



BIOGRID
AUSTRALIA

Health through information

BIOGRID AUSTRALIA
AND
THE AUSTRALIAN CANCER GRID

Annual Report 2007-2008

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HIGHLIGHTS FOR 2007–2008

- **New name:** Official launch of new name and logo by Hon. Gavin Jennings MLC Minister for Innovation at The Royal Melbourne Hospital on 5th of March 2008. MMIM becomes BioGrid Australia 'Health through information'.
- **New Website:** A new website established with BioGrid name and a domain name registered at www.biogrid.org.au
- **The BioGrid story is now animated:** Check it out and *See the new animation of how BioGrid works!!!* www.biogrid.org.au
New ACG sites implemented: Using funded provided by the Victorian Government Department of Innovation, Industry and Regional Development (DIIRD) through the Australian Cancer Grid (ACG) project five new sites have been linked to BioGrid in the past year.
- **Continued successful implementation of sites:** funded by the Australian Government Department of Education Science and Training (DEST) – (*now known as Department of Innovation Industry, Science and Research DIISR*). Phase two BioGrid Australia project of including new Victorian and interstate sites in South Australia, Tasmania and the ACT.
- **New disease types rolled out:** The number of cancer tumour streams has expanded to 11 and neurosciences expanded to included neuropsychiatry.
- **New members:** The BioGrid Collaboration now has 20 members with 12 new members joining during the current year.
- **Awards:** Dr Cassandra Szoeka a BioGrid Australia researcher awarded the Bio:21 Australia 2007 Industry Fellowship which allowed her to explore potential commercial development of her epilepsy research – research enabled by our technology.
- **BioGrid honoured in USA awards:** BioGrid Australia was awarded a laureate in the Category of Healthcare for the 2008 Computerworld Honours Program. In an awards ceremony held in Washington DC in June 2008 the BioGrid Australia Laureate Award was accepted by Mrs Naomi Rafael, Technical and Systems Manager.
- **First patent obtained:** Epilepsy researchers using the BioGrid Australia platform have developed a test predicting which drugs epilepsy patients would respond to without the normal trial and error period.



**BIOGRID
AUSTRALIA**
Health through information



BioGrid Australia



CHAIRMAN'S REPORT



The report documents many highlights and those I wish to focus on are:

- International recognition of the achievements of BioGrid Australia as an outstanding information technology initiative with a Laureate Medal in the Computerworld Honours Program, presented Washington DC, USA in June.
- The change of name from the *Bio21 Molecular Medicine Informatics Model* to *BioGrid Australia* with the tag 'Health through Information' – the new name is more meaningful, relevant and better positions the project for the future.
- The first patent lodged based on research facilitated by BioGrid – the remarkable breakthrough by four of our epilepsy researchers in developing a test predicting which epilepsy patients would respond to which drug without the normal trial and error period which can take many months.
- Bio21 Australia awarding BioGrid researcher, Dr Cassandra Szoek the 2007 industry fellowship which allowed her to explore potential commercial development of her epilepsy research – research enabled by our technology.
- The current MMIM collaboration agreement expires in November 2008 and a significant amount of work has been undertaken transitioning Governance structures; BioGrid Australia Limited will have more streamlined management processes, especially membership processes, be able to effectively manage legal liabilities, and provide simply for alternative forms of collaboration.
- Engagement with University of Melbourne and Monash University providing opportunity for a number of students including Management Practicum students who applied their university learning in a real business environment, developing a model for future financial sustainability model for BioGrid.
- Multiple conferences in Europe, Asia, USA, as well as most states of Australia have been excited not only by presentations on research enabled by BioGrid Australia but also on the technology and processes the team has implemented.

During the last year membership grew to 20 with more sites in the membership process and poised to join in the coming year.

The Annual Report creates an opportunity to thank a number of the people and organisations who have contributed to the BioGrid successes.

Firstly, I would like to thank both the Australian and Victorian governments, through DEST and DIIRD, respectively for their vision and generous funding support of the multiple stages of BioGrid Australia.

Members of the Management Committee have displayed sustained commitment, provided valuable contributions and always encouragement. Special mention of Prof Graham Brown, Prof Terry O'Brien, Professor Peter Colman and our scientific leader Peter Gibbs.

Our dynamic Project Director, Dr Marianne Hibbert has maintained her manic level of energy and enthusiasm for this project – driving "on time and within budget" delivery of project milestones and more. Thank you Marianne.

Thanks also to the BioGrid team members and all of our clinician researchers for your hard work and dedication during the year.

Melbourne Health has acted as the project Secretariat since 2003 and I would like to thank its Chief Executive Linda Sorrell and Executive Director Sally Campbell for their interest, support and guidance.

In the coming year, while the team focus on delivery of the ACG Phase of BioGrid the Management Committee will deliver the new governance model and the financial sustainability model for the post government grant funding period, for 2010 and beyond.

Rob Merriel Chairman,
BioGrid Management Committee
September 2008

BIOGRID PROJECT DIRECTOR'S REPORT



THE YEAR IN REVIEW

BioGrid has had another successful year which has seen more sites, more disease groups and hence facilitating collaborative more research for our members.

I would like to overview the BioGrid work programs in the following areas:

- **Data Collection:** where robust collection systems have been developed in diabetes, neuro cognitive assessment, Cancer – colorectal, head and neck central nervous system with other tumour streams under development. BioGrid data managers have assisted with data quality audits and limited data entry where necessary.
- **Data Analysis and Research Support:** BioGrid data managers have assisted in analysis and reports which have resulted in a number of publications.
- **Expansion of Disease Types:** The number of cancer tumour streams has expanded to 11 and the neurosciences expanded to include neuropsychiatry. The Population Health Group identified a number of data sets and BioGrid was fortunate to have a DHS Public Health trainee who helped with linkage to DHS data sets.
- **Expansion of Sites:** Linking to a site is a journey of Ethics approval, corporate agreements and IT implementation. BioGrid has expanded to include most major Melbourne and Victorian regional hospitals as well as key hospitals in other states and the ACT. Discussion with international collaborators in South America and USA continues to be positive. The support and involvement of the Universities and Research Institutes have also resulted in agreement to repositories being installed at the University of Melbourne, ANU and the University of NSW.
- **Extension of IT Architecture:** BioGrid developed a plan for extending the current system which will make BioGrid easier to use for researchers (analysis, portals), easier to provide national linkage and be more efficient to maintain. This upgrade is planned for 2008–09 and will facilitate BioGrid researchers using super computer capability.
- **Research:** BioGrid research fellows analysed data in areas of treatment effectiveness, quality audits reports, costs, services, biomarkers and predictive modelling. The collaboration with CSIRO on three research projects has progressed on plan and is expected to report on outcomes in 2009–10.
- **Governance:** BioGrid will migrate to a collaborative joint venture of members who own the services company. This will occur in 2008–09 and will simplify the governance and will allow any surplus funds to be re-invested in research.
- **Financial Sustainability:** BioGrid has been established with the support and funding from the Victorian and Australian Governments. BioGrid has developed a business and marketing plan which focuses on BioGrid financial future which has a target date of December 2009.

APPRECIATION

BioGrid has gone from MMIM to Mega MMIM to Giga BioGrid. This has only been possible with the very hard work of the talented BioGrid team, the championing and drive of the researchers, the commitment of the Corporate and IT staff at all the member sites, the support of the Chair and all the members of the BioGrid Management committee, the University of Melbourne especially the Australian Cancer Grid Board, and Melbourne Health, which provides 'the home' for BioGrid. Finally I would like to thank the Victorian Government and the Australian Government who have provided the grants and much advice and encouragement. BioGrid is an amazing platform and thank you to everyone helping to realise the vision.

Dr Marianne Hibbert
Project Director, *BioGrid Australia*
October, 2008

HISTORY, OBJECTIVES AND OPERATION OF BIOGRID

OPERATIONS – HOW DOES BIOGRID WORK?

BioGrid Australia platform provides the ability for researchers to access, integrate and link data across all environments regardless of their existing linkage and research platforms. This is the vision to establish a Life Science Grid, of which the Australian Cancer Grid is the flagship. BioGrid Australia is a federation of all the researchers' repositories and will integrate and link to all participating hospitals and research centres in Australia. By providing access to the data sets, to data on clinical outcomes, quality and audit data as well as genomic data, images and analytical tools, this platform positions Australia to maximise life sciences research.

The diagram (right) illustrates how the BioGrid Australia system works.

- Researchers must obtain authorisation to access the data from both the data custodians and the BioGrid Australia Management Committee;
- Source databases from various institutions are extracted, transformed and loaded (ETL) nightly to their respective Local Research Repositories (LRRs) based at the institutions;
- The data is record linked at the individual level using probabilistic matching and a record linkage key is assigned and stored in encrypted format at the institution;
- Authorised researchers are then able to query and analyse the data via the Federated Data Integrator (FDI) using SAS Enterprise Guide (querying and statistical/business analysis software);
- The FDI is an integrator for accessing data across physical boundaries;
- The data is sent to the user via a Virtual Private Network (VPN) in de-identified form with a record linkage key. The FDI does not store health data;
- The BioGrid Australia project is a federated model where each participating site retains full ownership and control over their own data sources and data collection systems.

