



## Help fund research into how cancer cells can spread around the body

**Dr Lambert is investigating the mechanisms that cause non-cancerous cells called fibroblasts to undergo changes that can help cancer cells to spread.**

### The challenge

Breast cancer cells can spread to other sites in the body with the assistance of other cells, known as fibroblasts. Fibroblasts undergo changes that enable them to help cancer cells spread, however little is known about how these changes occur. If we are to develop drugs that target fibroblasts, and prevent cancer spreading, we need a greater understanding of what's causing these fibroblast to change.

<b>Aim:</b>	To understand how fibroblasts change in response to signals from cancer cells	A black and white portrait of Dr Daniel Lambert, a man with a beard and short hair, smiling.
<b>Researcher:</b>	Dr Daniel Lambert	
<b>Where:</b>	University of Sheffield	
<b>Tissue Type:</b>	5 aliquots of tumour fibroblasts 5 aliquots of fibroblasts from tumour surround (>5 cm from tumour) 5 aliquots of normal fibroblasts	

### The science behind the project

Fibroblasts are common cells within the body, providing structural support in tissues and producing proteins which influence how cells grow and behave. Cancer cells can send signals to surrounding fibroblasts, causing them to undergo changes; these cancer-associated fibroblasts (CAFs) are linked to drug resistance, tumour growth and poorer outcomes for patients.

Dr Lambert and his team at the University of Sheffield want to understand how these changes occur in CAFs and so will investigate how molecules called non-coding RNAs respond to signals from cancer cells and whether this influences the behaviour of fibroblasts. Using samples from the Breast Cancer Now Tissue Bank, they will compare the role of non-coding RNAs in CAFs with fibroblasts taken from tissue surrounding the tumour and fibroblasts taken from healthy donors.

### What difference will this project make?

When breast cancer spreads to other sites of the body, it forms incurable secondary tumours. Understanding how fibroblasts can assist cancer cells in spreading will bring us a step closer to developing treatments to prevent fibroblasts from being altered and therefore prevent cancer cells from spreading.