The Baker IDI Biobank has samples and clinical information from over 6,000 participants available for research into cardiovascular disease, diabetes and obesity.

The Biobank, operating since January 2000, is one of the most comprehensive collection of samples from patients with cardiovascular disease and related conditions in Australia. Our key objective is to facilitate biomarker and genetic research by developing a repository of well-characterised samples.

Blood samples and clinical data are collected from both healthy volunteers and people with a variety of cardiovascular conditions. Nearly 12 years of sample collection means the Biobank has achieved a critical mass, with several hundred samples in all of our main cohort groups. In addition, we have recorded common co-morbidities and have a comprehensive medical history for most participants that includes blood pressure, cholesterol, glucose and BMI measurements.

What does the Biobank have in its freezers?

From all participants:

- Plasma
- Buffy coat
- DNA

In addition, over 600 participants, recruited since July 2008, have supplied:

- RNA
- Serum

Who are all these samples from?

Samples are from people with different types of heart disease, diabetes and those with risk factors for these conditions. The following tables and graphs summaries the risk factor profiles, age distributions and medical history of participants who have given blood samples to the Baker IDI Biobank.

Summary of CVD risk factors recorded for all Biobank participants

Risk Factor	**Within Biobank**
Age in years (Mean SD)	63 15
Male	3746 (65%)
Active smoker	548 (9%)
Hypertensive (as per medical history* or BP > 140/90 mmHg)	2760 (48%)
High cholesterol (as per medical history* or total chol > 5.5 mmol/L)	3199 (55%)
Overweight (25 > BMI < 30 kg/m^2)	2282 (40%)
Obese (BMI ≥ 30 kg/m^2)	1319 (23%)
Diabetic	863 (15%)

(as per medical history)	

Unless stated, data in table above are number of people and proportion of the total number of samples within the Biobank.

Analysis done in August 2009, n = 5776.
* Self-reported questionnaire

Number of participants with selected co-morbidities*

Co-morbidity	**Within Biobank**
Coronary artery disease	1255
Heart failure	606
Angina	1293
Stroke	271
Kidney disease	284
Sleep apnoea	188
Depression	358
Arthritis	682
Asthma	837
Retinopathy	324

*Data from self-report Medical History Questionnaire
Analysis done in August 2009, n = 5776; participants may have more than one co-morbidity.

What about healthy controls?

The Biobank also collects samples from people without any CVD history, diabetes or risk factors for CVD or diabetes. These samples may be used as control samples. We can also search the database using specific inclusion and exclusion criteria to find alternative control groups depending on project requirements.

Risk factor profile of participants who are considered 'Healthy Controls', n = 131

Measurement *	**Mean SD**
Age (years)	43 12.2
Blood pressure (mmHg)	113/71 6/6
Glucose (mM)	4.8 0.5
BMI (kg/m^2)	21.9 1.9
Total cholesterol (mM)	4.4 1.63
LDL cholesterol (mM)	2.5 0.62
HDL cholesterol (mM)	1.5 0.37

Triglycerides (mM)	0.9 0.74

*Recorded / measured at time of sample collection.

How can samples be accessed?

- Contact the Biobank Assistant to discuss your project and the samples and clinical data required.
- Obtain a **Biobank Access Request Form** from the Biobank Assistant once you have a clear plan, and prepare the required attachments (to clearly outline your project) in a single Word document.
- If you want clinical data relating to the samples requested, you will need to clearly define the clinical characteristics required by completing the **Biobank Fields Required form**, obtained from the Biobank Assistant.
- Email all the paperwork to the Biobank Assistant.
- The Biobank Steering Group will review your request. This can be done relatively quickly unless further clarification is required.
- Once the Steering Group has approved your project, you will be assigned a Biobank project number.
- Ethics review can occur concurrently with Biobank Steering Group review; however, all approvals must be confirmed before the samples and/or data can be released.

Biobank rules of use:
Samples and data must be used according to the Biobank Rules developed by the Steering Group. For researchers external to Baker IDI, a Material Transfer Agreement must be signed before samples can be released.

Ethics

Ethics approval from The Alfred Hospital Ethics Committee is required for all projects that propose to use Biobank samples.

- For de-identified samples this can generally be done using the ***application for ethical review of low risk project***. Applicants must read the ***Low Risk Guide*** to make sure that their project fits into the low risk category. Applications utilising this route of approval are assessed 'out of session' by two members of the Ethics Committee and approval is usually quicker than a full ethics application.
- If your project requires identifiable or potentially identifiable information, a ***full ethics application*** will be required.
- The Ethics Committee may wish to see evidence that you have discussed your project with the Biobank Manager. An email printout will usually suffice. The Biobank Manager must review and sign section 11.40 of the Alfred Specific Form (ASF) for all full ethics submissions.

Researchers often ask why additional ethics approval is required given that the Biobank has the participants' consent for their sample to be used in research. The main reason is to ensure that researchers using Biobank samples have considered whether the outcome of their research will have any health implications for the participants who supplied the samples. When participants provided

consent, they were told that the Ethics Committee may decide to offer them information about research findings "if research uncovers significant information specific to your health".

The Ethics Committee therefore needs to see evidence that researchers have taken this into account when designing their study and that researchers understand that this information must be fed back to the Biobank and the Ethics Committee through progress reports.

Fee-for-sample

To help the Biobank recover the costs associated with collecting, processing and long-term storage of samples, the following costing system has been developed based on the type of samples/data required. This revised pricing structure provides a reduced 'per sample' price for studies using large cohorts (over 100 samples).

Sample type	**Price (2010)**	
	Samples 1-100	**Samples 101+**
Plasma	$94	$44
Serum	$95	$45
DNA	$101	$48
RNA	$107	$54

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