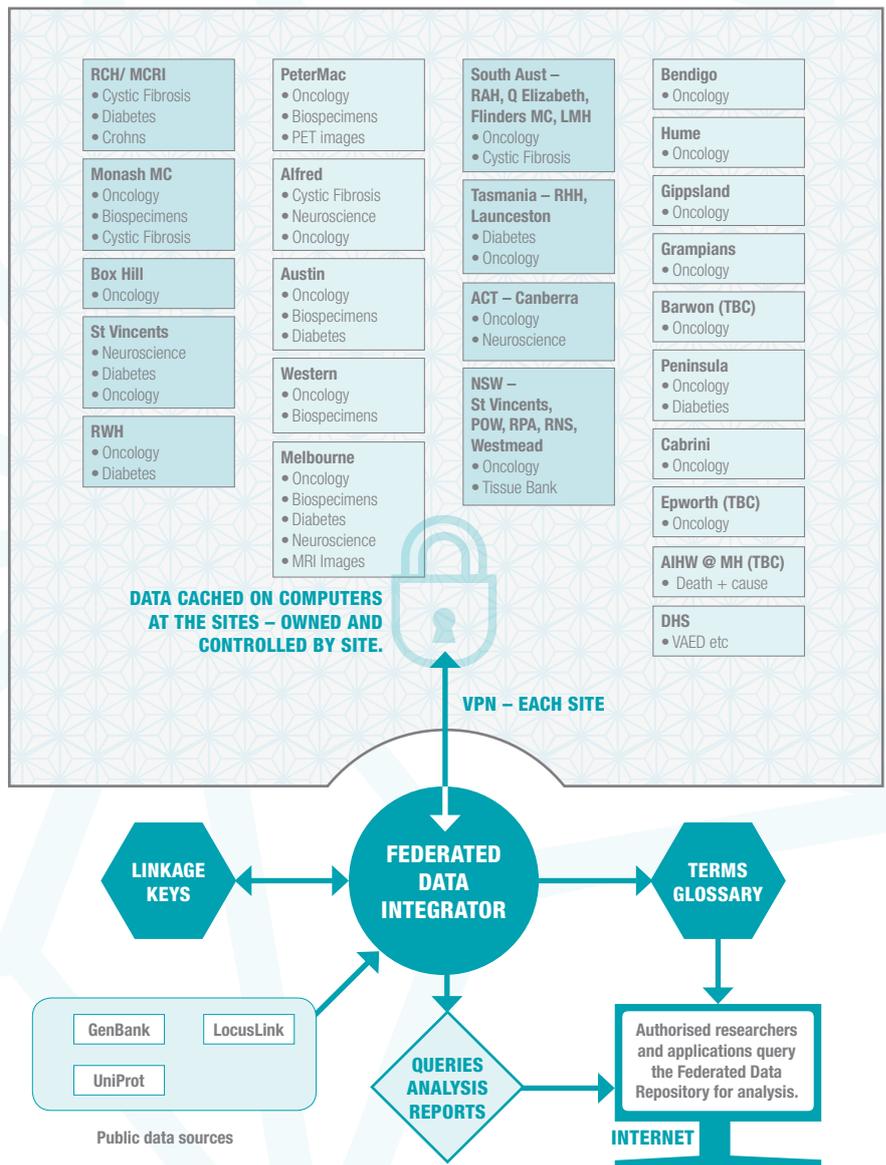
SECURITY

The security system includes a number of features. Each LRR is connected to the FDI via a VPN, which ensures data security for transmission. Views block all identifying information, allowing end users to see only the authorised research data in conjunction with the record linkage key. Access to these views on the FDI is controlled by the database administrators by assigning database roles and defining privileges to the table/view level. All queries to the FDI are tracked and monitored for audit purposes by DB2 Query Patroller. Access to data is de-identified and at table level only.

PROTECTING PRIVACY

BioGrid Australia platform has been achieved with rigorous attention to ethics and privacy requirements. All participating sites must obtain ethics approval to join. BioGrid Australia complies with all privacy legislation and regularly seeks independent external legal advice to ensure the project continues to comply with all relevant privacy legislation particularly as it grows and develops.

The research data is used in a de-identified, codified form, but the system allows the patient to be ethically re-identified, if required.



BIOGRID GOVERNANCE AND MANAGEMENT COMMITTEE

GOVERNANCE BACKGROUND

In November 2005, the five pilot participants in the MMIM project (the forerunner of BioGrid) concluded a joint venture Collaboration Agreement prepared using external legal counsel and legally establishing the Molecular Medicine Informatics Model (MMIM) Collaboration. The organisations involved were:

- Melbourne Health;
- Western Health;
- Austin Health;
- Peter MacCallum Cancer Centre;
- Bayside Health (now Alfred Health).

The MMIM Collaboration Agreement has provided a governance structure for the collaborating parties in the administration of the BioGrid Australia infrastructure platform and ongoing research. It covers the management committee, financial matters, intellectual property, project management, commercialisation activities, publications, warranties, and indemnity and dispute resolution.

Melbourne Health was appointed in the agreement to act as Secretariat for and on behalf of the MMIM Collaboration Agreement members.

Three further health services joined the original Collaboration Agreement during 2006–07 by signing and executing the Deed of Accession to the Agreement and a further twelve members have joined during 2007–08.

BioGrid Australia operations are overseen by a Management Committee of member and invited representatives that meets monthly at Melbourne Health.

THE NEED FOR GOVERNANCE CHANGE

The original Collaboration Agreement expires on 17 November 2008 and a new governance framework is required not only to address this but take BioGrid Australia into the future.

The continued expansion of BioGrid Australia beyond that envisaged by the five founding members, has made it apparent that the current Collaboration Agreement and unincorporated governance model are inadequate to support the future growth and continuing diversified activities of BioGrid Australia.

The current agreement is also limiting in that it provides for those parties who wish to work with BioGrid Australia to do so through joining the 2005 Collaboration Agreement by signing a Deed of Accession. However some potential collaborators either cannot or do not wish to become members of the joint venture agreement but still want to contribute data and work with BioGrid Australia. A new governance model featuring a range of collaborative working models and agreements is required to address the needs of these groups.

GOVERNANCE CHANGE PROCESS DURING 2007–08

As part of the Australian Cancer Grid (ACG) project funded work program, the governance arrangements were reviewed in order to determine the optimal governance model for the future.

A number of workshops were held with BioGrid members and other interested parties to help form future options and directions for a future governance model. External consultants were engaged to lead this process and develop a set of documents describing: the preferred future governance model; and, a briefing document for engagement of independent external legal firms to assist with the governance change process.

Member counsels nominated a number of firms and the brief was sent to them with one legal firm selected and approved by the BioGrid Australia Management Committee after a competitive bidding process.

This firm has developed the necessary legal agreements and other forms required to implement the governance change process.

A number of workshops have been held with member legal counsels over the course of this year to seek their endorsement of the new legal structures and documentation to bring these changes about.

BioGrid Australia thanks all of the member legal counsels for their advice, support and hard work during the year.

THE NEW GOVERNANCE STRUCTURE

A new BioGrid Australia joint venture collaboration agreement will be established during 2008–09 with all existing MMIM Collaboration Agreement members invited to join the new collaboration.

All members will be represented on the Management Committee of the new collaboration agreement.

The new collaboration will incorporate and own a limited liability (limited by guarantee) not-for-profit company that will be licensed by the new BioGrid Australia collaboration members to operate the BioGrid Australia data linkage platform under a Services Licensing Agreement (SLA).

This company will be known as BioGrid Australia Limited and it will contract with a range of parties wishing to work with the BioGrid data linkage platform.

The features of this limited liability company include:

- A separate legal existence from the new joint venture collaboration members such that the extent of any BioGrid Australia collaboration member liability will be limited to the guarantee (currently proposed to be set at \$10.00 per member);
- Having a clearly defined management structure including a Chief Executive Officer (CEO) with the ability to execute agreements in its own right consistent with the terms of the licensing agreement;
- A board of seven directors (appointed from the new collaboration members and from outside nominees being persons with a broad range of skills and expertise) who will oversee the governance of the new company with monthly meetings. The day to day control in the hands of the (joint venture members approved and appointed) CEO within the terms of the licensing agreement;
- Holding all necessary insurances required such as Workcover, public liability, directors liability and professional indemnity etc.

Those parties who are unwilling or unable to become members of the BioGrid Australia Collaboration Agreement but wish to contribute data and work with BioGrid platform will have the option of signing a Collaborative Research and Development Agreement (CRADA). This will define all of the terms and conditions under which the party will collaborate with BioGrid Australia Limited;

Other parties that are not data contributors but still wish to collaborate with BioGrid on projects will do be able to do so through a set of new project agreements.

PLANNING FOR THE FUTURE – SUSTAINABILITY

Planning BioGrid Australia financial sustainability for the post-2009 period when the current ACG Project funding ceases has continued during the current year.

