

# Biobanking for Cancer Research - the issues with tissue

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# What is the Wales Cancer Bank?

Project is funded by the Welsh Assembly Government and CRW to collect samples of blood and tissue from patients with cancer who live in Wales.

Population based - ultimate aim is to collect material from all patients with cancer from all over Wales.

Makes material available to cancer researchers internationally, but will also collate their research results.

# WCB - History

- Funded from April 2003 by Wales Assembly Government and from October 2006 by Cancer Research Wales
- Current level £565,000 pa
- Key staff appointed 2003-4
- Ethical approval January 2004
- Public launch June 2004
- Sample collection started end Jan 2005

# Pilot phase

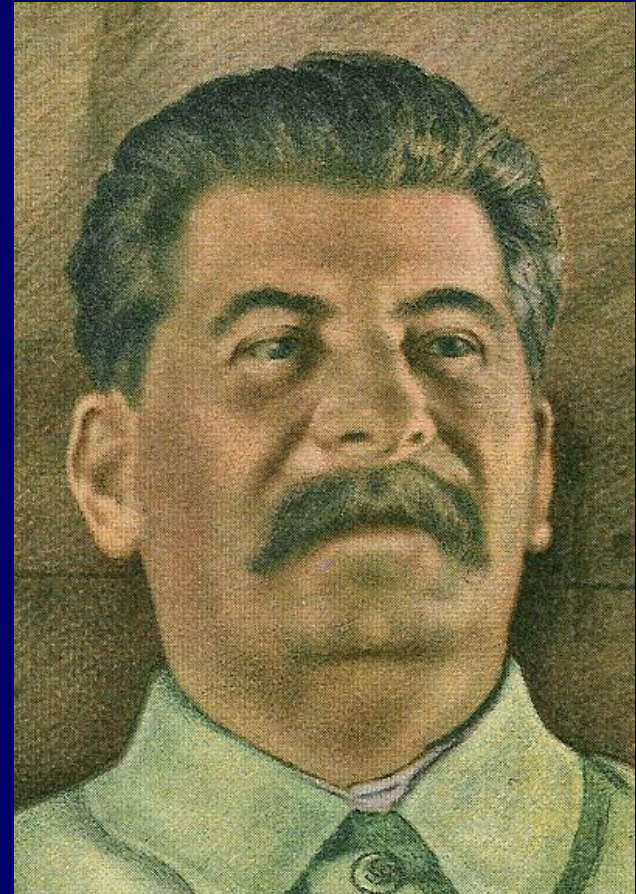
- Seven hospitals (expanded from 4) in pilot phase for the project:

Cardiff (2), Swansea (2), Haverfordwest (1)  
Bangor (1), Newport (1)

- During pilot phase, each centre collected specific tumour types
- 3 centres collecting both frozen and paraffin embedded material

# Virtual vs Centralised

- Continued support from local community important
- *Centralisation causes resentment*
- *Flexibility is essential*  
- not all hospitals run the same way
- *Centralised database with local remote access essential to success of virtual bank*



# Compliance

The Wales Cancer Bank is:

- Licensed by the Human Tissue Authority
- Has approval from the Wales Multi-centre Research Ethics Committee
- Has approval from relevant hospital research and development departments
- Sponsored by Cardiff University under the UK Research Governance framework
- A member of several national and international tissue banking organisations

# Engaging a Community Spirit

- Patients
- Local Media
- NHS Trusts
- Individual MDTs

# The patient's role



- Information sheet and consent forms were designed and led by our patients
- Our patients have liaised directly with universities, trusts, professionals and politicians

# Patients' attitudes

- Many patients surprised that we need to ask for consent - despite negative publicity in the UK
- Some patients who were not approached prior to surgery were unhappy
- REC approval given to WCB to consent retrospectively and have access to material from the diagnostic record

