



Help support cutting-edge research into understanding how relapse and drug resistance occur in ER+ breast cancer.

Dr Borgoni will investigate the molecular changes that occur in oestrogen receptor positive breast cancer which help the disease to become resistant to anti-hormone therapy and come back after treatment.

### The challenge

Relapse and the development of drug resistance can affect over 40% of patients with oestrogen receptor positive (ER+) breast cancer treated with anti-hormone drugs, such as tamoxifen and aromatase inhibitors. It is therefore crucial that we understand how this occurs and how to prevent it.

<b>Aim:</b>	To identify the epigenetic modifications that cause relapse and the development of drug resistance in ER+ breast cancer.
<b>Researcher:</b>	Dr Simone Borgoni, German Cancer Research Centre (DFKZ)
<b>Funding:</b>	Externally funded grant
<b>Tissue:</b>	40 samples from 19 cases of ER+ anti-hormone treated, recurrent breast cancer (Frozen & paraffin embedded) 16 samples from 6 cases of non-cancerous breast tissue from ER+ recurrent patients (Frozen & paraffin embedded)

### The science behind the project

Breast cancer cells are sometimes able to undergo molecular changes that allow them to avoid the effects of treatment, meaning the disease can come back. Dr Simone Borgoni will study a type of molecular change, known as epigenetic modification, which is thought to have a key role in altering how cancer cells behave without making direct changes to the DNA.

Using samples from the Breast Cancer Now Tissue Bank, Dr Borgoni will compare the epigenetic modifications in untreated ER+ breast cancer tissue with samples from the same patient following treatment and relapse, in addition to samples from non-cancerous breast tissue.

### What difference will this project make?

Identifying the epigenetic modifications responsible for breast cancer returning and drug resistance in ER+ breast cancer may allow scientists to reverse these changes, making the cancer cells sensitive to drugs. Overall this would lead to more effective treatments for patients, giving them the best possible chance of overcoming breast cancer.