Victorian Cancer Biobank

Annual Report 2009

Vision

To be the first choice for the supply of cancer tissue to take hypothesis through to discovery

Core values

Integrity A reliable and ethical approach to biobanking

Excellence The provision of quality biospecimens and service to researchers

Innovation Centralised access to multi-centre collections

Contents

The Victorian Cancer Biobank was established in 2006 to provide high quality clinically annotated tissue samples to facilitate research efforts that will lead to improved patient outcomes.

2009 Achievements

Tissue Collection and Biospecimen Distribution

- A further 2725 donors provided consent for donation
- 25 new research applications approved by the Access Committee with 17 projects completely supplied
- An additional 6298 biospecimens distributed to researchers
- 295 fresh tissue samples supplied in culture media on ice within two hours of surgery

Establishment of first regional Biobank site

- First regional site established in Geelong in partnership with St John of God Pathology, St John of God Hospital, Geelong Hospital and Geelong Private Hospital

Expansion in metropolitan Melbourne

- Collections now undertaken at 27 participating hospitals with the commencement of collections at Cabrini, The Alfred, Box Hill Hospital and Mercy Hospital for Women

Agreement signed with Victoria Cancer Agency

- $6.1 million to support operations to June 2012, including expansion to a second site in regional Victoria

Pathology digital imaging systems

- Four pathology digital imaging systems installed at Austin Hospital, Melbourne Health, Monash Medical Centre and Peter MacCallum Cancer Centre to enhance the Biobank's quality program and benefit pathologists and cancer researchers undertaking molecular pathology research

Marketing and Communication

- Sponsorship, advertising and promotional material distributed at four conferences
- Biobank staff continue to present regularly to national and international conferences and to Victorian hospital, research and community groups
- Website www.viccancerbiobank.org.au upgraded to become a major communication tool; regularly updated with information about the application process and items of news
- Two issues of *Biobank Brief* produced and distributed to over 200 stakeholders

Future Directions

- Balance the collection to respond to researcher needs
- Expand project specific collections and clinical research support
- Expand to a second regional site in the Hume region
- Integrate the digital imaging resource into the quality program and facilitate molecular pathology research
- Link the IT systems internally and externally to support operations and provide follow-up data associated with biospecimens


040
3320

Consortium Committee Chair's Report

The Victorian Cancer Biobank is a wonderful resource for researchers in Victoria, Australia and internationally, providing access to quality samples and data from many thousands of cancer patients as part of the quest to improve outcomes for cancer sufferers. In 2009, our fourth year of existence, the Biobank saw a significant expansion and maturation of our operations. As you read through this report you will appreciate the size and complexity of the current Biobank operation, as well as the many individuals, both paid and unpaid, who contribute to making the Biobank the success that it is.

There have been many highlights during 2009, with some of the key ones including the signing of a new agreement with the Victorian Government for $6.1 million to support our operations to June 2012 and the purchase of four pathology digital imaging systems using $1.2 million provided through the Victorian Cancer Agency. The system has been installed at Austin Health, Melbourne Health, Monash Medical Centre and Peter MacCallum Cancer Centre and will be used by the Biobank for our quality assurance program. The system is also available for molecular pathology research being undertaken by pathologists and cancer researchers located in departments and research institutions associated with each of the four sites.

During 2009, four new collection sites were established in metropolitan Melbourne at Northern Hospital, Cabrini, The Alfred and Box Hill Hospital and the first regional Biobank was established in Geelong in partnership with St John of God Pathology, St John of God Hospital and Geelong Public and Geelong Private Hospitals. This brings the total number of participating hospitals in Victoria to 27, with the opening of one additional regional site being planned in 2010 in Albury-Wodonga.

Throughout the year the counsel and advice of the Consortium Committee has guided the Biobank and I would like to acknowledge the hard work of all the members. In particular I would like to thank Professor Tony Burgess (independent member – research), who stepped down from the Consortium Committee during 2009. Tony's vast experience will be hard to replace, although we have been extremely fortunate in securing the services of another eminent scientist, Professor Warren Alexander. We look forward to Warren's input over the forthcoming years. Finally, it would be remiss of me not to thank our Executive Officer, Anne Thompson, who keeps everything working in what has rapidly become a large and complex operation.

There are many other people that I would like to recognise who contribute to the successful operation of the Biobank. These include all our dedicated staff, the many clinical and support staff at our affiliated hospitals who generously donate their time and expertise, and last but not least, the many thousands of donors who give tissues and clinical data at times of great personal duress. The generosity of donors enables the Biobank to provide the large number of biospecimens required by the research community.

In 2009, the Biobank received 25 new research applications and supplied more than 6,000 biospecimens locally, nationally and internationally. We look forward to further growth in applications in 2010, as well as the ongoing development of our data management systems to better support the supply of biospecimens to meet the steadily increasing demand for samples.

Professor Peter Rogers
Chair

Executive Officer's Report

This year has marked a turning point for the Biobank with the end of the first phase of the program, as outlined in the original Business Plan. We have achieved the milestones for establishing the Biobank with funds from the Victorian Government through a Science, Technology and Infrastructure Grant, including the implementation of our unique operational model focused around centralised access. With additional funding from the Victorian Cancer Agency and their commitment to provide ongoing funding until mid 2012, the second phase of the program commenced in mid 2009.

The focus of the Biobank has now shifted to increasing support and services for clinical and translational research. This has involved expanding our collection network to regional Victoria as well as to two new sites in metropolitan Melbourne, at Cabrini and Box Hill. Pathology digital imaging equipment has been purchased which will benefit researchers and pathologists undertaking molecular pathology research as well as supporting the Biobank quality program.

The Biobank now supports 36 full and part-time staff who work with donors to obtain their consent to collect blood and tissue specimens at 27 public and private sites across metropolitan Melbourne and Geelong. I would like to thank all the staff for the important role they play in the successful operation of the Biobank. Through their dedication and excellent work this year, we have been able to process and store biospecimens from more than 3200 donors. Medical scientists at each site have worked closely with the pathology registrars to ensure that high quality tissue is being supplied to the researchers participating in the 52 projects currently being supplied with biospecimens from across the Biobank. To ensure biospecimen-related data is available, four data managers have worked continually to retrieve pathology reports and clinical information. The data managers have also worked closely with Joanne Edgar in Central Operations to test and customise the new Cresalys database and commence the process of cleaning and migrating data. We are all eagerly awaiting the database becoming fully functional, as it will add significant efficiencies to the biospecimen retrieval and dispatch process.

I would particularly like to thank the four tissue bank managers, Carmel Murone (Austin Health), Matthew Chapman (Melbourne Health), Samantha Cauberg (Peter Mac) and Zdenka Prodanovic who took over at Southern Health following Pam Mamers' retirement in October. Their hard work and enthusiasm has underpinned the smooth running of their own sites and the establishment of the new sites at Box Hill Hospital, Geelong and Cabrini Hospital. Their collaborative relationship with each other and with the Central Operations team has been crucial in creating our unique integrated structure for collection and distribution.

In addition, I would like to thank the Central Operations team based at Cancer Council Victoria. Joanne Edgar worked tirelessly with researchers and the Access Committee to ensure applications are processed and biospecimens dispatched as quickly as possible. Zoe Squire, as Quality Manager, put in place a framework for our quality program and commenced the audit process to ensure compliance with Biobank standard operating procedures. Following the departure of Noellyn Ngo in early 2009, Pip Dudley has taken up the reins managing the Biobank administrative functions and communicating news of our activities through the publication of newsletters.

The success of the Biobank in 2009 can also be attributed to the dedication of the many Committee members who have generously given their time, despite their own significant clinical and research commitments. I would like to thank them for their contribution, which is evident throughout this report and is important for the sound governance and operation of the Biobank.

Dr Anne Thompson
Executive Officer

Front: Pip Dudley, Zoe Squire, Joanne Edgar, Anne Thompson (Central Operations team). Back: David Fogarty, Avis Macphee (Consortium Committee members)

Consortium Committee

Professor Peter Rogers

BSc (Hons), PhD

Southern Health Representative

Peter Rogers is the Director of the Centre for Women's Health Research in Monash University's Department of Obstetrics and Gynaecology and the Monash Institute of Medical Research. He is a NHMRC Fellow with active research interests in a range of female health issues. He is also a founding Director of the Jean Hailes Foundation, a not-for-profit organisation established in Victoria in 1990. Peter is the current Chair of the Consortium Committee, and has been a member of the Committee since July 2006.

Associate Professor Geoffrey Lindeman

BSc (Med), MBBS, PhD, FRACP

Melbourne Health Representative

Geoff Lindeman is Joint Head of the Victorian Breast Cancer Research Consortium Laboratory at the Walter and Eliza Hall Institute of Medical Research. He is also a medical oncologist and Head of the Royal Melbourne Hospital Familial Cancer Centre. His laboratory is studying molecular regulators of normal mammary gland development and breast cancer. Geoff has been a member of the Consortium Committee since July 2006.

