

Drug to reverse breast cancer spread in development

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Researchers at Cardiff University are developing a novel compound known to reverse the spread of malignant breast cancer cells.

The vast majority of deaths from cancer result from its progressive spread to [vital organs](#), known as metastasis. In [breast cancer](#) up to 12,000 patients a year develop this form of the disease, often several years after initial diagnosis of a [breast lump](#).

In a recent series of studies researchers identified a previously unknown critical role for a potential cancer causing gene, Bcl3, in [metastatic breast cancer](#).

"We showed that suppressing this gene reduced the spread of cancer by more than 80%," said Dr Richard Clarkson from Cardiff University's European Cancer Stem Cell Research Institute.

"Our next goal was to then find a way to suppress Bcl3 pharmacologically. Despite great improvements in therapy of early stage breast cancer, the current therapeutic options for patients with late stage metastatic disease are limited.

"There is therefore a clear unmet clinical need to identify new drugs to reverse or at least to slow down disease progression" he added.

Dr Clarkson and his team joined up with researchers Dr Andrea Brancale and Dr Andrew Westwell from the Cardiff University School

of Pharmacy and Pharmaceutical Sciences, to develop small chemical inhibitors of the Bcl3 gene.

Computer aided modeling of how the Bcl3 gene functions inside the cell allowed the group to identify a pocket on the surface of Bcl3 essential for its function. By screening a virtual compound library for chemicals that could fit inside this pocket, using state-of-the-art computer software, they identified a drug candidate that potently inhibits Bcl3.

The compound was then trialed on mice with metastatic disease. The resulting effect was that the drug completely inhibited the development of the mice's metastatic tumours.

With financial backing from Tiziana Pharmaceuticals, work is now underway to progress the compound to clinical trials. The aim is to develop a therapeutic agent capable of blocking [metastatic disease](#) in breast cancer and a variety of tumour types.

The study will be published in the *Cancer Research* journal.

Provided by Cardiff University

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