in the assembly of focal adhesions. We wish to visualize paxillin behavior in breast cancer cells in vivo, as well as in vitro.

Materials and Methods: Dual-photon confocal microscopy was used to image paxillin behavior by linking it to GFP. MDA-MB-231 human breast cancer cells expressing paxillin-GFP were imaged in vitro and in vivo adhering and trafficking in blood vessels in mice. 10^6 paxillin-GFP expressing breast cancer cells were injected in the epigastric cranialis vein.

Results: In vitro, round breast cancer cells had greater paxillin movement than stretched cancer cells as seen by fluorescence imaging. Paxillin-GFP breast cancer cells in the epigastric cranialis vein were initially rounded and had GFP-expressing protrusions. At later timepoints, many paxillin-GFP-expressing breast cancer cells stretched. The breast cancer cells then extravasated and subsequently grew around the outer surface of the blood vessel after one week. Two weeks after injection, paxillin-GFP expressing breast cancer cells were imaged migrating along the vessel wall. Most of the paxillin-GFP expressing breast cancer cells were stretched and were not mobile. With anti-VEGF treatment, paxillin was observed in round structures within the cells rather than stretched structures and paxillin movement within the cell was arrested.

Discussion: These results demonstrate that breast cancer cells brightly expressing paxillin-GFP and two-photon confocal microscopy can allow the visualization of the behavior of paxillin within breast cancer cells during adhesion and migration along the walls of blood vessels, as well as during anti-angiogenesis therapy.

Citation Information: Cancer Res 2011;71(24 Suppl):Abstract nr P5-02-05.

Back to top

December 2011
Volume 71, Issue 24 Supplement
Table of Contents