Sustainability activities during year included the following:

- Establishing a sub-committee of the BioGrid Australia Management Committee to meet monthly with key BioGrid Australia executive staff and guide the work program towards achieving sustainability;
- Workshops with members and key stakeholders facilitated by external consultants to identify future strategic directions and a range of associated revenue streams and funding models that will support future sustainability of BioGrid Australia;
- A “Needs” survey of current members, other existing users and potential users about their research needs, how they view BioGrid as a research facilitation platform (overwhelmingly favourable), feedback on possible improvements to the platform and the services offered;
- A SWOT exercise;

- A survey of members and key stakeholders titled ‘Who do you know?’ an exercise designed to identify key contacts in government and the research sector who can assist with or be the target of research funding applications that will help support BioGrid;
- Development of a marketing plan and strategy in conjunction with the University of Melbourne School of Business and Marketing with four honours students attending BioGrid for ten weeks as part of the University “Practicum” program;
- Development of a detailed action strategy plan to guide the work program over the period until the end of 2009 developed through the onsite work of a University of Melbourne MBA student;
- Development of a five year Business Plan;
- A four month appointment of a Business Development Consultant in early 2008/2009 until the end of 2008 with extensive experience in development of funding proposals to government and related agencies and who will develop a range of funding proposals and applications to government and research funding bodies;
- The consultant will be working with BioGrid Australia staff and stakeholders in particular drawing and building on the strong links that our current members and stakeholders have with government and research funding bodies;
- A full time Business Development Manager will be appointed to BioGrid Australia staff in early 2009 along with a full time Marketing Manager shortly after.

MANAGEMENT OF PHASE 3 – THE ACG PROJECT

To manage the ACG Project funds from the Victorian Government, Melbourne Health and The University of Melbourne signed an agreement in December 2006 appointing Melbourne Health as the ACG project manager until the end of 2009.

An ACG project steering committee body (known as the Interim Board) was formed under the terms of this agreement to oversee the project during this period. The membership comprises two representatives each from MH and The University of Melbourne. This body meets bi-monthly to receive progress reports from the BioGrid Australia project office and address any issues.

The BioGrid Australia Management Committee also receives updates on progress of the ACG project at their monthly meetings.

BIOGRID AUSTRALIA MANAGEMENT COMMITTEE

The current committee consists of representatives of BioGrid Australia members, foundation supporters including The University of Melbourne; Walter and Eliza Hall Institute (WEHI); Ludwig Institute of Cancer Research (LICR); Monash University, and invitees with special expertise and knowledge to contribute.

BioGrid Australia Management Committee members at 30 June 2008

Rob Merriel (*Chair*) (*Melbourne Health*)

Peter Gibbs (*Western Health/ LICR*)

Paul Mitchell (*Austin Health*)

Raymond Snyder (*St Vincent's Health*)

Don Campbell (*Monash University*)

Terry O'Brien (*Melb Health – University of Melb*)

Rhys Williams (*Flinders Medical Centre*)

Robyn Haack (*Hume RICS*)

David Torpy (*Royal Adelaide Hospital*)

Lee-Anne Claverino (*Peninsula Health*)

Lara Lipton or Jayesh Desai (*Ludwig ICR*)

Graham Brown (*The University of Melbourne*)

Peter Colman (*Melbourne Health*)

Katerina Andronis or Gillian Duchesne
(*Peter MacCallum Cancer Centre*)

John Wilson (*Bayside Health*)

Malar Thiagarajan (*Southern Health*)

Joe McKendrick (*Eastern Health*)

Elizabeth Tegg (*Royal Hobart Hospital*)

Phil Robinson (*The Royal Children's Hospital*)

Desmond Yip (*The Canberra Hospital*)

Jeremy Oats (*The Royal Women's Hospital*)

Peter Sloan (*Bendigo Health Care Group*)

Invitees

Bill Yeadon, National Safety Agency (*Independent*)

Phil Marley (*DIIRD*)

Michael Georgeff (*IT Consultant*)

Frank Devuono

(*Director of Information Melbourne /
Western / Northern Health*)

Marianne Hibbert (*BioGrid*)

Richard Tate (*BioGrid*)

Vicki Vlekkert (*BioGrid*)

Vaughn Moore (*DHS*)

MELBOURNE HEALTH – UNIVERSITY OF MELBOURNE ACG BOARD MEMBERS AT 30 JUNE 2008

Rob Merriel (*Chair*) (*Melbourne Health*)

Graham Brown (*The University of Melbourne*)

Ingrid Winship (*Melbourne Health*)

Jim McClusky (*The University of Melbourne*)



Committee members present July 2008 Meeting

Back Row: L–R

Sianna Panagiotopoulos, Frank DeVuono, Richard Tate,
Peter Gibbs, Graham Brown, Peter Colman

Second Row: L–R

Malar Thiagarajan, David Quin, Raymond Snyder

Front Row: L–R

Katerina Andronis, Marianne Hibbert, Rob Merriel

2. PLANNING A NATIONAL ACG GRID INFRASTRUCTURE

The BioGrid Australia Phase 3 project developed a plan for a national ACG grid infrastructure, including the following key components:

- A communications layer, which provides a uniform interface to each of the heterogeneous data sources and services;
- A metadata layer, which provides services for understanding the structure and meaning of diverse data sources and services, and for mapping terminologies and data formats from one form into another;
- The grid services which enable providers to publish and advertise their data/services; users to search, discover and query relevant data/services, and provides user authorisation and secure access to data/services.
- Other work planned will include the development of optimal governance, management and access arrangements for BioGrid Australia in consultation with key stakeholders.

Component	Description
Secure Data Landing Area	Data area for data that is to be hosted by BioGrid or used by the Record Linkage Authority, data is sent to the Secure Data Landing Area and then ingested into BioGrid storage. Data in this area is restricted and accessible only for the purpose of data ingestion.
Data Ingestion (Hosted Data Source)	Data to storage: Data is transformed, standardised and loaded into a repository. This ingestion service is designed to cater for independent research institutes or other providers. This service will: <ul style="list-style-type: none"> • Identify all data structures to be loaded or ingested and verify them against what was expected. • Identify whether the data feed already exists and is therefore an update of data
Data Ingestion for members	Member storage: Data is transformed, standardised and loaded into its Local Research Repository (LRR). Current practice will continue to share the local site's IT with liaison with BioGrid for connectivity.
Local Linkage Service	Allocation of linkage keys : This record linkage service will identify data associated with a record master and call the Central Linkage Service to obtain the associated master record number.
Mapping Local to Master Key Mapping	Master mapping of the linkage key: This service determines which local records do not have a corresponding master linkage key and calls the Linkage Service (local or central) to obtain one.
Identity Ingestion	Loading identifiers to create the Linkage key: The identifiers are transformed and loaded into the central database for use by the Central Linkage Service.
Central Linkage Service	The Central Record Linkage Service will provide a linkage key when supplied with a local record number.
Local Research Repositories (LRR)	Data at the sites: The datasets in the LRR that are refreshed nightly and have a stable metadata framework. Repositories are linked remotely into the Federated Data Integrator through a secured network (VPN). LRRs are loaded with source data by the owning institution. The owning institution is responsible for data quality and performing any additional transformation required to make the data usable. BioGrid has no ability to update or modify this data in any way.

Component	Description
User Provisioning	<p>Requesting research access to data: This service is required to create a streamlined process that;</p> <ol style="list-style-type: none"> 1. Allows a researcher to request access to desired data. 2. Allows approvers of the request to be notified and approve or deny access to the data. 3. Creates relevant project level roles and assigns researchers to that role. 4. Revokes access to the role once research has been completed or alternatively the expiry date as specified in the request has been reached. <p>The service will follow BioGrid request and approval processes and will adhere to security and ethics requirements.</p>
Data Security Service : Access Authentication and Audit (AAA)	<p>The security access layer provides a point through which users are authenticated and authorised to access the Federated Data Integrator and through which their access is audited.</p>
Hosted Presentation Layer	<p>A layer of extensible business intelligence and administration tools. This will include portal technology and provide access to:</p> <ul style="list-style-type: none"> • SAS, SPSS and STATA • Business glossary • Access requests and associated approval workflow • Web content • Product specific administration tools
Data Access Service	<p>Externally hosted analytical tools may also be authorised to access specific BioGrid data via VPN and or web services. This includes analytical applications hosted by the University of Melbourne supercomputer.</p> <p>Enabling external analytics requires both data and metadata to be made available.</p>

3. UNDERTAKE RESEARCH ACTIVITIES

A key element of the ACG Project is to sponsor and fund research that will produce early and high quality returns especially from the existing colorectal cancer and BioGrid Australia resources. These include colorectal cancer familial surveillance datasets collected for up to 25 years and prospective clinical data on over 5000 patients (fresh frozen tissue is available for over 1300 of these). The ability to rapidly link clinical and research data from multiple sites, and to perform sophisticated analysis through the BioGrid Australia initiative will enable projects that would otherwise be practically impossible.

The BioGrid Australia ACG will invest \$1.0 million in three research projects over the period to the end of 2009 with a \$1.3 million matching contribution from CSIRO. The research is being undertaken in collaboration with key groups including CSIRO, Melbourne Health (MH), and Ludwig Institute for Cancer Research Ltd (LICR) and Flinders Medical Centre (FMC) in South Australia. BioGrid Australia will provide the data linkage infrastructure for undertaking each of these projects.