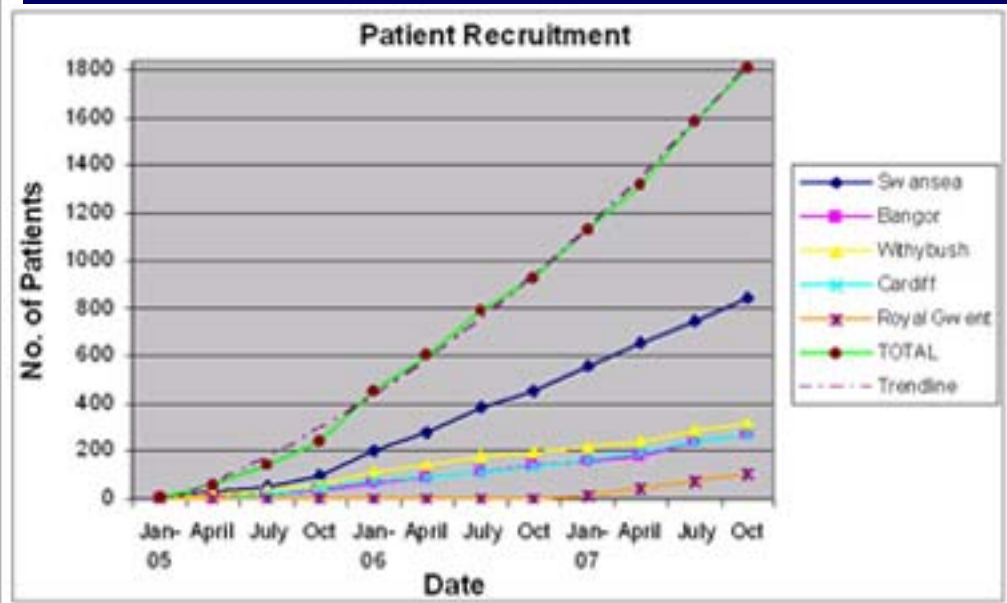
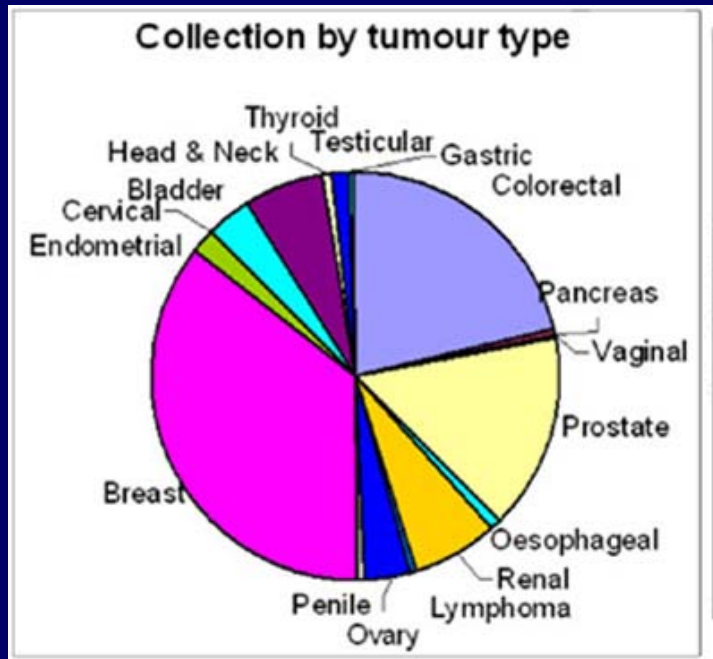
# Consent:

## What are patients told?

- Consent for *generic research into cancer*
- Research can be carried out by academics or industry
- Patients are unlikely to benefit themselves from research carried out on their tissues

- Can withdraw their consent at any time - but withdrawing a long time after consent may mean that some of their material has already been used
- Patients donate -they receive no financial benefit
- Projects using material from WCB will be reviewed by an external panel

