



Cancer Research Wales aims to reduce the impact of cancer on the people of Wales through supporting world class cancer research and education. It is becoming apparent that individual variation exists between classes of tumours of the same type, stage and grade. These differences are thought to be responsible for the large variation in the clinical course and treatment responses witnessed between patients. At CRW we believe that in the future it will be vital to:

-  Fully determine the molecular characteristics of all tumours in the WCB so that cancer researchers can enhance the quality and translational value of their research.
-  Identify new novel molecular signatures that can better determine disease progression and outcome for all cancer types.
-  Be able to predict treatment response of individual patients based upon the unique biological profiles of their tumours so that patients can be given the most appropriate treatments.



Cancer Research Wales Ymchwil Canser Cymru

all money raised is spent in Wales



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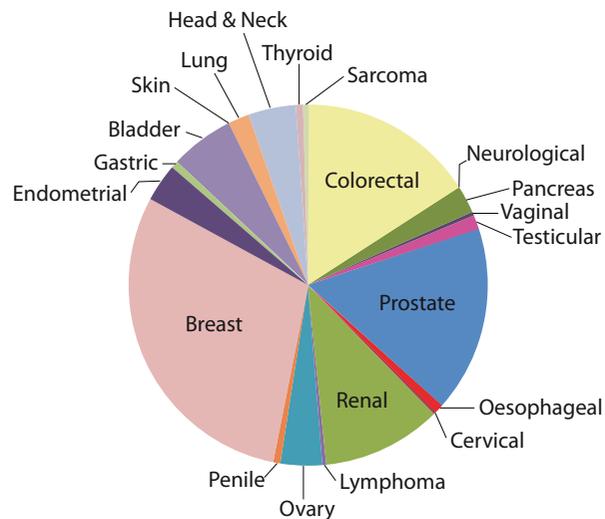
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Cancer Research Wales (CRW), along with Welsh Government (NISCHR), is proud to be a major stakeholder and collaborative partner in the Wales Cancer Bank (WCB). Originally established in 2003, the WCB was set up to store samples of tumour, blood and normal tissue for future research purposes. The samples are collected from all consenting patients who undergo investigational procedures or operations as part of their cancer diagnosis and treatment.

Seven hospitals across Wales are actively involved in the collection of samples and include Singleton and Morriston hospitals in Swansea; Withybush hospital in Haverfordwest; the Royal Gwent in Newport; Heath and Llandough hospitals in Cardiff and Ysbyty Gwynedd in Bangor. To date, over 6,000 samples have been collected and cover many cancer types. A complete breakdown of the tissue collection is shown.



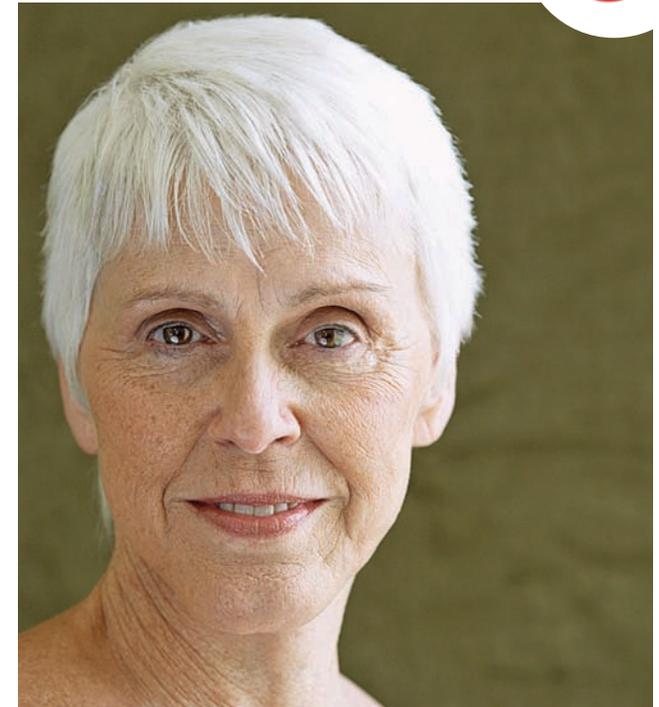
A challenge for oncologists is the ability to accurately predict the clinical course of disease in cancer patients. Even in patients with the same type, stage and grade of cancer,

the outcome for patients can vary remarkably. The reason for this, lies in the molecular differences that exist between individuals and their tumours. These biological differences have profound implications for cancer risk, development of aggressive disease and treatment response. Molecular characterisation of all tumour specimens within the WCB will help address these issues. It will also greatly facilitate the discovery of much needed markers of disease progression and treatment response.

Molecular characterization will ultimately allow clinicians to make better informed treatment decisions based upon the genetic and biological make-up of individual tumours. Such strategies are important in the current era of molecular targeted therapy, where drugs are rationally designed to combat the identified biological defects in cancer cells. Whilst these newer agents show clear benefits in some patients with cancers of poor prognosis, it has to be accepted that not all patients respond. Better patient targeting achieved through molecular profiling will help prevent the inappropriate treatment of patients for whom drugs will have no clear clinical benefit and visa versa. This will save vital time and resources and ultimately improve the wellbeing of cancer patients.

Applied and translational research forms an integral part of the overall strategy at CRW. Therefore, the use of tumour samples and other tissues made available from the WCB will play a fundamental role in the ability of CRW to hasten the clinical impact of important laboratory-based findings made by our various funded research groups.

Support from CRW has enabled the first phase of molecular characterisation of every prostate, breast and colon cancer specimen contained within the WCB. A number of key genes linked to the onset and aggressiveness of these cancers are



currently under evaluation, all of which carry implications for treatment with new therapies. When complete, the information will be linked-anonymised to databases for determination of clinical outcome. It is hoped, this will reveal unique molecular signatures and genetic fingerprints that can aid prognostication and the prediction of response of these cancers to new and existing treatments.

The molecular profiling studies will also provide added value to the WCB samples as scientists will be able to increase the degree of sophistication in the questions they ask of their research when using these characterised patient samples. Collectively, these will serve to hasten treatment decisions in the clinic, and allow patients to be given the most appropriate treatment as determined by the unique biology of their cancer.