David Fogarty

FCPA

Cancer Council Victoria Representative

David Fogarty is the Business Manager of the Cancer Council Victoria. He is an experienced Business Consultant who has operated his own consulting business for the last twelve years. David has worked in many industries with a long period in the finance industry with AGC and Westpac. He has been a member of the Consortium Committee since July 2006.

Professor Andrew Scott

MBBS (Hons), MD, FRACP, DDU

Austin Health Representative

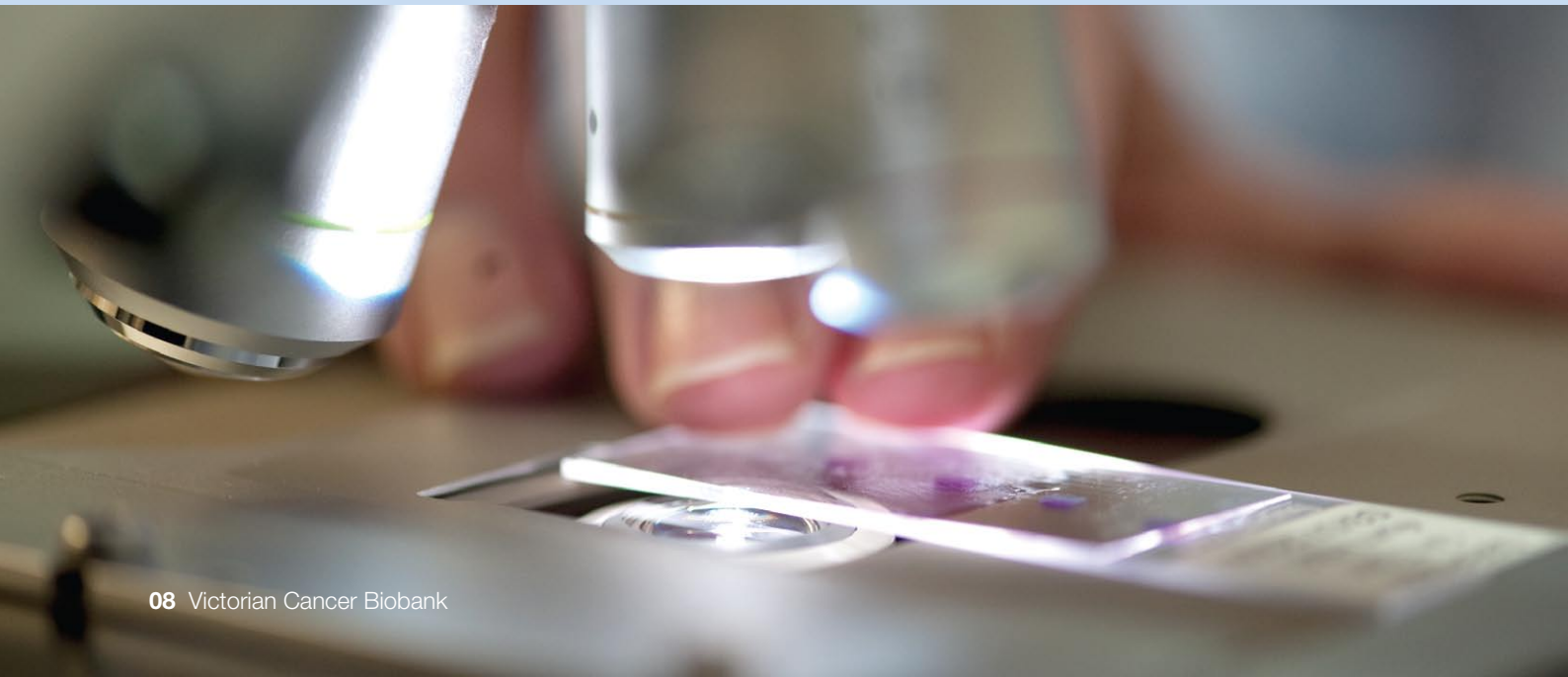
Andrew Scott's current appointments include Director, Ludwig Institute for Cancer Research, Melbourne Centre for Clinical Sciences; Professor, Department of Medicine, University of Melbourne; and Director, Centre for PET, Austin Hospital. His research is focused on developing innovative strategies for targeted therapy of cancer with monoclonal antibodies and cell signalling inhibition, and in oncology applications in PET. He has been a member of the Consortium Committee since July 2006.

Associate Professor Ian Campbell

PhD

Peter MacCallum Cancer Centre Representative

Ian Campbell heads the VBCRC Cancer Genetics Laboratory at the Peter MacCallum Cancer Centre. Ian is also an Associate Professor at the Department of Pathology, University of Melbourne, and a NHMRC Senior Research Fellow, 2008-2012. The focus of Ian's research over the past 19 years has been an investigation into the molecular genetics of ovarian and breast cancer. He has been a member of the Consortium Committee since February 2007.



Avis Macphee

AAIMS

Independent Member – Consumer Advocate

Avis Macphee is a retired medical scientist and is the founder and coordinator of the Breast Cancer Support Group of the Bone Marrow Donor Institute Ltd. Her current appointments include membership of the Executive Committee of The Cancer Council Victoria, member of the Board of the Victorian Breast Cancer Research Consortium, and member of the VBCRC's Scientific Committee. She also represents the Breast Cancer Network Australia and the Breast Cancer Action Group on several committees. She has been a member of the Consortium Committee since December 2006.

Malar Thiagarajan

BSc, LLB, LLM, Dip Project Management

Independent Member – Ethics

Malar Thiagarajan is the Director of Research Services at Southern Health. She is also a lawyer and tutors in the Medical Law Program for the Faculty of Medicine, Monash University. Malar completed a visiting research fellowship to the Oxford Uehiro Centre for Practical Ethics, Faculty of Philosophy, Oxford University in 2005, she has published in the area of the legal rights of patients to life-prolonging medical treatments and has presented at international conferences in the area of public health and human rights as well as clinical ethics. She has been a member of the Consortium Committee since October 2006.

Professor Tony Burgess AC

BSc (Hons), PhD, FAA, FTSE

Independent Member – Research

Tony Burgess retired from his position as Director of the Ludwig Institute for Cancer Research in July 2009 and is now the Laboratory Head of the Epithelial Biochemistry Laboratory at the LICR. He was a member of the Consortium Committee from September 2006 and resigned in April 2009.

Tony Landgren

MBBS, LLB, FRCPA

Independent Member – Pathology

Tony Landgren is the Chairman of the Department of Anatomical Pathology at the Royal Melbourne Hospital and Chairman of the Board of Censors of the Royal College of Pathologists of Australasia. His areas of diagnostic pathology practice include gastrointestinal pathology, renal pathology and tumour molecular pathology. Tony is a Barrister and Solicitor of the Supreme Court of Victoria and has been a member of the Consortium Committee since October 2006.

Professor Warren Alexander

BSc (Hons), PhD

Independent Member – Research

Warren Alexander is Joint Head, Cancer and Haematology Division at the Walter and Eliza Hall Institute of Medical Research. He is also a NHMRC Senior Principal Research Fellow, a Professorial Fellow at the University of Melbourne and Head, Mouse Genomics Centre, WEHI. Warren joined the Consortium Committee in November 2009.

Governance and Management

Since the Consortium Agreement was signed in June 2006, the two tier governance and management structure has played an important role in uniting the Consortium. Representation at each level of the structure enables participation in the decision making process by representatives from Consortium and associate member organisations.