BioGrid Australia has a head agreement with CSIRO for the research projects and a specific research project agreement with each of the other parties.

The three research areas funded in the project plan with CSIRO are:

- High-risk colorectal cancer surveillance datasets (BioGrid Australia, RMH, CSIRO and FMC);
- Colorectal cancer biomarkers and outcomes in micro satellite unstable cancers (BioGrid Australia, RMH, CSIRO, and LICR);
- Comprehensive analysis of prognostic and predictive markers in colorectal cancer (BioGrid Australia, CSIRO and LICR).

Detailed reports for each of these projects can be found in the 'Annual Research Report' section of this report.

4. ESTABLISH NEW RELATIONSHIPS

During 2007–2008 BioGrid Australia has developed and confirmed a number of key relationships, some of which have been formalised in agreements. These include:

RACS and CSSANZ

The Royal Australian College of Surgeons (RACS) and the Colorectal Surgical Society of Australia and New Zealand (CSSANZ) are implementing a surgical audit of CSSANZ members initially in South Australia but encompassing the whole CSSANZ membership base. BioGrid Australia is linking the following hospitals into the BioGrid Australia Collaboration:

- Flinders Medical Centre;
- Queen Elizabeth Hospital and Lyell McEwin Hospital;
- Royal Adelaide Hospital.

RACS, through their Adelaide office, acts for BioGrid Australia in recruiting and then implementing BioGrid Australia connectivity in these hospitals. This in turn will assist RACS and CSSANZ in accessing surgical audit data for South Australia.

A MOU has been signed between RACS, CSSANZ and BioGrid Australia to work cooperatively in order to:

- Assist with BioGrid Australia project implementation in Adelaide;
- Avoid unnecessary duplication in data capture and systems development;
- Assist with the CSSANZ audit project implementation Australia wide.

Victorian Partnership for Advanced Computing (VPAC)

VPAC has an agreement with BioGrid Australia to provide project management, software development, systems expertise and training resources as required. They have been involved in joint software development and architecture design.

CONFERENCES, PRESENTATIONS, RESEARCH AND PUBLICITY

During the past year BioGrid Australia staff members have been active in promoting BioGrid Australia, the ACG Project, health informatics and health grid research as well as upgrading their knowledge and skills through participation in the following conferences, workshops and presentations.

PRESENTATIONS

- Presentation by Project Director at University of Melbourne Workshop: Health Informatics: Building the Research Agenda August 2007;
- Presentation by Project Director at Bio21/MCRI Population Data Linkage for Disease Prevention Workshop September 2007;
- Presentation by Professor Peter Colman at Australasian Diabetes Society in Christchurch, New Zealand;
- Presentation at ECCO 14 – European Cancer Organisation Sept 14 “Impact of Diabetes Mellitus on the development and outcomes of Colorectal Cancer” by Dr Suzie Kosmider ACG Research Fellow;
- MedInfo – Brisbane July – paper written and submitted (oral presentation accepted);
- Presentation to the Human Variome Conference Costa Brava Spain;
- Presentation to the Public Health trainee at Population Health Conference Brisbane;
- Presentation to Information on Demand Conference (IBM) in Sydney and Melbourne;
- Presentation to Department of Health and Ageing, Medicare Australia and Veterans’ Affairs in Canberra;
- Presentation to the Office of the Privacy Commissioner (Commonwealth);
- Presentation About BioGrid ACG to “Biomedical Asia” April 2008 Singapore under the Bioinformatics Asia stream;
- Presentation to American Society of Clinical Oncology annual meeting June 2008 in Chicago USA;
- Presentation, Clinical Research Center, Kuala Lumpur Hospital, Malaysia June;

- Presentation of BioGrid and linking methodologies to Centre of Research Excellence in Patient Safety, Clinical Registries Special Interest Group (Monash University);
- Presentation at Health Informatics Roundtable – “Health Informatics and Public Health” (University of Melbourne);
- Presentation of Upper GI data collection (Peter MacCallum Cancer Centre) May;
- Poster presentation at Statistics Conference Melbourne;
- Presentation to International DB2 User Group (IUD) Conference, Sydney;
- Presentation to International DB2 IUD, Dallas, Texas, USA;
- Presentation to Enterprise Architecture and Integration Summit, Calgary, Alberta, Canada;
- Presentation at Versi at The University of Melbourne.

BioGrid at Melbourne Health Research Week 2008

BioGrid Australia was again active in supporting The Royal Melbourne Hospital Research Week in mid-June 2008 by sponsoring lunch for 100 attendees on 4 June 2008, followed by a seminar featuring presentations highlighting the role of BioGrid Australia in facilitating research.

The program presented by BioGrid Australia included presentations by the following:

- Dr Marianne Hibbert – BioGrid plans and progress;
- Dr Tanya Yuen – Tumour associated epilepsy;
- Mr Slave Petrovski – Epilepsy bioinformatics;
- A/Prof Peter Gibbs – The National Colorectal Cancer Database;
- Prof Peter Coleman – Diabetes audit and research.

These and other presentations can be accessed on the BioGrid Australia website at www.biogrid.org.au.

BioGrid Australia researchers have also been active in publications during 2007–08 with further details provided later in this report. Details

of all BioGrid Australia research and publications to date can be obtained from the BioGrid Australia website: www.biogrid.org.au

Annual Workshop 2007

The first BioGrid Australia Workshop was held on 1st of September 2007 at the Department of Human Services, Lonsdale Street, Melbourne.

- A brief history of MMIM
Marianne Hibbert
- Update on:
 - Links with CCV and death registry
 - Other databases in development
Peter Gibbs
- Novel initiatives
 - Rare tumour database
Clare Scott
- Resources available for data analysis
 - Demonstration of SAS
Julie Johns
- Update on the Victorian Cancer Biobank
Anne Thompson
- How we defined data fields / collect data
 - Brain
Kate Drummond
 - Lung
Matthew Conron
 - Colorectal
Ian Jones
- Improving data capture
 - Electronic chemotherapy prescribing
Suzy Kosmider
 - Standard Pathology request forms
Susan Shedda
- Tumour Group Portals
Marianne Hibbert
- Sustainability
 - National and international links
Peter Gibbs
 - Links with industry
 - Clinical trial opportunities

PUBLICITY AND PROMOTION

Publicity and promotional activities undertaken during the year included the following:

- During the year BioGrid Australia has published and distributed four newsletters (numbers nine to 12) each containing news, updates and articles on BioGrid Australia-related research and researchers of interest to our readers. All newsletters are on the BioGrid Australia website, with limited hard copies available from the BioGrid Australia office;
- A new bi-monthly electronic newsletter has been developed with the first edition planned for August;
- Work has also been undertaken to upgrade the website which was completed during 2007–08 and a new domain name registered as **www.biogrid.org.au**
- The BioGrid story is now animated: Check it out and see the new animation of how BioGrid works at **www.biogrid.org.au**
- BioGrid ACG Project profiled in Department of Human Services (DHS) Victoria publication 'Human Services News' Vol 6 – No 10 November 2007 'Sharing information benefits research';
- 'Australian' newspaper Information Technology section – front page. August 22 2007 Interview with Project Director and A/Prof Peter Gibbs Chief Project Scientist titled 'Hi-tech research outpaces law';
- Podcast on the Oracle website titled 'Managing DICOM data in Oracle Database 11g (mp3)' by Naomi Rafael, Senior Database Administrator;
- SAS Promotional Video – filming was completed at Melbourne Health in November 2007 by a SAS USA film crew of a promotional video about SAS and BioGrid. SAS is the software used by BioGrid for statistical analysis enquiry and reporting.



From left: Mr Rob Merriel, Dr Marianne Hibbert, with SAS film crew.

New Name Launched by Victorian Minister for Innovation

Following extensive research, consultations, workshops and checking of ASIC and web domain name registries, MMIM decided on a new name: – BioGrid Australia: 'Health through information'. A new logo was developed and the announcement of the new name made in Newsletter #10 distributed in December 2007.

The Hon Gavin Jennings MLC Minister for Innovation visited The Royal Melbourne Hospital on 5th of March 2008 for the official launch of the new name and logo 'BioGrid Australia'. A function hosted jointly by Melbourne Health and the University of Melbourne was held on 5th of March 2008 to launch the new name and logo.

The BioGrid /ACG 2006/2007 'Glossy' Annual Report was distributed at the new name launch along with the new promotional brochure.



