

Metastasis & Invasion

Why we focus on Metastasis & Invasion

Around 90% of cancer deaths are attributable to invasion and metastasis. Metastasis is the spread of disease from one organ or part to another not directly connected with the primary site; the defining characteristic of a malignant neoplasm. How this spread is achieved is important for understanding neoplastic disease.

Characterisation of the molecules driving tumour dissemination can reveal possible ways to block the process while, if secondary tumour deposits continue to express the gene products that first allowed their spread, such products could also be potential therapeutic targets.

What we do

- We investigate epithelium-stroma interactions in breast cancer.
- We study adhesion and integrins, specifically $\alpha\beta6$ -mediated carcinoma cell invasion.
- We investigate angiogenesis and disseminating tumour cells' access into new, leaky tumour blood vessels.
- We study cell signalling and ligand-receptor interactions that modulate invasive and/or metastatic behaviour.
- In pancreatic cancer, we focus on stellate cell-epithelial cell interactions, and the proteomic analysis of primary and secondary deposits.

Metastasis & Invasion

Key Publications

- Moore *et al.* Therapeutic targeting of integrin $\alpha\beta6$ in breast cancer. *J Natl Cancer Inst.* 2014; 106, (8)
- Allen *et al.* Altered microenvironment promotes progression of preinvasive breast cancer: myoepithelial expression of $\alpha\beta6$ integrin in DCIS identifies high-risk patients and predicts recurrence. *Clin Cancer Res.* 2014; 20, (2) 344-357.
- Joffre *et al.* A direct role for Met endocytosis in tumorigenesis. *Nature Cell Biol.* 2011; 13: 827-37.
- Froeling *et al.* Retinoic acid-induced pancreatic stellate cell quiescence reduces paracrine Wnt- β -Catenin signaling to slow tumor progression. *Gastroenterology* 2011; 141: 1486-97.
- Allen *et al.* Clinical and functional significance of $\alpha9\beta1$ integrin expression in breast cancer: a novel cell-surface marker of the basal phenotype that promotes tumour cell invasion. *J Pathol* 2011; 223: 646-58.
- Saha *et al.* High-resolution in vivo imaging of breast cancer by targeting the pro-invasive integrin $\alpha\text{v}\beta6$. *J Pathol* 2010; 222: 52-63.

Who does the research

Prof. Kairbaan Hodivala-Dilke

Prof. Louise Jones

Prof. Hemant Kocher

Prof. John F Marshall

Dr. Tatjana Crnogorac-Jurcevic

Dr. Stephanie Kermorgant

Angiogenesis

Breast Cancer

Pancreatic Cancer

Adhesion & Integrins

Pancreatic Cancer

Cell signalling

Major Funders

- Association for International Cancer Research
- Breast Cancer Campaign
- Cancer Research UK
- Pancreatic Cancer Research Fund
- British Lung Foundation
- DebRA
- MRC