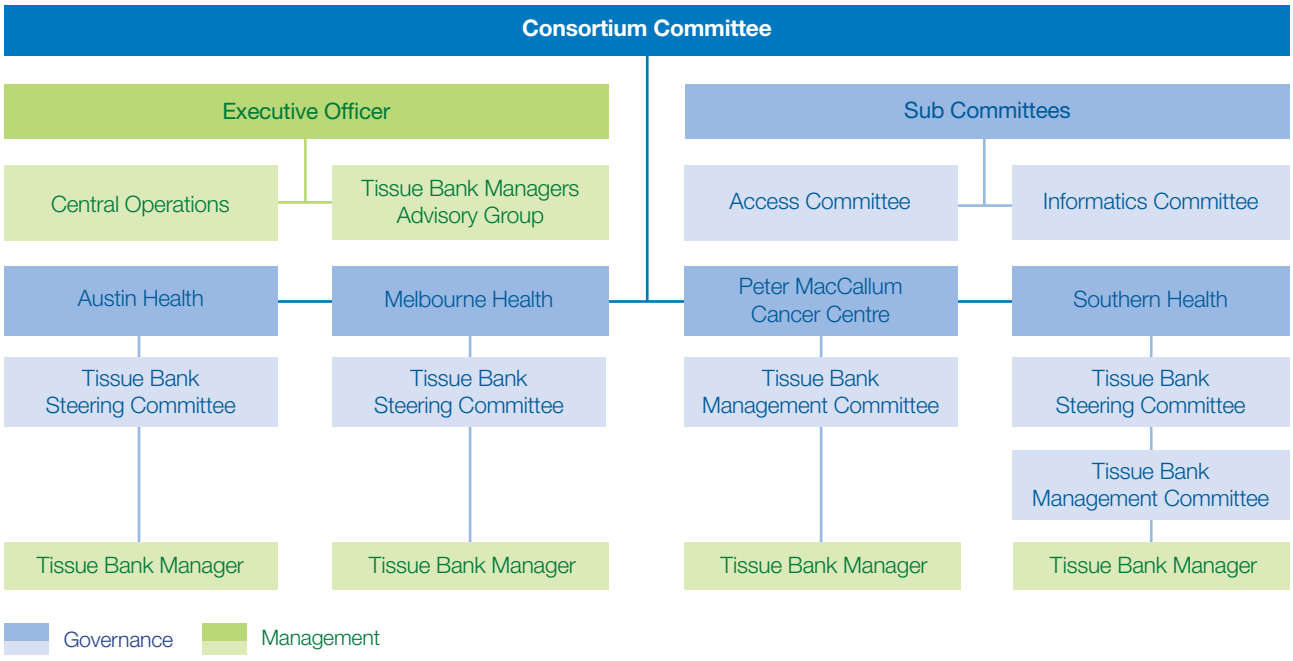
The Consortium Committee is the central element of the governance structure, providing sound governance, helping set strategy and direction, making sure the financial position of the Biobank is sound and providing links to the community and stakeholders in government and research. Two sub committees, the Access Committee and the Informatics Committee, support and provide expert advice on matters relating to applications for biospecimens and the web-based informatics platform respectively.

Each of the four consortium member sites is governed by a management and/or steering committee responsible for administering funds and managing the expansion of tissue banking activities to associate member sites. To ensure there is wide input from participants at the local level, committee membership includes the Consortium Committee member and representatives from associated member sites, as well as from the professional groups that support tissue banking, such as participating surgeons and pathologists.

Management of the organisation as a whole is primarily the responsibility of four Central Operations staff located at the Cancer Council Victoria, who provide the leadership and operational capabilities of the Biobank. The tissue bank managers, responsible for the day-to-day running of collection and processing centres and feeder collection sites and for supervision of the medical scientists, also play an essential management role at the local level. Their input at Tissue Bank Managers Advisory Group meetings provides the central management team with an understanding of issues arising at each site.

The Biobank's affiliated members are those organisations that signed a Memorandum of Understanding in 2005 confirming that they are committed in principle to supporting the establishment of the Biobank. Along with the affiliated members, there are many other organisations that have developed a close working relationship with the Biobank. The participation of all these organisations creates the "hub and spokes" collection system that delivers biospecimens to the research community.

Structure and Membership



Austin Health Tissue Bank Steering Committee

Dr Sianna Panagiotopoulos (Chair)
Prof Andrew Scott
Assoc Prof Paul Mitchell
Mr Kevin Amery
Dr Carmel Murone
Mr Nick Crinis
Dr Peter Crowley
Ms Abi McDonald

Melbourne Health Tissue Bank Steering Committee

Assoc Prof Geoffrey Lindeman (Chair)
Dr Chris Dow
Prof Jock Findlay
Assoc Prof Peter Gibbs
Dr Tony Landgren
Mrs Avis Macphee
Prof Bruce Mann
Dr John Ciciulla
Dr Prue Allan
Dr Jan Pyman
Assoc Prof Andrew Roberts
Dr Angela Watt
Ms Kate Drummond
A/Prof Rob Rome
Prof Ingrid Winship

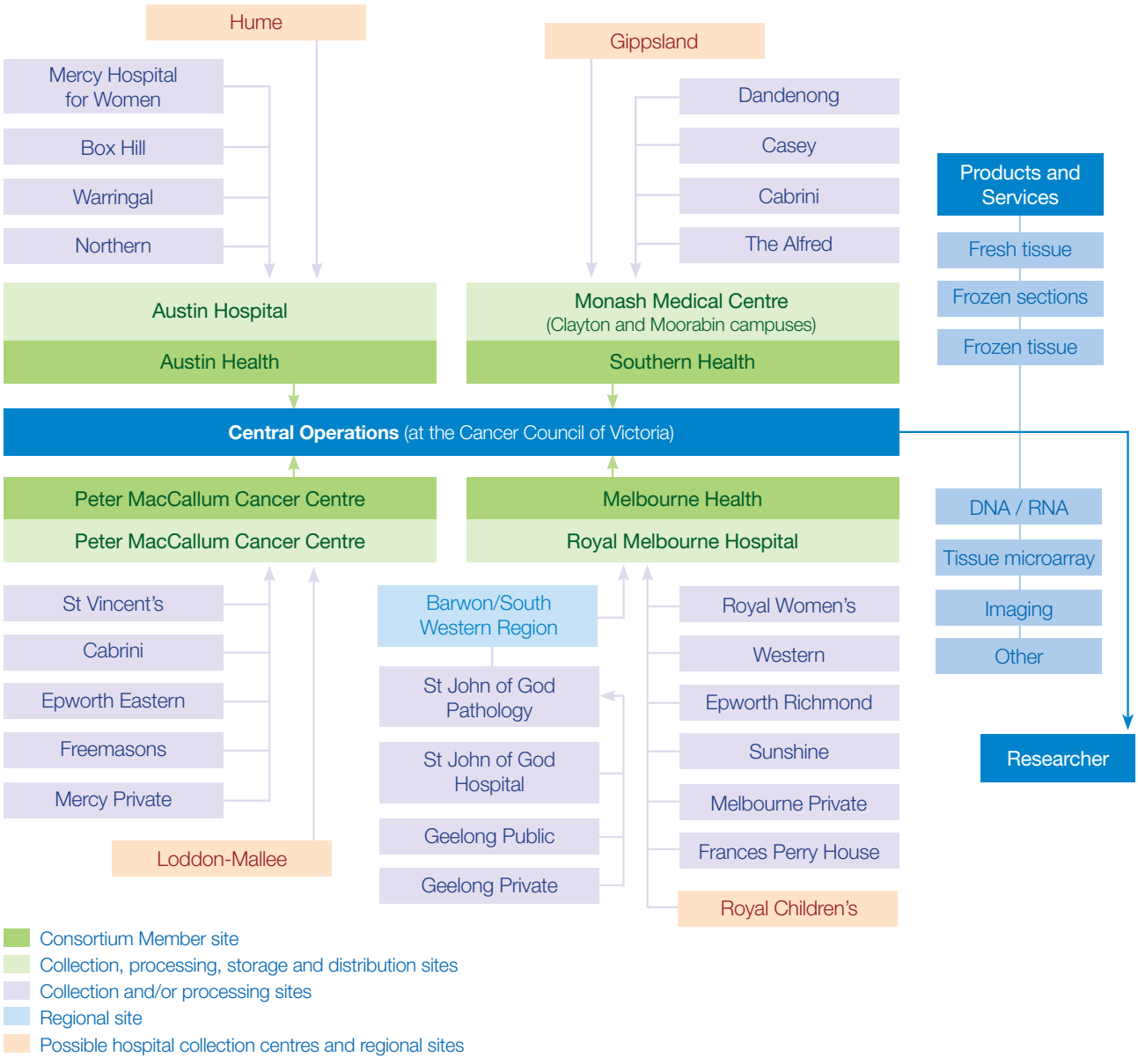
Peter MacCallum Cancer Centre Tissue Bank Management Committee

Assoc Prof Wayne Phillips (Chair)
Assoc Prof Ian Campbell
Ms Samantha Cauberg
Ms Lisa Devereux
Prof Stephen Fox
Mr Colin House
Mr Alexander Heriot
Ms Megan Brooks
Ms Jyoti Sarna
Dr Simon Harrison
Ms Rhonda Mawal
Dr Alvin Milner
Dr David Ritchie
Assoc Prof Rik Thompson
Assoc Prof Grant McArthur
Dr Donna Dorow

Southern Health Tissue Bank Steering and Management Committees

Prof John Funder (Chair)
Prof Peter Rogers
Prof Peter Fuller
Mr Kevin Ericksen
Dr Beena Kumar
Ms Malar Thiagarajan
Dr Chip Farmer
Assoc Prof Paul McMurrick
Prof Matthew Gillespie
Prof Bryan Williams
Prof Adrian Polglase
Ms Rosemary Savino
Dr Jane McNeilage
Prof David Robertson