From left: Prof Jim Best, The Hon Gavin Jennings, Ms Linda Sorrell, Dr Marianne Hibbert, A/Prof Peter Gibbs

Participation in Bioinformatics Future Planning

BioGrid Australia has been actively involved in the following planning groups:

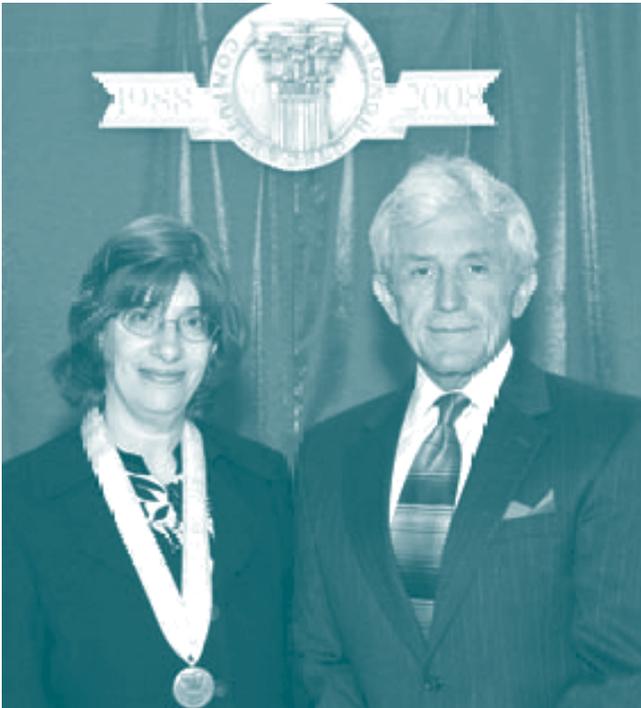
- NCRIS 5.7 Population Health and Data Linkages Expert Advisory Group (Dr M Hibbert);
- Cancer Australia – Data Advisory Group for the Cancer Australia National Cancer Data Strategy (Dr M Hibbert).

AWARDS, HONOURS AND PATENTS

BIOGRID AUSTRALIA HONOURED AT 2008 COMPUTERWORLD HONORS PROGRAM

BioGrid Australia ACG was awarded a laureate in the Category of Healthcare for the 2008 Computerworld Honors Program. Established in 1988, the Computerworld Honors Program brings together the Chairmen and CEO's of the world's foremost information technology companies to recognise use of information technology that has been especially noteworthy for originality of its conception, breadth of its vision, and significance of benefit to society. The process culminates in two awards ceremonies in Washington, D.C. June 2008.

In an awards ceremony held in Washington DC, in June 2008 the award to BioGrid Australia was accepted by Technical and Systems Manager, Mrs Naomi Rafael.



Ms Naomi Rafael receiving the award at the Laureate Ceremony in Washington DC, June 2008.

BIOGRID RESEARCHER HONOURED

Dr Cassandra Szoeka a BioGrid Australia researcher was awarded the Bio:21 Australia 2007 industry fellowship which allowed her to explore potential commercial development of her epilepsy research – research enabled by the BioGrid Australia data linkage technology.

FIRST PATENT ACHIEVED – GENETIC TEST FOR EPILEPSY SUFFERERS

Epilepsy has been part of the BioGrid Australia project since it was founded in 2005, thanks to the drive and enthusiasm of A/Prof Terry O'Brien of the University of Melbourne and Melbourne Health.

Pharmacological treatments for epilepsy have often been a matter of trial and error, with a significant number of patients not responding to one of the major drug treatments and worse, often suffering significant side effects.

In an effort to better predict which drugs will be effective for an individual patient, A/Prof O'Brien and his team mapped over 4,000 single nucleotide polymorphisms markers (SNPs) for over 300 patients. It was hoped that the study would allow clinicians to predict which patients would respond to which drug without the normal trial and error period which could take many months.

This has now led to a major break-through, which was announced by the Victorian Minister for Innovation, The Hon Gavin Jennings, in a June 2008 press release.

“Victorian doctors have developed a new genetic test to help predict the response of epilepsy sufferers to commonly used drug treatments. The non-invasive blood-based test is being presented in the Innovation Corridor at BIO2008 in San Diego.”

The Hon Gavin Jennings MLC Minister for Innovation welcomed the breakthrough test, which has been developed by doctors from the Royal Melbourne Hospital, Melbourne University and the Murdoch Children's Research Institute.

“Epilepsy is one of the most prevalent and serious disorders of the central nervous system with an estimated prevalence of approximately 50 million cases worldwide, with 2.5 million cases in the US alone.”

“However carbamazepine and valproate, two first-line treatments for epilepsy, have limited efficacy, with 40% of patients having a significant adverse drug reaction and 20–40% experiencing recurring seizures,” Mr Jennings said.

“This test will allow doctors to know whether their patients are genetically predisposed to respond to the medication, which will allow them to tailor-make a more effective treatment and care regimen,” he added.

The combined market for epilepsy drugs in the US and Europe is greater than US\$3 billion growing at an annual rate of approximately 15%.

The easy to use diagnostic test has been validated in a large trial of over 300 patients and is currently being trialled in another 600 patients. A provisional patent has been applied for with the test yet to be commercialised.”

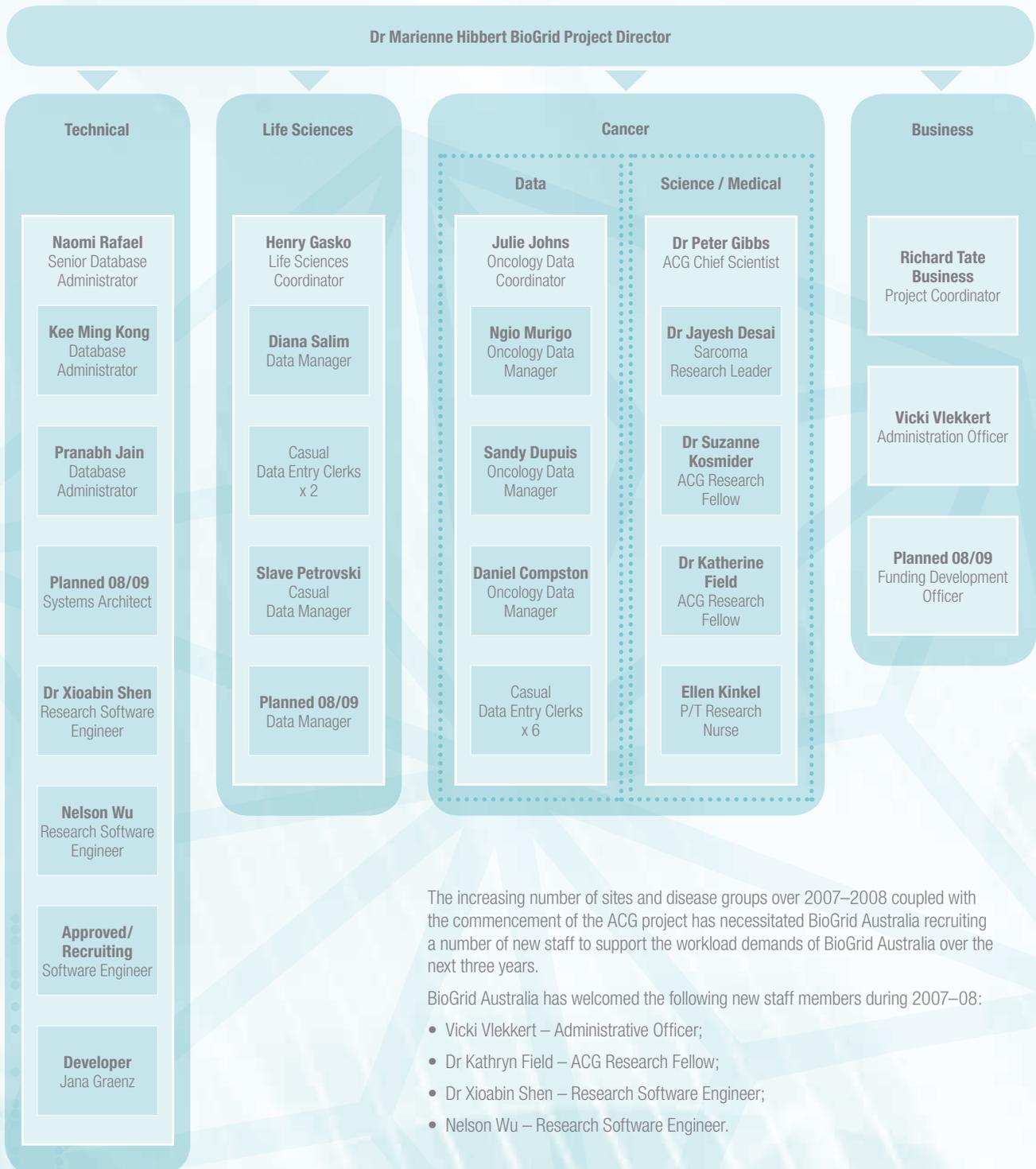
BIOGRID MEMBERS, PARTNERS AND SUPPORTERS

The work of BioGrid Australia would not be possible without the financial and in kind support of many organisations that have partnered BioGrid Australia over the past four years. Many thanks to our valued partner organisations listed below.

				
	 Department of Innovation, Industry and Regional Development			
	 Department of Innovation, Industry, Science and Research	 Loddon Haines Integrated Cancer Service		
 Putting your health first				
	 FLINDERS MEDICAL CENTRE	 Specialised in the care of Land & Maritime Victoria		
	 Geelong Region Integrated Cancer Services	 MELBOURNE HEALTH		
 Melbourne's research	 HILL COUNTRY HEALTH			
	 Grampians Integrated Cancer Service (GICS)		 Continuing the Mission of the Sisters of Charity	
 Central Northern Adelaide Health Service	 HOWARD FLOREY INSTITUTE	 PENINSULA HEALTH		

BIOGRID ORGANISATIONAL STRUCTURE

The BioGrid Australia project is directed by Dr Marianne Hibbert (PhD) with project management through a number of functional areas detailed on the organisational chart below. The coloured positions are planned but currently vacant.



