



## Help support research to predict patient response to new drugs targeting the oestrogen receptor

Dr Ali will use cells from the Breast Cancer Now Tissue Bank to find out how successful a potential new drug is at blocking the activity of the oestrogen receptor and whether there are biological markers that can predict how patients will respond to this treatment.

### The challenge

Up to 80% of breast cancers are oestrogen receptor (ER) positive. Dr Ali wants to identify the biological mechanisms that influence the activity of the ER in breast cancer cells and how the ER can be effectively targeted with drugs.

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| <b>Aim:</b>        | To find out whether drugs that target CDK7 can stop cancer growth in ER-positive breast cancer | A portrait of Dr Simak Ali, a man with short, light-colored hair, wearing a dark jacket over a blue shirt. |
| <b>Researcher:</b> | Dr Simak Ali, Imperial College London  |  |
| <b>Funding:</b>    | Breast Cancer Now funded grant (2014May PR234)   |  |
| <b>Tissue:</b>     | 10 samples of ER-positive breast cancer cells<br>10 samples of healthy breast cells            |  |

### The science behind the project

The oestrogen receptor (ER) may be found on the surface of cancer cells; when the hormone oestrogen attaches to the ER, it sends a signal to the cancer cells to grow. Dr Ali is working to understand more about the processes that control how the ER works and how it can be targeted with drugs.

Previous studies have identified several factors thought to control the activity of the ER; Dr Ali and his team have developed drugs to target one of these factors, CDK7, and block the effect it has on the ER.

By comparing the effect of CDK7 on ER-positive breast cancer cells and healthy breast cells from the Breast Cancer Now Tissue Bank, Dr Ali will find out how effective the drug is at targeting CDK7 and thus preventing the ER from signalling to the cancer cells to grow.

He will also find out whether, by monitoring the levels and activity of CDK7 in the cells over the course of treatment, we can predict how patients might respond to these drugs. The team are also aiming to identify whether different groups of patients are likely to respond better to CDK7-blocking drugs than others.

### What difference will this project make?

Using cells derived from patients gives a more accurate representation of how the cancer behaves in the body than lab-grown cells. Testing the effect of CDK7-blocking drugs on these cells grown directly from patient's samples may accelerate the rate at which these drugs get to Phase I clinical trials, where they can be tested in patients.