Operations Model



Affiliated Members

Eastern Health

Epworth Hospital

Freemasons Hospital

Ludwig Institute for Cancer Research Ltd

Royal Children's Hospital/Murdoch Childrens Research Institute

St Vincents Hospital

TissuPath

The Royal Women's Hospital

Walter and Eliza Hall Institute of Medical Research

Victorian Breast Cancer Research Consortium

Victorian Transplantation and Immunogenetics Service

Western Health

Collaborators

AnatPath

Australasian Biospecimen Network

Australian Genome Research Facility

Australian Prostate Cancer Consortium

BioGrid Australia

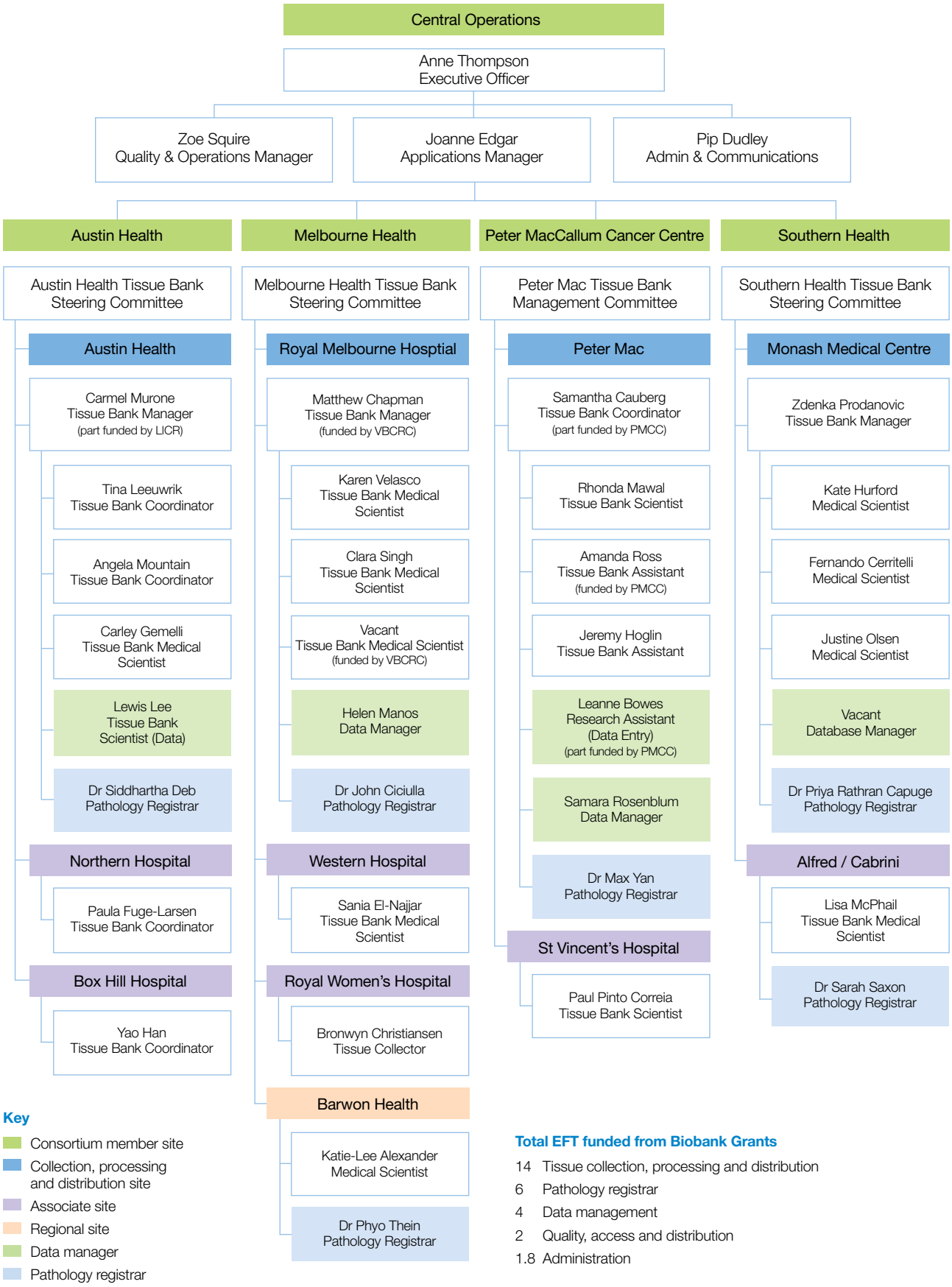
Cancer Trials Australia

Kathleen Cunningham Foundation Consortium for Research into Familial Breast Cancer (kConFab)

Melbourne Pathology

Victorian Partnership for Advanced Computing

Organisation Chart



Key

- Consortium member site
- Collection, processing and distribution site
- Associate site
- Regional site
- Data manager
- Pathology registrar

Total EFT funded from Biobank Grants

14 Tissue collection, processing and distribution
6 Pathology registrar
4 Data management
2 Quality, access and distribution
1.8 Administration

Committee Reports

Informatics Committee

The role of the Informatics Committee is to provide expertise and guidance to the Biobank Consortium Committee regarding all these aspects of informatics planning and implementation. Members of the Committee provide a broad range of expertise in all areas of IT related to research and tissue banking. The Informatics Committee has been responsible for providing advice on the development of specifications for implementation of the Cresalys software across all Biobank sites.

Throughout 2009 the implementation and customisation of the database has progressed slowly but steadily. The Victorian Partnership For Advanced Computing (VPAC) is managing the implementation of the system, which involves coordinating installation of client software with IT Departments at eight hospital sites across metropolitan Melbourne and in Geelong. The database software has been installed on the central server located at VPAC and links to the client software at three of the four Consortium member sites as well as Northern Hospital have been established. Links between the central database at VPAC and Peter Mac as well as with Cabrini and Geelong are planned for early in 2010. Following implementation, testing and customisation of the database, the cleaning and migration of biospecimen related data at all sites will be undertaken, a process that is expected to take at least six months.

Anne Thompson
Chair

Informatics Committee Members

Dr Anne Thompson (Chair) MSc, PhD
Executive Officer, Victorian Cancer Biobank

Dr Jayesh Desai MBBS, FRACP
University of Melbourne and BioGrid Australia

Dr Clare Scott MBBS, PhD, FRACP
Walter and Eliza Hall Institute of Medical Research

Eveline Niedermayr BSc (Hons), Grad Dip Info Mgmt, Grad Dip Software Devt
Peter MacCallum Cancer Centre

Georgina Marr BHIM, Grad Dip Epi Biostat
Cancer Institute NSW

Garth Stewart BSc (Hons), Grad Dip Comp
Cancer Council Victoria

Access Committee

The Access Committee has continued to evolve and has faced many challenges during 2009. The hard work of the committee to overcome these challenges has put us in a better position moving forward to be able to support research in many different ways.

Despite their own work commitments, the Committee continued to operate efficiently and even streamline the approval process that has resulted in reduced processing times for the increasing number of applications received. A total of 25 new applications have been received in 2009, bringing the total number of applications received since the formation of the Access Committee to 46. In addition to these new applications, the Biobank is also managing a total of 33 pre-existing projects. The streamlined processes have reduced the average time taken to process an application by 41% relative to 2008.

In late 2009 we farewelled three founding members of the Access Committee: Pam Mamers, Geoff Lindeman and Avis Macphee. I would like to thank Pam, Geoff and Avis for their hard work and input in the establishment and progression of the Access Committee. Early in 2010 three new members will be appointed following nomination by the relevant Steering Committees.

Joanne Edgar
Chair

Access Committee Members

Ms Joanne Edgar (Chair) BSc
Applications Manager, Victorian Cancer Biobank

AssocProf Ian Davis MBBS (Hons), PhD, FRACP, FAChPM
Austin Health

Dr Carmel Murone BAppSc, PhD
Austin Health

Mrs Avis Macphee AAIMS
Melbourne Health

Assoc Prof Geoff Lindeman BSc (Med), MBBS, FRACP, PhD
Melbourne Health

Assoc Prof Wayne Phillips PhD
Peter MacCallum Cancer Centre

Prof Stephen Fox BSc (Hons), FRCPA, MBChB, Dphil, FRCPath
Peter MacCallum Cancer Centre

Ms Pamela Mamers RN, BA, Grad Dip Epi Biostat
Southern Health

Ms Ruth Patterson BSc (Hons)
Southern Health

Assoc Professor Brian Dean HND AppBiol, MSc, PhD, FI Biol, CBiol
Mental Health Research Institute

Ms Fairlie Hinton RN
National Neuroscience Facility

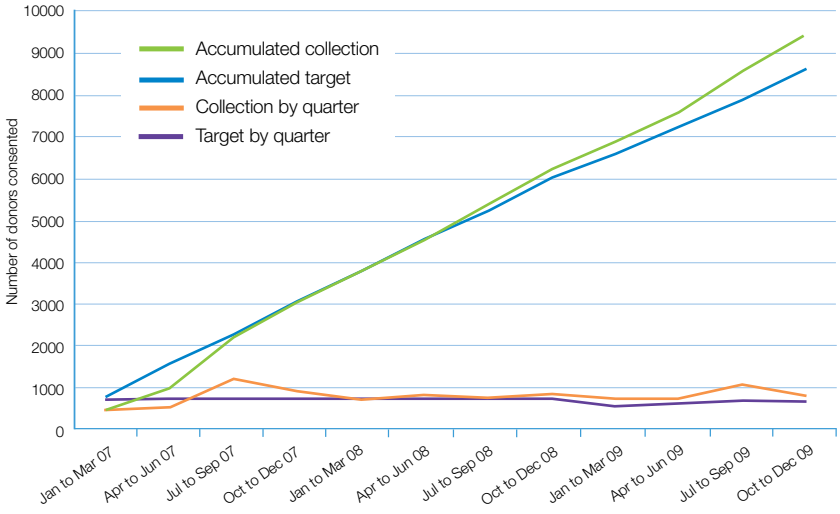
Collection

Throughout the year Biobank staff again worked with clinical staff at 27 hospitals across metropolitan Melbourne and in Geelong to obtain consent from donors undergoing surgery for all types of cancer. Over the last three years, 9395 people have donated to the Biobank, which has exceeded the agreed collection target of 8600 (Figure 1). The annual collection rates have remained steady overall with a slight variation in numbers depending on the type of cancer (Figure 2).