The increasing number of sites and disease groups over 2007–2008 coupled with the commencement of the ACG project has necessitated BioGrid Australia recruiting a number of new staff to support the workload demands of BioGrid Australia over the next three years.

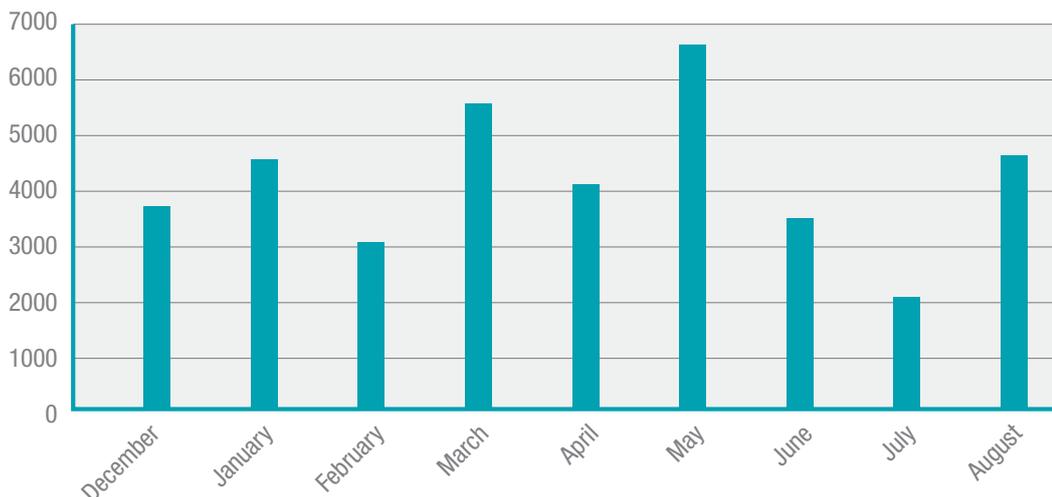
BioGrid Australia has welcomed the following new staff members during 2007–08:

- Vicki Vlekkert – Administrative Officer;
- Dr Kathryn Field – ACG Research Fellow;
- Dr Xioabin Shen – Research Software Engineer;
- Nelson Wu – Research Software Engineer.

STATISTICAL REPORT (AUGUST 2008)

Sites	Databases	Tables	Sources	Columns	Records	USI
RMH	ACCORDV1	13	1	142	24,037	7,012
	ACCORDV2_RMh	13	1	344	9,567	1,045
	ACCORDV2_WH	13	1	344	14,857	1,619
	BIOMARKERS	2	1	49	4,581	655
	DIABETES (RESEARCH)	47	2	939	215,192	11,760
	DIABETES V2 (CLINICAL)	14		257	259,550	4,727
	EPILEPSY	60	1	1,883	30,564	2,999
	FAMILIAL	69	1	711	50,496	7,213
	KONQUEST	6	1	444	820	85
	MS_IMED	6	1	301	4,731	374
	ONCSEIZURE	9		86	90	47
	STROKE	12	1	100	3,527	3,434
	SURVEILLANCE	32	1	465	57,421	3,722
	TISSUEBANK	40	1	586	710,609	2,372
	VEM	7	1	436	4,731	177
AUSTIN	ACCORDV1	13	1	142	13,134	3,529
	ACCORDV2	13	1	337	1,784	277
	DIABETES	5	1	260	63,951	1,521
	TISSUEBANK	39	1	337	159,415	2,947
PMCC	ACCORD	18	1	385	25,139	4,925
	ACCORDV2	13	1	337	308	57
	TISSUEBANK	16	1	128	102,217	9,860
SVHM	Breast	19	1	305	31,138	5,143
	Diabetes	14	1	701	4,317	201
	Oncology	23	1	277	114,217	19,423
Bayside Shared	- Box Hill					
	ACCORDV2	13	1	337	2,462	313
	- Monash					
	Cystic Fibrosis	2	1	101	92,363	41,108
	- The Alfred					
	ATD	4		30	54,926	360
	Cystic Fibrosis	2		114	8,179	360
TOTAL		540	31	10,878	2,064,323	137,265

QUERIES AGAINST THE SYSTEM DEC 2007-AUG 2008



DATABASES ON THE SYSTEM

Please note that ALL data is de-identified

Cancer			
Database	Description	Location	Data Owner/s
Accord Version 1	Clinical research data on cancer patients including name, sex, DOB, date of diagnosis, pathology, TNM stage, therapy, etc.	Austin	Brain Breast Haematology Lung Melanoma Prostate Other tumours Paul Mitchell
		Royal Melbourne and Western Hospitals	Brain Breast Haematology Lung Melanoma Prostate Other tumours Peter Gibbs
		Peter MacCallum Cancer Centre	Lung Prostate Other tumours Sandy Heriot
Accord Version 2	Clinical research data on cancer patients including sex, date of birth, date of diagnosis, pathology, staging, therapy, etc. colorectal cancer only, more tumour types in near future	Austin	Andrew Bui
		Royal Melbourne Hospital	Peter Gibbs
		Western Hospital	Peter Gibbs
		Peter MacCallum Cancer Centre	Alexander Heriot
Biomarkers	Results of Biomarker testing on tissue and blood. Includes demographics, sample testing institution, staging and date of sample collection and testing. Tests include CEA, MSI, EGFR etc.	Box Hill Hospital	Frank Chen
		Royal Melbourne Hospital	Peter Gibbs
Breast	Clinical data on cancer patients including sex, date of birth, date of diagnosis, pathology, staging, therapy, etc.	St Vincent's	Michael Henderson
FAMBIZ	Tracks subjects with a family history of colon cancer – has documentation of symptoms, genetic test results, and pedigree information.	Royal Melbourne Hospital	Geoff Lindeman
Micro Array	Micro array results data of gastric cancer	Peter MacCallum Cancer Centre	Alex Boussioutas
Oncology Clinical Data	Clinical research data on cancer patients including sex, date of birth, date of diagnosis, pathology, staging, therapy, etc. Includes tumour specific information on lung cancer.	St Vincent's	Raymond Snyder
		St Vincent's	Mathew Conron (Lung)
FamBis Surveillance (Familial)	Surveillance data on subjects who have familial risk of bowel cancer. Collects symptoms and results of screening tests, such as faecal blood tests, colonoscopy and associated histology reports.	Royal Melbourne Hospital	Finlay Macrae
Victorian Cancer Biobank	Details on tissue and blood collected for the Tissue Bank, includes data on diagnosis, tissue treatment, pathology etc.	Austin Health	Carmel Murone
		Royal Melbourne Hospital/ Western Hospital	Geoff Lindeman
		Peter MacCallum Cancer Centre	Lisa Deveroux

Diabetes			
Database	Description	Location	Data Owner/s
Diabetes – Austin Repatriation Hospital	Clinical and research data on results and complications of diabetes from Type 2 patients and Type 1 patients from 1985 onwards.	Austin Hospital	George Jerums
Diabetes Clinic Audit	Data on type and duration of diabetes, ethnicity, treatment for diabetes and other co-morbidities plus complications of diabetes, for example, the eyes, kidneys, feet.	Royal Melbourne Hospital	Peter Colman
Diabetes Research	The preventative studies data has been collected from a number of studies. These studies included: 1. Australian BabyDIAB study 2. Melbourne Pre-Diabetes Family study 3. Type 1 Diabetes Repository 4. Intra Nasal Insulin Trial 1	Royal Melbourne Hospital	Peter Colman
Diabetes – ANDIAB	Australian National Diabetes Information Audit and Benchmarking (ANDIAB)	St Vincent's Hospital (Melbourne)	Glenn Ward
Neurosciences			
Database	Description	Location	Data Owner/s
Epilepsy	Integration of epilepsy clinical and research databases: 1. First Seizure Clinic 2. Pharmacogenetic Study 3. Video EEG Monitoring 4. Comprehensive Epilepsy 5. Post Surgery List	Royal Melbourne Hospital	Terry O'Brien
Konquest Study	Konquest Study	Royal Melbourne Hospital	Terry O'Brien
MS (iMED) – Basic for Images Link	Ongoing research study of subjects admitted to the Multiple Sclerosis Unit at Royal Melbourne Hospital and other hospitals in Australia.	Royal Melbourne Hospital	Helmut Butzkeuven
NUCOG	Ongoing research study of cognitive function of patients in the Neuropsychiatry Unit, Royal Melbourne Hospital, and other patients who undergo cognitive assessment in Melbourne Health	Royal Melbourne Hospital	Dennis Velakoulis
Video EEG monitoring – quality of life study	Ongoing study of quality of life of epilepsy patients, using five questionnaires.	Royal Melbourne Hospital	Terry O'Brien
Stroke – MH	Ongoing study of subjects admitted to Stroke Unit at Royal Melbourne Hospital	Royal Melbourne Hospital	Peter Hand
Stroke – The Alfred Hospital	Ongoing study of subjects admitted to Stroke Unit at The Alfred Hospital	The Alfred Hospital	Judith Frayne
Cystic Fibrosis			
Database	Description	Location	Data Owner/s
Cystic Fibrosis – The Alfred Hospital	The data collected is based on the CF Australia database data elements plus lung function and pathology data. RESMED – Clinical lung function database GENOTYPE – Genotype spread sheet CF Australia DB Hospital system data – Admissions data & Pathology database	The Alfred Hospital	John Wilson
Lung Function	Lung function results including some cystic fibrosis patients	Monash Medical Centre	David Armstrong

BIOGRID AUSTRALIA ANNUAL RESEARCH REPORT 2008

TUMOUR STREAM: BRAIN

Dr Kate Drummond, Consultant Neurosurgeon at Royal Melbourne Hospital, is the BioGrid central nervous system (CNS) tumour stream leader. CNS tumours comprise a variety of tumour types and of these glioblastoma multiforme is one of the more common. It occurs particularly in middle age and the average survival with the best available therapy is only 14 months. Considerable research is needed to improve the outcomes for patients with this universally fatal disease.

