

Storing DNA from patients with cancer

Genetic testing is now standard medical care for a range of disorders, including suspected familial cancer. However, sometimes genetic testing is not yet possible or it is not the right time to arrange genetic testing. It is possible to store DNA so genetic testing can occur at a later time.

Situations to consider DNA storage in a patient with cancer include (but are not limited to);

- A patient has a (suspected) familial cancer predisposition but their personal or family cancer history needs to be clarified to determine if genetic testing is indicated.
- A patient has a (suspected) familial cancer predisposition but their personal or family history needs to be clarified to determine which gene or genes should be tested.
- A patient has a (suspected) familial cancer predisposition but the gene/s associated with the cancer phenotype has/have not been identified (but may be in the future).
- A patient has a (suspected) familial cancer predisposition but the timing is not right for them to consider testing at the present time (e.g. they may be stressed, depressed, or receiving palliative care and likely to die soon).
- A patient has a (suspected) familial cancer predisposition, does not want to know their own genetic status but does want relatives to be able to access genetic information after their death.

WHEN is banking DNA more likely to be of benefit to a family?

- a person is diagnosed with cancer **and** two or more close relatives (same side of family) have the same or related cancers, especially if one is younger than the average age for diagnosis of that cancer; *or*
- a person is diagnosed with cancer under the age of 30 years; *or*
- a person is diagnosed with a certain type of cancer (e.g. retinoblastoma, paraganglioma, medullary thyroid cancer, malignant rhabdoid tumour, diffuse gastric cancer); *or*
- a person is diagnosed with two or more primary cancers (same or different primary site); *or*
- a person is diagnosed with mismatch repair deficient cancer; *or*
- a person is diagnosed with pancreatic cancer and has one or more “high risk” feature e.g. diagnosed <50 years; has a second primary cancer; has a family history of pancreatic, breast, ovarian, colorectal or endometrial cancer;
- a woman is diagnosed with high grade, non-mucinous epithelial ovarian cancer (at any age).

WHY bank DNA samples?

Testing may identify a genetic error (mutation) which can then be used to clarify the cancer risk status of relatives, and to identify preventative strategies for relatives who have inherited that mutation.

- Lymphocyte (blood) DNA from an affected family member is often the most useful sample for genetic studies in a family with a suspected familial predisposition to cancer.
- With appropriate consent, a DNA sample can be used before or after a patient's death.
- Storing a DNA sample for future genetic studies is a practical way for a dying patient to provide their family with better medical care.

HOW to bank a DNA sample

- Collect 2 x 4ml of blood in EDTA; request form should ask for “DNA storage”
- Include a brief note with the sample giving the personal and family history.
- Send to **Molecular Pathology, SA Pathology at Frome Road**

If a relative is seeking genetic counselling, refer them to the Adult Genetics Unit.

Call the Adult Genetics Unit at the Royal Adelaide Hospital on 7074 2697 if you have questions.

The DNA sample will be stored, but testing will **not** be done without appropriate genetic counselling and written consent from the patient or their next of kin or their legal representative.