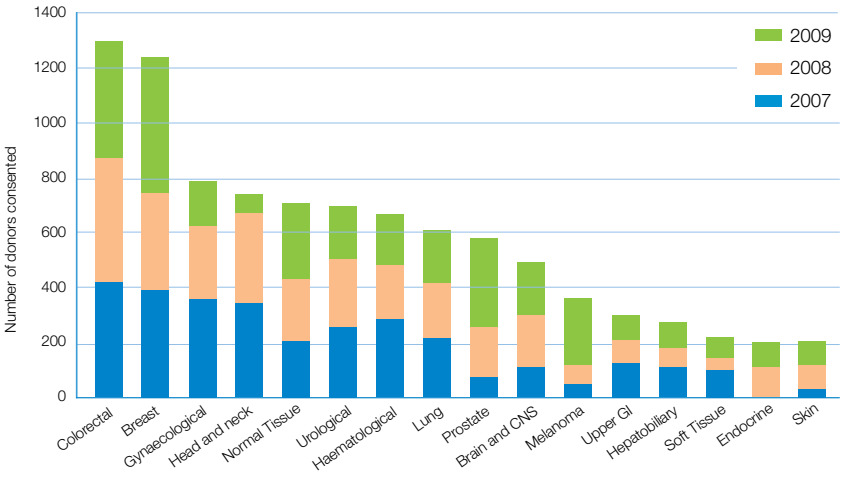
In 2009, 2725 donors agreed to support the Biobank. Non-cancer or "normal" tissue is also very valuable to cancer researchers for comparative analysis and the Biobank is grateful to the 278 patients undergoing surgery for other medical conditions in 2009 who agreed to donate their blood and tissue for cancer research (Figure 3).

Although there is significant variation in the type of cancer surgery undertaken at each of the hospitals associated with the Biobank, the strength of the centralised access model is that collectively the Consortium is able to balance the collection to meet researcher needs (Figure 3). Standard operating procedures ensure that uniform high quality biospecimens can be sourced and supplied to researchers from across all Biobank sites.

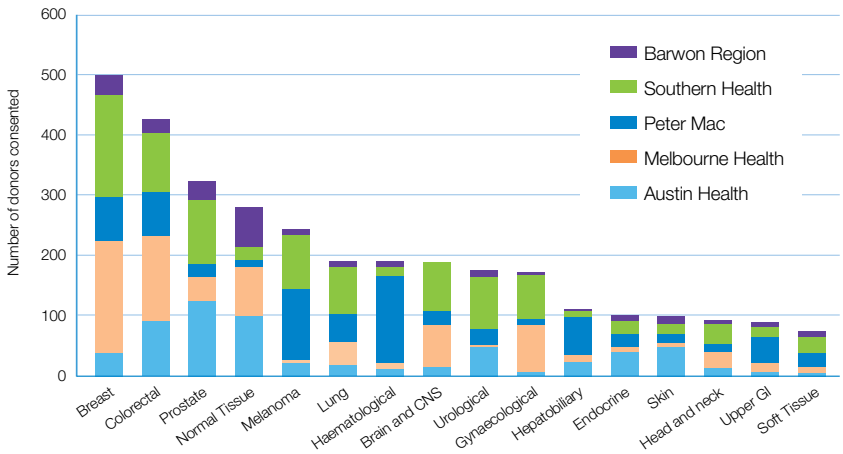
Collection Targets (n=9395)



Annual Collection by Tumour Type (n=9395)



Tumour Type by Site, 2009 (n=2725)



Distribution

In 2009, 25 new applications were received from researchers. Requests for biospecimens from storage (archival) continue to be the major type of application from research groups with 17 new requests received in this category, one new request for fresh tissue supply and four requests to support clinical or other research projects requiring processing of blood according to a project specific protocol. The remaining three applications requested a combination of fresh and archival material.

During the year, 6298 biospecimens were distributed to researchers in Victoria, Queensland and South Australia as well as to the United States and Germany. This resulted in 17 projects being fully supplied and closed.

The Biobank continued to meet the demand for fresh tissue throughout 2009, with 295 tissue specimens in culture medium at 40ºC being delivered to researchers within two hours of surgery. Requests for aliquots of frozen tissue continue to increase but tissue sections on microscope slides remain the most common request with 47% of biospecimens supplied falling into this category. Breast and colorectal cancer research projects account for 70% of all biospecimens supplied (Table 1).

Biospecimens supplied: January 2009 – December 2009

	Tissue Biospecimens				Blood Biospecimens*				Value Added Products		
Tumour Type	Fresh Tissue	Snap Frozen Tissue	FFPE/ OCT Sections	FFPE/ OCT Blocks	Bone Marrow	Plasma & Serum	Whole Blood*	PBMNC/ Buffy Coat	DNA/ RNA	TMAs	**TOTAL**
Brain & CNS											0
Breast	239	137	574	30			3	36		9	1028
Digestive System											
Colorectal		370	1114	163		1655	51			23	3376
Liver											0
Upper GI	11		17								28
Pancreas			48								48
Genitourinary											
Bladder	6										6
Kidney		28					5				33
Prostate	11		641				70				722
Testis		19	150								169
Gynaecological											
Endometrium	26		36								62
Ovary						72					72
Uterus											0
Haematological	2				29		40				71
Head & Neck		58	313			11					382
Lung			55	135			3				193
Normal donor						103			1		104
Skin – Melanoma											0
Soft Tissue – Sarcoma		4									4
TOTAL	**295**	**616**	**2948**	**328**	**29**	**1841**	**172**	**36**	**1**	**32**	**6298**

* Includes blood samples collected from donors and processed for Project Specific and Clinical Research projects