Progress and Challenges for 2007–08

2007–08 has seen the finalisation of the multi-disciplinary CNS dataset and the completion of the database. Considerable interest has been shown from other sites including interstate (ACT and SA) to adopt the ACCORD brain module for their institution data collection.

The first publications analysing the data from the brain database are in development looking at overall survival, patient demographics and socio-economic factors. Challenges are ongoing, particularly with regard to loss follow-up. Many patients receive their initial neurosurgery at a central tertiary centre, but return to regional centres for ongoing care, particularly radiotherapy and chemotherapy. The planned BioGrid linkage to the Australian Institute of Health and Welfare, Department of Human Services and Medicare data will resolve some of these issues.

Future Directions

Plans are underway to increase the functionality of that database, including generation of electronic letters to the GP to inform them of treatment plans and outpatient discharge summaries. Linkage to other in-hospital databases, including pathology, will allow research into biomarkers predicting response to treatment.



STREAM: BREAST

The BioGrid breast tumour stream leader is Professor Bruce Mann. Professor Mann is a surgical breast oncologist and Director of the Breast Cancer Services for the Royal Women's and Royal Melbourne Hospitals.

In Australia, one in eight women under the age of 85 will be diagnosed with breast cancer. About a quarter of those affected will be under the age of 50.

Progress and Challenges for 2007–08

The last year has seen the near completion of RUTH – the breast cancer specific database designed with a number of clinically functional features. In conjunction with the Cancer Council of Victoria, plans are underway for the use of RUTH at a number of sites including the Royal Women's, Royal Melbourne, Western and Box Hill Hospitals.

Finalisation of a multi-disciplinary breast minimum dataset is underway involving sites across Victoria.

Future Directions

After completion of the new breast database, data in the pre-existing breast database at Royal Women's, Royal Melbourne and Western Hospitals will be imported into RUTH and prospective collection will begin. There are a number of research projects which will utilise the data and also complement lab research using breast tissue.



TUMOUR STREAM: COLORECTAL

Associate Professor Peter Gibbs is the leader of the BioGrid colorectal tumour stream. A/Prof Gibbs is a medical oncologist at Royal Melbourne and Western Hospitals, and Ludwig Institute of Cancer Research. He is also the Chief Project Scientist for the Australia Cancer Grid.

Colorectal cancer (CRC) is the most common internal malignancy in men and women, effecting one in 20 Australians. Of those diagnosed, almost half will eventually die from advanced disease, annually accounting for approximately 529,000 deaths worldwide.

Progress and Challenges for 2007–08

1. As well as now collecting data from eight Victorian sites, under the auspices of the Colorectal Surgical Society of Australia, data is being collected at eight interstate sites, with at least another ten sites likely to come on board in the next 12 months. At that point data will be collected from every state in Australia, with New Zealand sites also likely to be participating. One international site (Sao Paulo, Brazil) is now collecting the ACCORD data, and other international links are being pursued.
2. Linkage with the Victorian Cancer Registry and Department of Human Services has facilitated multiple novel research projects. These linkages will continue to provide valuable data with multiple further projects planned.
3. Other data sets used include data from the Australian Bureau of Statistics, specifically postcode based data on socioeconomic disadvantage, has now been used in several projects.
4. Version one of an electronic chemotherapy prescribing module has been successfully deployed. This has improved the ease and quality of data capture. An improved version is being worked on, which will be easily modifiable to cover all tumour streams.
5. A second BioGrid Colorectal Oncology Research Fellow began in February 2008.

Achievements

10 publications that utilised BioGrid colorectal cancer data were published in 2007. Another six have been published in 2008 or are currently in press.

Future Directions

1. New linkages are underway to improve the completeness and accuracy of the existing colorectal and other cancer databases in BioGrid. These include
 - a. linkage with Radiation Oncology Victoria, the third largest radiation oncology service provider in Australia.
 - b. linkages to hospital pharmacy databases to determine in and out-patient treatments and to hospital pathology databases. Melbourne Health will serve as the pilot for these linkages to establish feasibility and proof of concept.
 - c. linkages with hospital pathology databases
 - d. linkages with radiology databases



TUMOUR STREAM: HEAD AND NECK (INCLUDING THYROID)

Clinical Associate Professor David Wiesenfeld, University of Melbourne is the head and neck tumour stream leader at Royal Melbourne Hospital. He is an oral and maxillofacial surgeon with appointments at Royal Melbourne, and Peter MacCallum with research affiliations at Melbourne University.

Head and neck tumours are the 6th most common cancer in men and 7th most common tumours in women. RMH has an emphasis on oral, salivary gland, and skin cancers in the head and neck. The management of patients with head and neck tumours involves specialised multidisciplinary medical care and input from sub-specialised allied health members including otorhinolaryngologist head and neck, oral and maxillofacial, and reconstructive plastic surgeons, medical and radiation oncologists, speech pathologists, nutritionalists, and prosthetists. Thyroid cancer is included in this tumour stream.

Progress and Challenges for 2007–08

Data collection started in August 2007 at RMH. The database is completed and will be used to collect data at other sites in the future. The dataset includes the ICD ten codes to meet national standards.

Challenges include coordinating clinical services to include all the necessary disciplines required for the optimal treatment of patients with head and neck cancer. Capturing chemotherapy and radiotherapy data is an ongoing issue as much of this therapy occurs outside of Royal Melbourne Hospital and highlights the ongoing need for multi-centre collaboration to record all aspects of the patient's treatment regimen.

Future Directions

Funded through a successful WCMICS grant, a cancer care coordinator establishment officer will start this year. They will coordinate the MDT and the patient's journey including appointments, admission and discharge processes.

An MDT form is under development which will become an MDT module in the ACCORD software. This will have clinical utility to assist with documentation of the MDT plan whilst capturing the data.

An ORL Surgical Fellow from Uppsala, Sweden will start in September for 12 months. She will begin analysis on the data from the last year's collection.



TUMOUR STREAM: LUNG

Dr Matthew Conron, respiratory physician at St Vincent's Hospital, is the BioGrid lung tumour stream leader.

Lung cancer is terminal for 80% of patients diagnosed and requires more than one modality of therapy. It is probably the tumour type that most frequently requires multidisciplinary care which has implications for thorough data collection.

Progress and Challenges for 2007–08

The VCOG lung group and Integrated Cancer Services has been the forum to develop a consensus minimum dataset, which has been agreed by all participants. A data dictionary is in progress and will include the newly ratified lung staging system.

Collection of data involves surgeons, radiation oncologists, respiratory physicians, medical oncologists and Palliative Care Physicians. The St Vincent's lung database is aiming to expand with collection from Western Hospital and regional centres.

Challenges have included coordinating the collection of data from all disciplines at the point of contact and linking to the relevant external databases relevant to lung cancer, in particular radiotherapy.

Future Directions

St Vincent's plans to update their database with the new staging system fields and analyse the impact on survival pre and post the change ie does the new staging system better reflect survival for each stage?

They have received funding from DHS and ICS to alter the database and pilot its use at other sites.



TUMOUR STREAM: MELANOMA

Associate Professor Grant McArthur is the BioGrid tumour stream leader for melanoma. Associate Professor McArthur is a medical oncologist and head of the Molecular Oncology and Translational Research Laboratories at Peter MacCallum Cancer Centre. The latest statistics from the Cancer Council of Victoria show that Australia has the highest rate of skin cancer in the world. As such Australia is a major contributor to the global melanoma battle. Of all new patients referred to Peter MacCallum, 25% suffer from skin cancer or melanoma. There remains much room for improvement in the outlook for patients with metastatic melanoma.

Progress and Challenges for 2007–08

Peter MacCallum Cancer Centre, Victorian Melanoma Service – Alfred Hospital and the Austin Hospital, are the initial sites comprising the Melbourne Melanoma Project.

