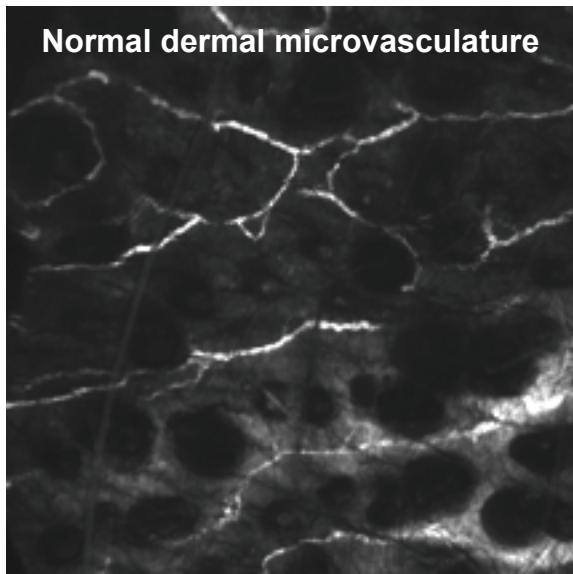


Tumour Molecular Expression and Angiogenesis

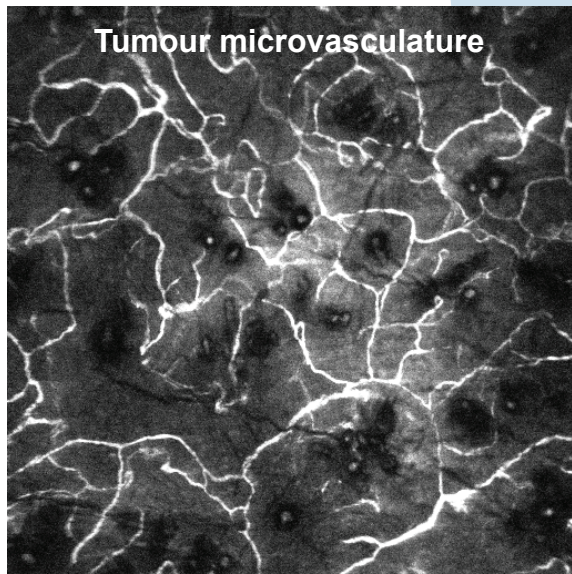
Non-invasive microscopy enables longitudinal study of molecular and microvascular events

Normal dermal microvasculature



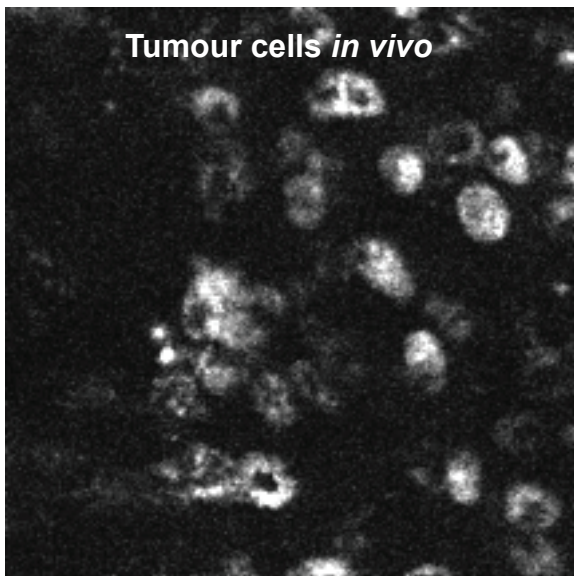
The ViewnVivo enables non-invasive imaging of skin microvasculature.

Tumour microvasculature



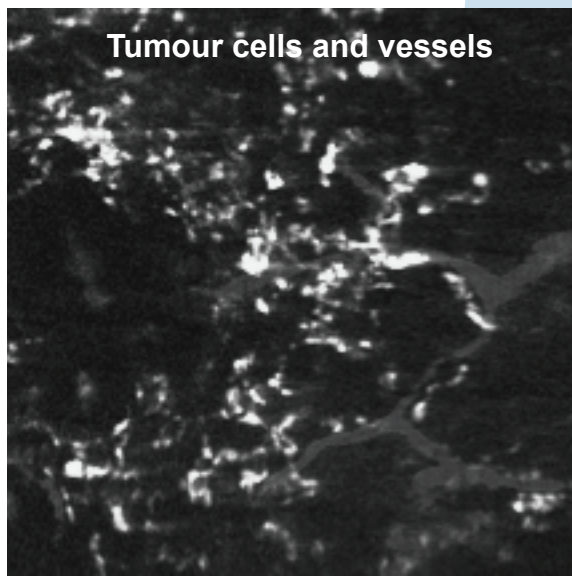
In a xenografted mouse model of human melanoma, dramatic microvascular changes are observed at the tumour site.

Tumour cells *in vivo*



Molecular expression of melanoma tumour cells can be directly observed using fluorescently labelled monoclonal antibodies injected intravenously.

Tumour cells and vessels



Populations of tumour cells overexpressing $\alpha_v\beta_3$ integrin are observed in association with the earliest stages of microvascular change.

Experimental Methods

Human melanoma cell lines and cultured normal skin cells were implanted intradermally into the haunch skin of anaesthetised athymic BALB/C mice and allowed to grow to a maximum size of 2mm diameter. Changes in the morphology and the microvasculature of the dermis were examined using confocal microscopy (488 nm excitation, detection above 515 nm) following the intravenous injection of high molecular weight fluorescein-isothiocyanate (FITC)-labelled dextran (260,000 MW; Sigma, Australia) diluted in sterile saline (10 mg per ml; 0.3 ml intravenously; Figures A & B). Tumour cells (Figures C & D) were examined following the intravenous administration of the FITC-labelled antimelanoma antibody CD 51/61-FITC (mouse monoclonal IgG1, κ ; Pharmingen, Beckton Dickinson, Australia). The antibody was diluted in PBS (with 10% FBS) and administered intravenously in 0.2 ml volumes into the tail vein of anaesthetised mice. Imaging of the tumour site commenced 15 minutes after the administration of the antibody solution.

Reference:

Anikijenko P, Vo LT, Murr ER, Carrasco J, McLaren WJ, Chen, Q, Thomas SG, Delaney PM & King RG. In vivo detection of small subsurface melanomas in athymic mice using non-invasive fiber optic confocal imaging. *Journal of Investigative Dermatology* **117**: 1442-1448 (2001).