Consortium Members' Reports

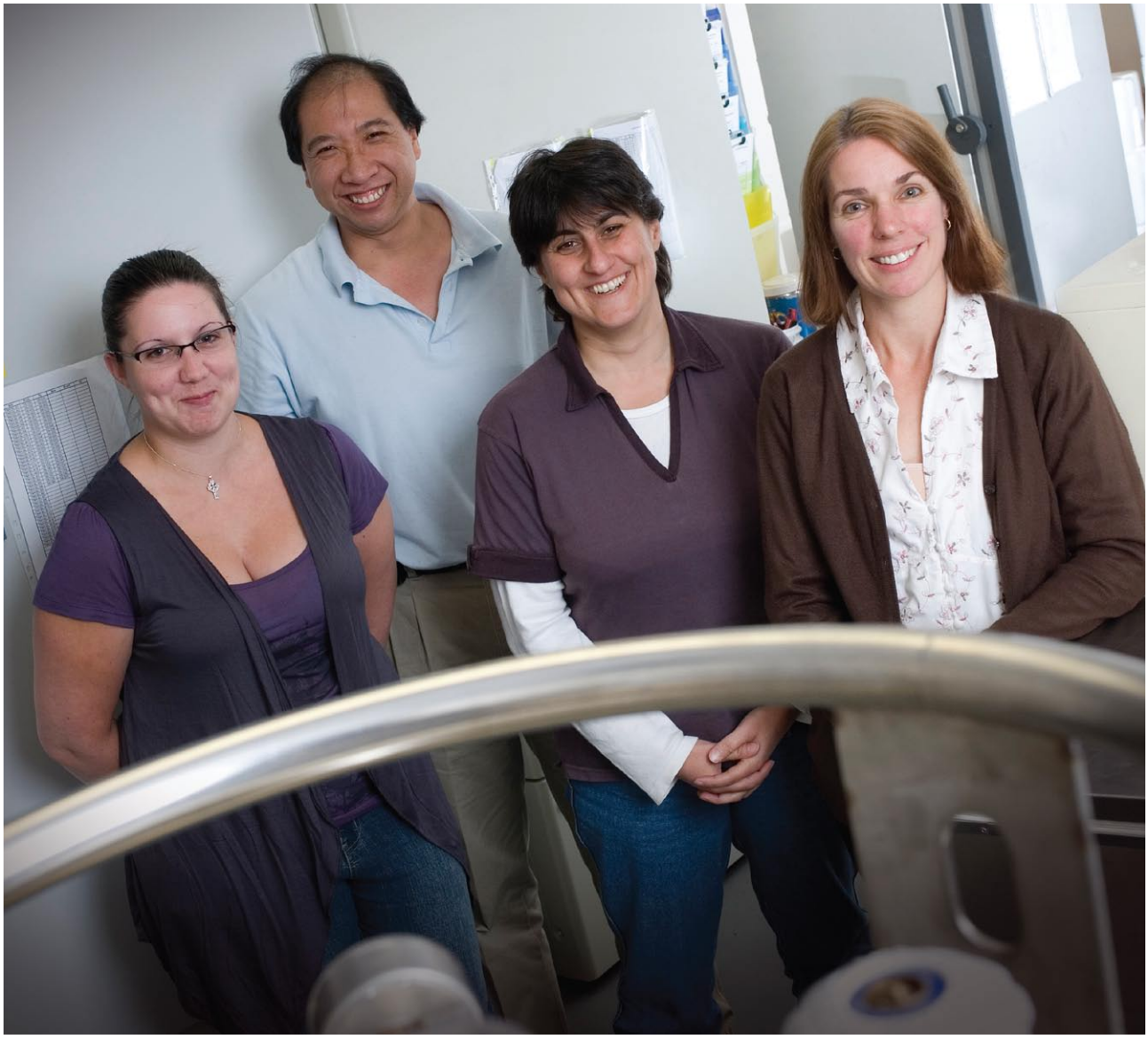
Austin Health

The Austin Health Tissue Bank has continued to grow throughout 2009 with the collection of biospecimens from Austin Hospital, and The Northern Hospital. We also fostered our relationship with the Mercy Hospital for Women and Warringal Private Hospital and collections from these sites started in the fourth quarter of 2009. Furthermore, a Biobank funded collector was employed in the latter half of the year to help establish the collection of biospecimens from Box Hill Hospital and the first specimens are expected to be collected in early 2010.

The success of the Austin Health Tissue Bank, and consequently the Victorian Cancer Biobank, rests on the continued support from staff in numerous hospital departments such as the patient clinics, operating theatres, clinical pathology and anatomical pathology at each of our collection sites. In 2009, the Austin Health Tissue Bank collected biospecimens from 580 donors.

With the growth in collection, we also purchased a new -80°C degree freezer to accommodate our tissue and blood aliquots. In addition, the purchase of the Aperio Scanscope and Spectrum software by the Biobank has been of great value to researchers who can now automate the digitizing of their stained microscope slides as well as analyse these images using the Aperio Analysis Tools. This will continue to foster the strong collaboration with clinical and basic researchers such as those from the Ludwig Institute for Cancer Research and the co-located University of Melbourne Departments of Medicine and Surgery.

During 2009 we said good-bye to Elizabeth Hume and Sewa Rijal and welcomed Lewis Lee to the team. We look forward to a productive 2010.



Carley Gemelli, Lewis Lee, Carmel Murone, Angela Mountain

Melbourne Health

Melbourne Health (MH) is now in its ninth year of supplying high quality annotated biospecimens to the researchers of Melbourne and beyond. We continue to grow in size, both in the number of specimens collected and supplied, while providing an excellent training environment for medical scientists.

In 2000 the Victorian Breast Cancer Research Consortium, the Ludwig Institute for Cancer Research and MH established the Royal Melbourne Hospital (RMH) Tissue Bank to provide a reliable source of clinically-annotated biospecimens to support cancer research. While the core focus of the tissue bank remains the same (the ethical collection and storage of tissue considered in excess of that required for diagnosis), our capacity to serve the wider medical research community has increased through our membership of the Victorian Cancer Biobank. The Biobank's support has enabled the continual collection of samples from 11 different tumour streams, resulting in biospecimens being collected from over 750 donors in 2009.

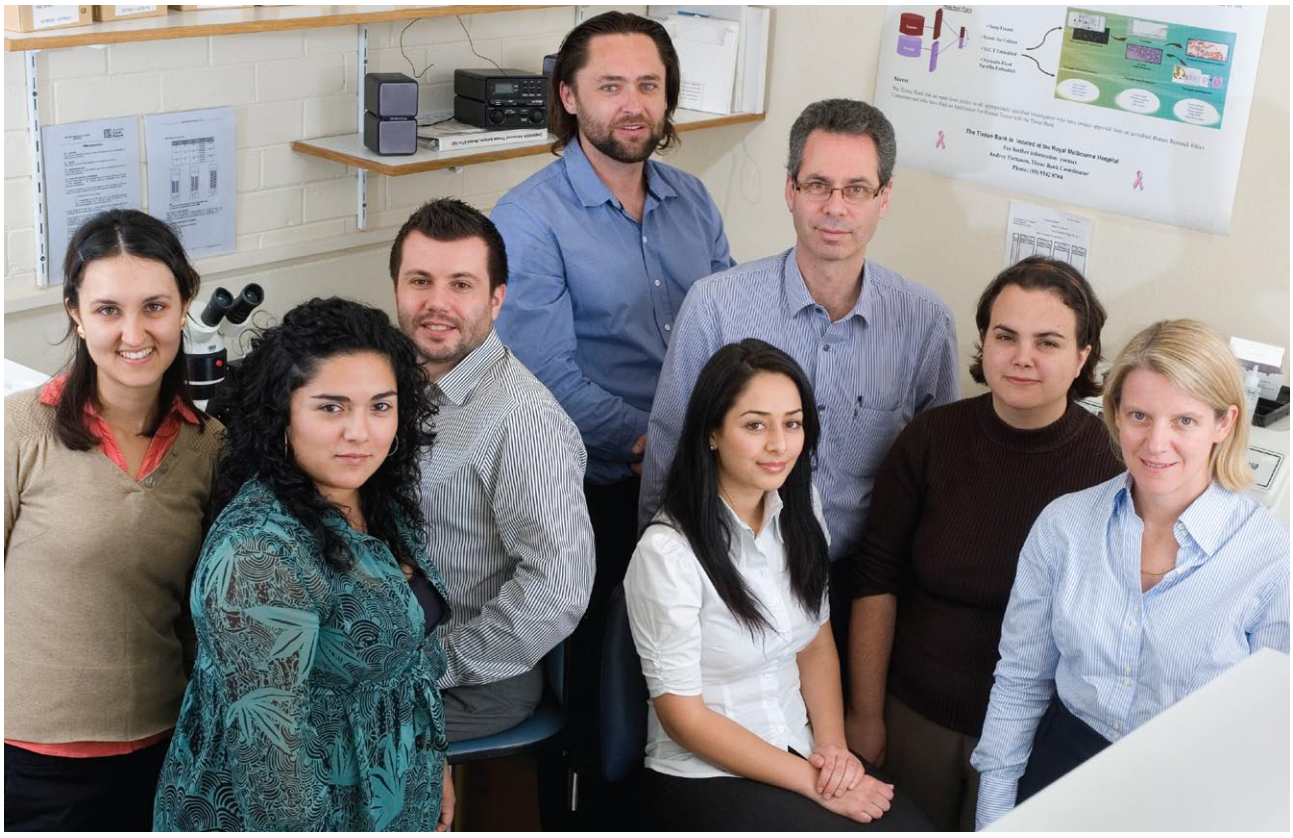
The RMH tissue bank operates as a cooperative between RMH, Western Health (WH) and the Royal Women's Hospital, with collectors located at all three sites, and important oversight from Parkville research groups including the MH Research Directorate and the Walter and Eliza Hall Institute. Due to Biobank support, we are also collecting tissue samples from the Epworth Healthcare Group (Freemasons), Frances Perry House, Melbourne Private and various surrounding private hospitals. In addition to RMH and WH Anatomical Pathology, private pathology providers such as Melbourne Path and AnatPath have been very generous in their support of Biobank activities.

Dr John Ciciulla became our Pathology Registrar during 2009 and has contributed greatly in the implementation of new practices to increase the quality of specimens collected.

Two new members joined the tissue bank staff in 2009, bringing with them enthusiasm and skills. Clara Singh has experience working in the Hobart Pathology service, while biobanking is Karen Velasco's first science position since completing university. Both have adapted well to their roles and have proved to be valuable members of the staff.

Infrastructure items obtained with Biobank funds include a microcentrifuge, an electronic cell counter, new pipettes for DNA extraction, and a server to store the images produced by the Aperio digital imaging system. This has enabled the expansion of services offered to researchers, and also allowed staff to obtain new skills.

The Joint Steering and Management Committee oversees the tissue bank, with valuable input provided from all partner hospitals and research groups involved in tissue banking. Committee members provide strategic oversight to ensure the high quality tissue collection is maintained, allowing the tissue bank to remain an important contributor to cancer research in Victoria.