# Where are we now?



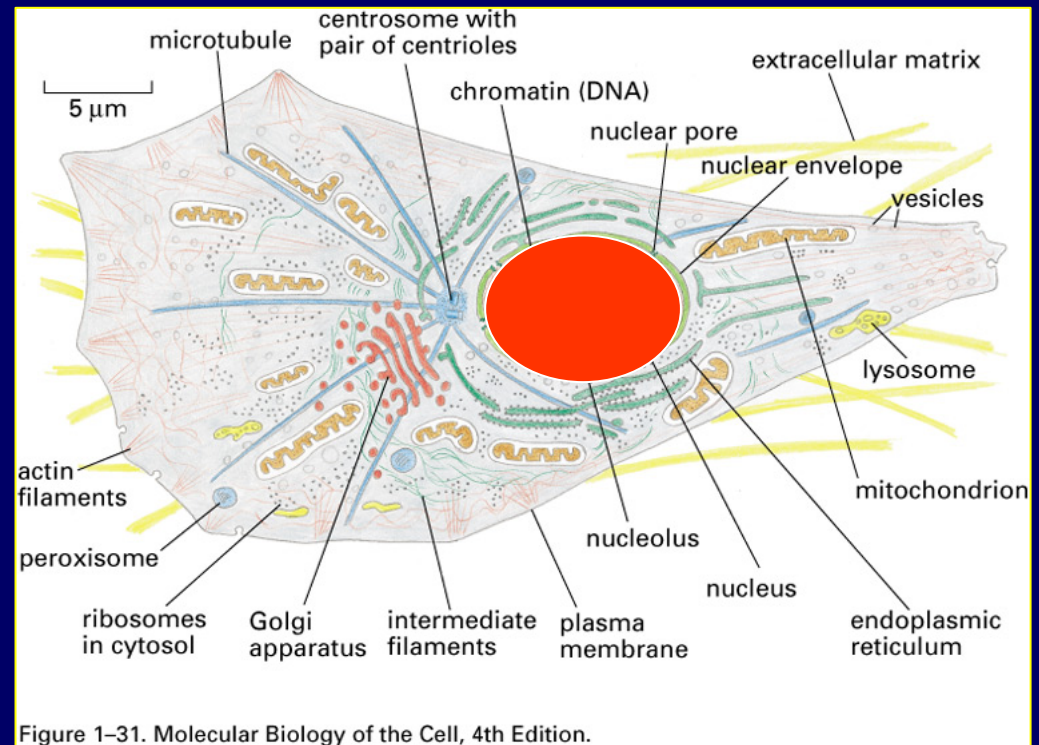
- 1812 patients recruited - FFPE material available on all
- Blood samples available on 1524 cases
- Frozen tissue available on 865 cases (multiple blocks on many cases)
- Blood samples also available on 430 controls

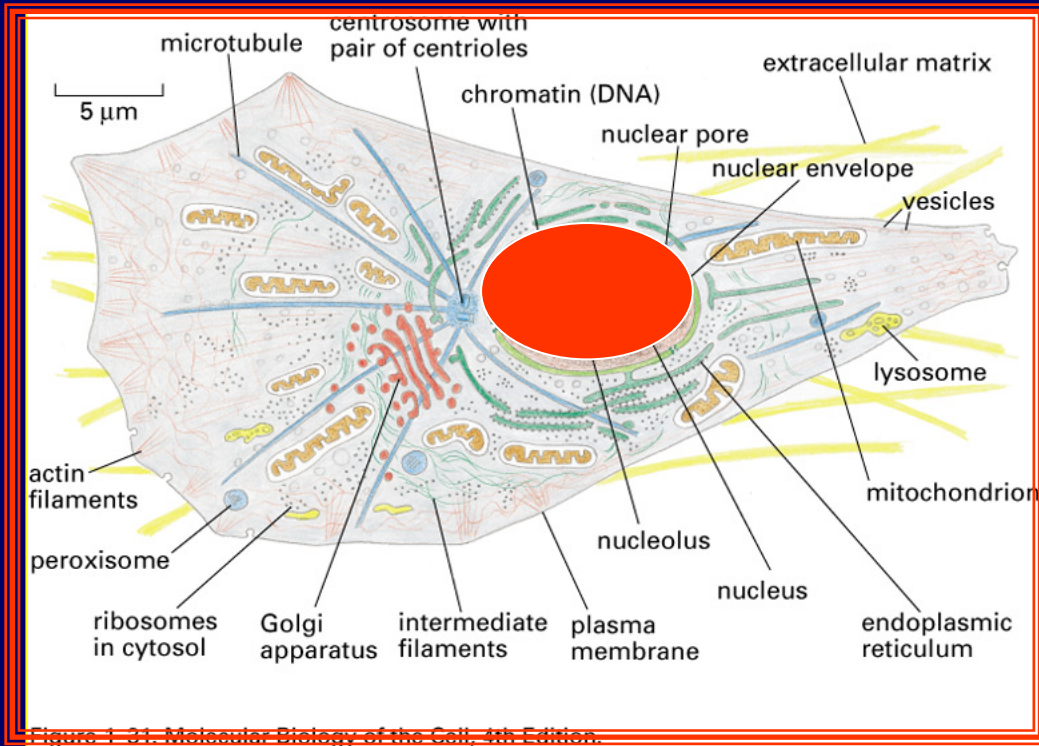
# What do our patients think?

