Title
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Journal
Cancer Research, 71(8_Supplement)

ISSN
0008-5472

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Publication Date
2011-04-15

DOI
10.1158/1538-7445.am2011-1412

Cancer Research

Tumor Biology

Abstract 1412: Two-photon imaging of cancer cell extravasation in live mice

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DOI: 10.1158/1538-7445.AM2011-1412 Published April 2011

Proceedings: AACR 102nd Annual Meeting 2011-- Apr 2-6, 2011; Orlando, FL

Abstract

MDA-MB-231 breast cancer cells were engineered to express cytoplasmic paxillin-GFP and nuclear H2B-mCherry. In order to image extravasation, the cancer cells were injected in the blood stream of nude mice. Using 2-photon excitation microscopy we can simultaneously excite the two probes and also visualize the autofluorescence of tissues. A skin flap was opened to visualize blood vessels and recognize the position of the cancer cells. Two-photon imaging showed that after an initial phase in which the cells are non-adherent, some cells spread on the internal surface of the capillaries. Days later some cells started to appear on the external side of the capillary. The extravasated cells extend very long protrusions into the tissue. The goal was to determine if at the end of the long protrusion, if it is possible to observe the formation of focal adhesions by imaging paxillin-GFP. Preliminary results show that when cells start to adhere to the blood vessel wall they form focal adhesions as determined by the characteristic elongated features observed in the paxillin-GFP channel. New approaches will allow the tracking of the tip of the protrusion to determine if focal adhesions are forming there as the cells extravasate. This is important in establishing the mechanism of cell extravasation and migration in tissues.

Citation Format: {Authors}. {Abstract title} [abstract]. In: Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research; 2011 Apr 2-6; Orlando, FL. Philadelphia (PA): AACR; Cancer Res 2011;71(8 Suppl):Abstract nr 1412. doi:10.1158/1538-7445.AM2011-1412

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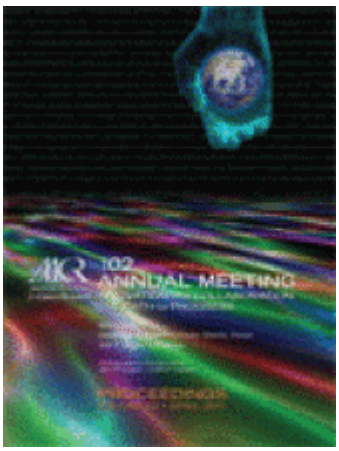

April 2011
Volume 71, Issue 8 Supplement
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