Back: Matthew Chapman, Geoff Lindeman (Consortium Committee). Front: Clara Singh, Karen Velasco, John Ciciulla, Sania El-Najjar, Helen Manos, Clare Scott (Access Committee)

Consortium Members' Reports

Peter MacCallum Cancer Centre

Together with Biobank Central Operations, Peter Mac Tissue Bank continues to work closely with researchers and clinical trial staff. This ensures researchers receive a high quality service that meets their needs.

This year has seen an increase in the number and volume of researcher requests and our staff have been particularly focussed on fulfilling these requests in a timely manner. The appointment of Biobank staff at Cabrini and Box Hill has allowed Peter Mac staff resources to be utilised more effectively.

Samples continue to be collected from Peter Mac, St Vincent's group and Freemasons hospitals. One Biobank funded staff member continues to co-ordinate the collections at the St Vincent's group of hospitals. A total of 768 donors were consented from all hospitals. Sample collections include 426 bone marrow, 693 peripheral blood and 489 tissue from 10 of the 11 main cancer streams. One of the key collection capabilities of the Peter Mac Tissue Bank is in haematological tumours and we have contributed significantly in that area. These collections would not have been possible without the continued generous support of Peter Mac and St Vincent's pathology departments, and the private pathology laboratories of Melbourne Pathology, AnatPath and TissuPath.

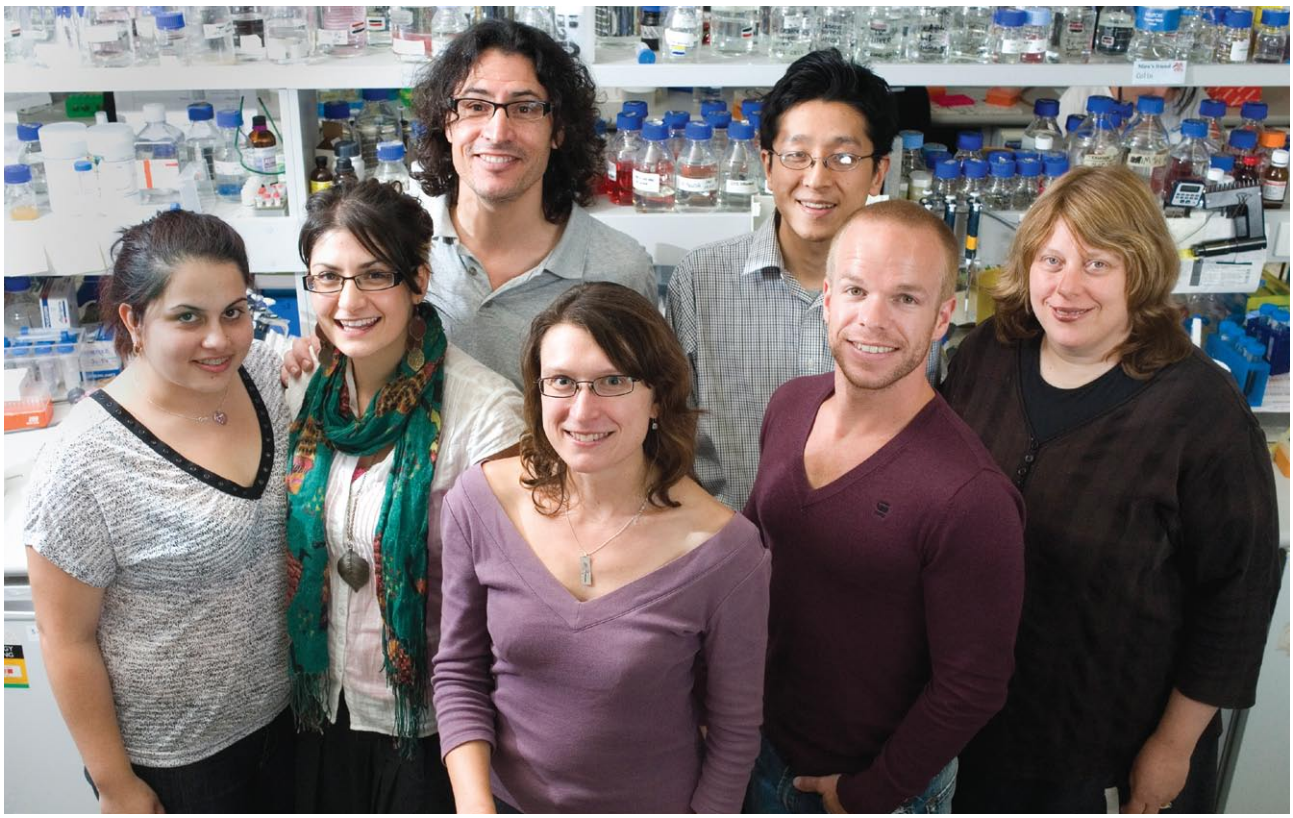
In addition to researcher requests, Peter Mac has also made a significant contribution to Biobank cost recovery by servicing clinical trials. 119 patient collections have been processed for three different clinical trials.

The Biobank purchase of the Aperio slide scanner has enabled us to offer researchers the ability to view, share and archive digital images of their slides. Once we have the 'genie tool' enabled, we hope to offer researchers the ability to digitally analyse their images. Researchers are very keen to utilise this state of the art technology.

During 2009 Biobank funds were used to improve Peter Mac Tissue Bank facilities. Staff moved into a refurbished office area, enabling us to accommodate our increased administration, filing and data entry requirements. An air conditioning system was installed to our freezer room, improving airflow and overall room temperature.

Biobank funds continue to support a Pathology Registrar, employed at Peter Mac since November 2007. Dr Max Yan provides expertise in fresh tissue procurement, quality assurance review of Biobank specimens and will review samples for 'value-add' processes such as tissue microarray production.

The number of specimen aliquots stored in the Peter Mac Tissue Bank from collections continues to outweigh the number of specimen aliquots being supplied to researchers. A new liquid nitrogen tank was ordered this year for snap frozen tissue and mononuclear cell storage. In the next 12-18 months we will require a new -80^{o}C freezer to cope with increased storage requirements of other blood derivatives, DNA and OCT embedded tissue.



Back: Paul Pinto Correia, Max Yan. Front: Amanda Ross, Rhonda Marwal, Samantha Cauberg, Jeremy Hoglin, Samara Rosenblum

Southern Health

2009 was another successful year for the Southern Health node of the Victorian Cancer Biobank. The yearly commitments for sample collection at Southern Health and Cabrini Hospital were exceeded. Standard operating procedures were followed to ensure high quality biospecimens are prepared of uniform quality, are available for researchers and are accompanied by complete and accurate information regarding the donor's cancer.

Tissue banking commenced at Cabrini Hospital in Malvern early in 2009 with the appointment of Lisa McPhail as the tissue bank medical scientist. Prior to commencing collection at Cabrini, Lisa underwent training at Southern Health in using the Biobank standard operating procedures for collecting, processing and storing biospecimens. Lisa continues to liaise closely with the team at Southern Health. Dr Sarah Saxon commenced mid year as a pathology registrar in a shared position between Cabrini Hospital and The Alfred and she is thanked for her contribution to biobanking activities.

Southern Health has welcomed the introduction of the Cresalys database software. This system has been developed to store information associated with the biospecimens as well as to support inventory management and biospecimen distribution activities.

In November, the Hon Daniel Andrews, Minister for Health, launched the installation of Aperio digital imaging equipment at all four Biobank sites. The launch took place at the Monash Medical Centre, Clayton and received excellent media coverage. The new system reflects our capacity to contribute to research and diagnostics by providing digital imaging capabilities to researchers and pathologists.

Our founding Tissue Bank Manager, Pamela Mamers, retired in November after 19 years working in research at Monash University. The Southern Health Tissue Bank management thanks Pam for what she has achieved in establishing the tissue bank at the Monash Medical Centre in Clayton and at Moorabbin.

Southern Health Tissue Bank is proud to acknowledge the participation of researchers, surgeons and clinicians from Monash University, Prince Henry's Institute and the Monash Institute of Medical Research as members of its Steering Committee. Staff at Dandenong Hospital and Casey Hospital are acknowledged for their cooperation in assisting with collections. The support of a second pathology registrar in the Southern Health group – Dr Priya Rathran Capuge at Monash Medical Centre – has also added greatly to Southern Health's biobanking activities.

We hope to improve our service to researchers in 2010 by offering researchers digital images of our biospecimens.