- Patients overwhelmingly supportive
- Less than 1% of patients have refused
- No single reason - only one refused because they didn't agree with generic consent

# What samples should be collected?

- Genes only?
  - DNA bank
  - e.g. UK Biobank





Genes, RNA, proteins, carbohydrates, etc, etc  
 Tissue bank  
 e.g. Wales Cancer Bank

# Cancer science 1980-2000

- One or a handful of biological 'items' (genes, proteins, etc)
- Studied on a small number of samples

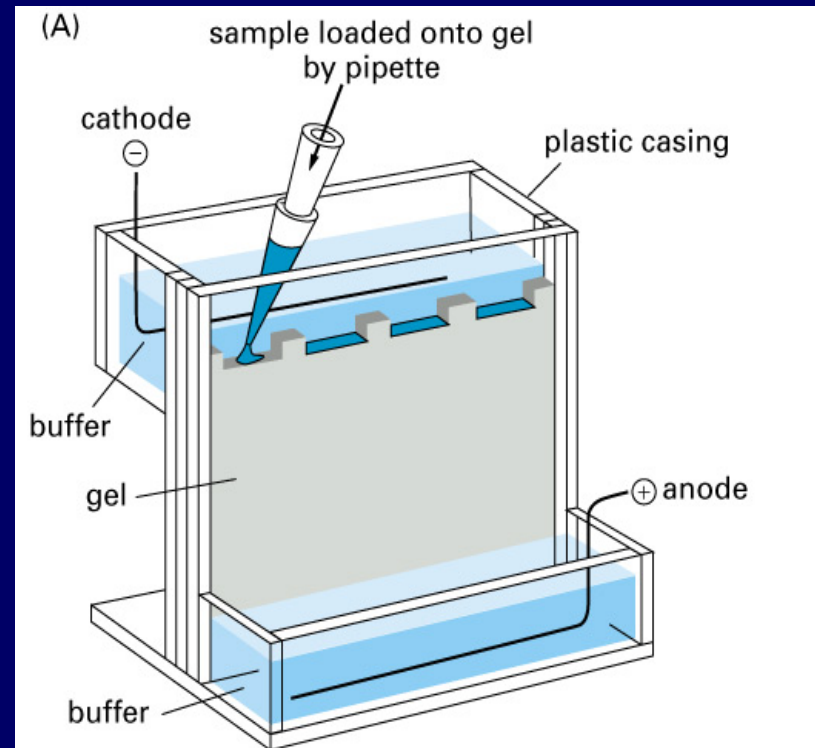


Figure 8-14 part 1 of 2. Molecular Biology of the Cell, 4th Edition.



# Questions that can only be answered by using human tissue (from a tissue bank)

- Is the genetic change I have identified in cell lines expressed more in cancer than normal tissue?
- At what stage is my gene expressed - early or late stage disease?
- Is my gene of interest expressed in one type of cancer or lots of different types?

# Questions that can only be answered by using human tissue (from a tissue bank)

- Can I detect my object of study using paraffin material as well as frozen material?
- Can I find a molecular or protein pattern that correlate with clinical outcome or response to therapy?
- Can I subdivide my chosen cancer type on molecular grounds better than I can with conventional pathology?

# Questions that can only be answered by using human tissue (from a tissue bank)

- Can I predict from a blood sample whether someone is likely to develop cancer?
- Can I detect whether my patient is going to relapse from a blood sample?
- Is the molecular biology of a particular type of cancer related to inherited genes, the age of patient at diagnosis or exposure to a particular agent?

Garbage in...



...garbage out



Diamonds in.....



Tissue banks collect material to agreed protocols - ensures that what the researchers receive are diamonds rather than .....

# Access to Samples

- Formal application, MADE EASY FOR RESEARCHERS
- International External Review Committee
- Samples released from February 07; academics *and* industry, UK *and* abroad
- *Researchers do not need prior ethical approval, but they know that their samples have been collected in an ethical manner*



# Acknowledgements



Prof Malcolm Mason - Director

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D Naeh - database manager

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The research nurses, pathologists, cancer MDTs  
and BMS in the pilot sites

The patients of Wales who are the biggest  
supporters of the project