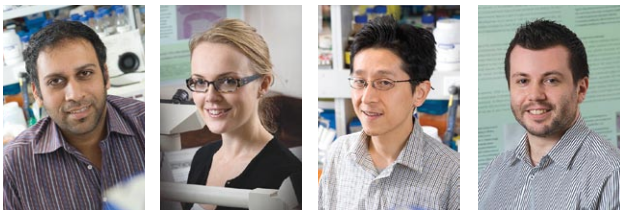
Justine Olsen, Peter Rogers (Consortium Committee), Elizabeth Blake, Kate Hurford, Zdenka Prodanovic

Pathology registrars

Skilled pathologists are essential to tissue banking. With a recognised shortage of pathologists in Victoria, the Biobank allocates funding for senior pathology trainees to support tissue banking activities and undertake research with an emphasis on molecular pathology.

The pathology registrars are fundamental to the Biobank's quality program. They work closely with the Tissue Bank Manager and the medical scientists at each site, completing pathology verification forms that evaluate the tissue samples for percentage of tumour and necrosis, therefore enabling their suitability for use in research to be determined. With the increased demand for tissue microarrays, the registrars have also played an important role in identifying regions of paraffin embedded tissue blocks suitable for punching cores, then evaluating the arrays following preparation.

From 2007 to 2009 four pathology trainees were employed by the Anatomical Pathology Departments at each of the four Biobank sites. In 2009 two new positions were created with funding received from the Victorian Cancer Agency. The fifth trainee position was created in February as a shared position between Cabrini Pathology and the Department of Pathology at The Alfred and a sixth Pathology Registrar commenced work at St John of God Pathology in Geelong in July.



Left to right: Dr Siddhartha Deb, Dr Sarah Saxon, Dr Max Yan and Dr John Ciciulla. Not pictured: Dr Priya Rathran Capuge and Dr Phyo Thein

Researcher Activities

Presentations

Researchers using Biobank products and services in their work have provided the following information about their research project and their most recent published work.

Haviv I

Oral presentation at the 3rd World Gene Congress, Foshan China, 1-7 December 2009. Manuscript in preparation.

Herst P, Neeson P, Berridge M, Ritchie DS

The level of glycolytic metabolism of AML blasts as a predictor of drug sensitivity and clinical prognosis. Presidential Symposium, HSANZ Annual Scientific Meeting, Perth, October 2008. Manuscript in preparation.

Gargett CE

Uterine stem/progenitor cells: what is the evidence? Reproductive Tract Gordon Research Conference, 3-8 August 2008, Proctor Academy, Andover, NH, USA

Hubbard S, Gargett CE

In vitro and in vivo evidence for cancer stem cells in human endometrial cancer. 39th Annual Conference of the Society for Reproductive Biology, 25-28 August 2008, Melbourne (poster)

Nguyen HPT, Gargett CE

Stem/progenitor cells in normal and malignant endometrium – where are they? Australian Health & Medical Research Congress, 16-21 November 2008, Brisbane, P871.

Hubbard S, Gargett CE

Evidence for cancer stem cells in human endometrial cancer. 56th Annual Meeting of the Society for Gynaecological Investigation, 17-21 March 2009, Glasgow. Reproductive Sciences 16: (Supp) 281A, P734

The effects of testosterone on β-adrenoceptor activity in human cultured prostatic stromal cells. 5th Annual Advances in Urogenital Research Symposium, Sydney 2008, and AHMRC Brisbane 2008

Book chapters

Gargett CE, Schwab KE

The endometrium: a novel source of adult stem/progenitor cells. In Regulatory Networks in Stem Cells eds Rajesekhar VK, Vermuri MC in Stem Cell Biology and Regenerative Medicine Series, Humana Press (2009). Pp391-404. ISBN: 978-1-60327-226-1

Gargett CE, Cervello I, Hubbard S, Simon C

Adult stem cells in human endometrium. In Simon C and Pellicier A, Stem Cells in Reproductive Medicine: Basic Science and Therapeutic Potential, 2nd Edn, Chapter 21 (2009) (in press)

Publications

Hubbard SA, Friel AM, Kumar B, Zhang L, Rueda BR, Gargett CE

Endometrial cancer: evidence for cancer stem cells in human endometrial cancer. Cancer research 69:8241-8 (2009)

Jorissen RN, Gibbs P, Christie M, Prakash S, Lipton L, Desai J, Kerr D, Aaltonen LA, Arango D, Kruhoffer M, Orntoft TF, Andersen CL, Gruidl M, Kamath VP, Eschrich S, Yeatman TJ, Sieber OM

Snap frozen tissue: metastasis-associated gene expression changes predict poor outcomes in patients with Dukes stage B and C colorectal cancer. Clin Cancer Res. Dec 15;15 (24):7642-7651. Epub (2009)

Ehrich M, Turner J, Gibbs P, Lipton L, Giovanneti M, Cantor C, Boom D

Cytosine methylations profiling of cancer cell lines. PNAS. 105: 4844-4849 (2008)

Jorissen RN, Lipton L, Gibbs P, Chapman M, Desai J, Jones IT, Yeatman TJ, East P, Tomlinson IPM, Verspaget HW, Aaltonen LA, Kruhoffer M, Orntoft TF, Andersen BL, Sieber OM

DNA copy – number alterations underlie gene expression differences between microsatellite stable and unstable colorectal cancers. Clin Cancer Res 14 (24): 8061-8069 (2008).

Marketing and Communications

Website

The website www.viccancerbiobank.com.au has been updated regularly through the year. The application process is explained in detail, and application forms and the cost recovery schedule are available to download. A range of publications is also available. News items include the opening of the Austin Health and Barwon biobank facilities, the launch of Aperio digital imaging equipment in November, the Biobank's role in the Biomarkers Pilot Project, and new Committee members.

Newsletters

Two issues of *Biobank Brief* were produced in April and October. Topics of particular interest included the Aperio digital imaging system, Cresalys management information system, quality management, expansion of services to Cabrini Hospital, the introduction of the cost recovery schedule, new products including tissue micro arrays, and results of researcher surveys.

Conferences

The Biobank supports conferences and meetings through sponsorship, exhibiting and the provision of publicity materials. The four meetings that were supported in 2009 are:

- 21st Lorne Cancer Conference, 12-14 February 2009, Lorne
- AusBiotech 2009, 28 October 2009, Melbourne
- 7th Australasian Biospecimen Network Annual Meeting, 9 November 2009, Melbourne
- 36th Annual Scientific Meeting of the Clinical Oncological Society of Australia, 17-19 November 2009, Gold Coast

Presentations

Biobank staff have made a variety of presentations during the year. They include presentations to multi-disciplinary team meetings, theatre staff, clinicians and surgeons. Central Operations staff also present regularly at events and meetings that are hosted by the Cancer Council Victoria.

Financial Statements

Statement of Income and Expenditure

For the period 1 January 2009 – 31 December 2009

	$'000s
Income Brought Forward	**597**
Income	
VCA Grant	2,981
DIIRD Grant	1,400
Cancer Australia Grant	10
Cost Recovery	104
CCV Support	58
Total Income (excluding carried forward balance)	4,554
Expenditure	
Payroll Costs	313
Other Staff Related Costs	19
Advertising, Printing and Promotion Costs	29
Admin, Office and Vehicle Costs	28
Grants and Other Research Costs	3,378
Office Equipment, Furniture and Computer Costs	76
Other Expenses	204
Total Expenditure (excluding any applicable GST)	**4,046**
Current Surplus for the year	**508**
Total Balance of Surplus to carry forward	**1,105**

Cash Flow Statement

For the period 1 January 2009 – 31 December 2009

	$'000s
Cash flows from operating activities	
Receipts from government grants	3,631
Receipts from other income	173
Payments to research beneficiaries	(3,493)
Payments to suppliers and employees	(678)
Net cash provided by/(used in) operating activities	**(367)**
Net increase/(decrease) in cash held	(367)
Cash at the beginning of the period	1,039
Cash at the end of period	**672**

Balance Sheet

as at 31 December 2009

	$'000s
Current Assets	
Cash at bank	672
Accounts Receivable	750
Total Current Assets	1,422
Total assets	**1,422**
Current Liabilities	
Research Grants Accrued	216
Total Current Liabilities	216
Non-current Liabilities	
Research Grants Accrued	102
Total Non-Current Liabilities	102
Total Liabilities	**317**
Net assets	**1,105**
Equity	
External Grants Reserve	1,105
Total equity	**1,105**

Acknowledgements

Executive Editor: Anne Thompson

Managing Editor: Philippa Dudley

Designer: Sophie Campbell, SCDesign

Photography: Katrina Lawrence, Andrew Lucas and Elyssa Ion.

We would also like to thank the following for providing their photographs: Tony Burgess, Andrew Scott, Malar Thiagarajan and Warren Alexander.

Published April 2010

The Victorian Cancer Biobank is a not-for-profit consortium supported by The Cancer Council Victoria and the Victorian Government. Consortium members are Austin Health, Melbourne Health, Peter MacCallum Cancer Centre and Southern Health.

1 Rathdowne Street, Carlton Victoria 3053, Australia
Phone: +61 3 9635 5091
enquiries@viccancerbiobank.org.au
www.viccancerbiobank.org.au