This last year has seen the development of a minimum dataset over the three sites which will allow combined data collection for research and clinical activities to provide the comprehensive clinical information to complement the melanoma tissue banking that is being performed in collaboration with the Victorian Cancer Biobank (VCB). Current challenges include ensuring data collection software at each site is available and includes the minimum dataset.

Future Directions

Data Managers will be employed at each MMP site in the near future to ensure high quality data for the project. In the future, several other potential sites including Royal Melbourne Hospital, the Skin & Cancer Foundation, St. Vincent's Hospital, the Western Hospital and Cabrini are proposed to participate in the project. If successful additional funding is received, expansion to additional treatment centres throughout Australia will be explored.



TUMOUR STREAM: RARE TUMOURS

Dr Clare Scott is the leader of the BioGrid rare tumour stream. Dr Scott is a medical oncologist at Royal Melbourne Hospital and Clinician Scientist at the Walter and Eliza Hall Institute of Medical Research. The rare tumour stream encompasses over 500 malignancies and also includes rare sub-sets of common tumours.

Progress and Challenges for 2007–08

The process of data collection for rare tumours is novel for BioGrid in that it is web-based. Patients themselves will enter their data after searching and locating the BioGrid rare tumour database over the internet. Details of their diagnosis, treatment, pathology and the location of their tumour tissue will be sought. Patients will consent to different levels of data and/or tissue access, ranging from use of their de-identified data, to obtaining a sample of their tumour tissue for research, to registering their interest in an appropriate clinical trial of targeted therapy.

Given this, unique ethical issues have been encountered, in particular, as patients from outside Australia will be included in this resource. Following significant review by the MH Human Research Ethics Committee (HREC) this project is now approved. Work has begun on developing the website and database.

Future Directions

Six months after completion of the rare tumour database, the pilot phase will be reviewed and the quality of a subset of data collected will be analysed.



CYSTIC FIBROSIS RESEARCH

Professor John Wilson of The Alfred Hospital is the leader of the cystic fibrosis (CF) stream. Professor Wilson is head of the Head of the Department of Allergy, Immunology & Respiratory Medicine at The Alfred Hospital and on the faculty of Monash University Medical School. In addition to the Alfred Hospital, the BioGrid CF stream also includes Monash Medical Centre under Professor David Armstrong and The Royal Children's Hospital under Professor Philip Robinson.

Cystic fibrosis is a devastating disease for which there is currently no cure. It affects the exocrine (mucus) glands of the lungs, liver, pancreas, and intestines, causing progressive disability due to multisystem failure and eventual death. However with the introduction of aggressive treatment regimes patient survival has improved from an average of 20 to 30 years a generation ago to the point where many patients are now surviving into their 40's and beyond.

Progress and Challenges for 2007–08

The main aim of the BioGrid CF project is to link the lung function and outcome databases from the three participating sites into the BioGrid system. This will allow a larger cohort of patient information to be available for research than is available at any single hospital. It will also allow tracking of patient information (in de-identified form) from pre-adult treatment at The Royal Children's Hospital through treatment as an adult at The Alfred or Monash Medical Centre.

The past year has seen the connection of the Alfred lung function data into the BioGrid system. It has also seen the creation of an automated extract of admissions data for patients with CF, including ICD codes and length of stay information, from The Alfred's patient management system. The linkage of these two previously unrelated data sources will allow analysis of the effectiveness of various treatment regimes on the patient's length of stay and the associated costs to the health care system.

Future Directions

With ethics and technical issues now resolved at Monash Medical Centre and The Royal Children's Hospital, the main aim at present is to also link lung function and admissions data from each of these sites into the BioGrid system. There are also plans to link the genetic database for patients with CF, currently located at Murdoch Institute, into BioGrid. The eventual aim is to analyse the effectiveness of treatments provided to each patient, with the goal of producing an optimised individual care plan for a newly diagnosed patient based on their genetic make-up and their initial lung function and other diagnostic results.



TUMOUR STREAM: UPPER GASTROINTESTINAL

This last year has seen the establishment of an Upper Gastrointestinal BioGrid tumour stream headed by Dr Lara Lipton. Dr Lipton is a medical oncologist at Royal Melbourne Hospital, and Western Hospital and Ludwig Institute for Cancer Research. Upper GI tumours encompass a broad group of primary tumours, all with poor survival outcomes. Distal oesophageal adenocarcinoma is on the rise due to increasing rates of obesity in the Australian population, and has a 30% five year survival. Pancreatic cancer affects people in their 50s onwards and despite best efforts, has only a 5% five year survival for all stages combined. Very little prospective data collection exists in this area.

Progress and Challenges for 2007–08

As upper gastrointestinal cancers include a range of tumours and surgeons with differing specialisations, defining a comprehensive dataset has been a challenge. As the management of these tumours requires specialist multi-disciplinary involvement collaboration with medical (radiation oncologists, gastroenterologists and medical oncologists) and surgical disciplines has been an essential part of the process. The oesophago-gastric dataset is currently being trialled to collect patient data, with the other components of the dataset in the final stages of development. In the next few months, three Victorian tertiary sites will begin collection using the full dataset.

Future Directions

Next year the first Upper Gastrointestinal BioGrid Research Oncology Fellow will commence work on projects utilising the data. The Upper GI tumour stream will continue its collaboration with WCMICS to determine an optimal follow-up program for patients with upper gastrointestinal malignancies.



TUMOUR STREAM: URO-ONCOLOGY (RENAL AND PROSTATE)

The uro-oncology BioGrid tumour stream leaders are Associate Professor Ian Davis (pictured below) for renal cell carcinoma and Professor Anthony Costello for prostate cancer.

Associate Professor Davis is a medical oncologist and cancer immunologist. He has a clinical appointment at Austin Health and is currently an Associate Member of the Ludwig Institute for Cancer Research and Associate Professor of Medicine in the University of Melbourne. He holds a Victorian Cancer Agency Clinician Researcher Fellowship and is an honorary NHMRC Practitioner Fellow.

Professor Costello is Director of Urology at Royal Melbourne Hospital. He has established the Prostate Cancer Research Centre, a new laboratory dedicated to basic and translational research aimed at improving outcomes for prostate cancer patients.

Each year in Australia, close to 3000 men die of prostate cancer – equal to the number of women who die from breast cancer annually. Around 18,700 new cases are diagnosed in Australia every year. Renal cancer is the 10th most common cancer in Australia and the 10th most common cause of cancer death.

Progress and Challenges for 2007–08

Until recently, most patients with urologic cancers were managed by urologists, radiation oncologists and palliative care physicians; medical oncologists had little to offer these patients. However, new therapies for prostate, renal and bladder cancers have highlighted an increasing need for multi-disciplinary involvement and data collection for these patients. The care of these patients now involves many specialists and the data can be difficult to capture.

A renal cell carcinoma dataset has been developed and tested at the Austin and Royal Melbourne Hospital. Through funding from the Victorian Cancer Agency and NHMRC a project manager has been employed to facilitate data and tissue collection at the Austin in conjunction with the Ludwig Institute for Cancer Research, the Victorian Cancer Biobank and BioGrid.

A prostate dataset has been developed and tested at the Royal Melbourne Hospital and Epworth and tissue collection is underway. The dataset is now being reviewed by clinicians at the Alfred, Austin, Western and Peter MacCallum before the database is developed and used at these sites.

Future Directions

Key clinicians working with epidemiologists at Monash University are planning a population-based prostate cancer registry. This will be piloted at Austin, Alfred and Cabrini hospitals.

Once the renal dataset has been trialled and finalised, work will commence on developing the database. This will be a web based module with functionality to document results of multi-disciplinary meetings and treatment plans and pull data from existing hospital systems.



DIABETES – CLINICAL AND RESEARCH

Professor Peter Colman is the leader of the diabetes streams. Professor Colman is head of the Department of Diabetes and Endocrinology at the Royal Melbourne Hospital and an Honorary Professorial Associate at the Walter & Eliza Hall Institute.

Diabetes is a major health priority for the community with the incidence of both type 1 and type 2 diabetes increasing at an alarming rate. Type 1 diabetes, which affects mainly children and adolescents has an incidence of 22/100,000/yr and is increasing at a rate of 3%/year. Type 2 diabetes, which affects people usually beyond their teenage years, affects 7.4% of the population. Treatment for both types of diabetes can be complex and there is a risk of complications affecting the heart, kidneys, eyes and nerves.

Progress and Challenges for 2007–08

The aim of diabetes treatment is to ensure treatment targets (for glucose, blood pressure, lipids, exercise and diet) are met and that clinical screening for the earliest signs of complications (of eyes, heart, kidneys and feet) are undertaken regularly and rigorously such that treatment can be undertaken to prevent progression to clinically significant disease with subsequent negative effects on quality of life. Clinical data, which has been collected for over ten years, has been analysed to begin to address numerous research questions regarding ideal treatments and associated outcomes.

Comparison with data collected in clinics at Austin Hospital, St Vincent's Hospital, The Royal Children's Hospital and The Royal Women's Hospital is underway and will continue. A simple web based database has been developed to assist a number of other institutions, who wish to joint the collaboration, to collect the same electronic data.

BioGrid also contains an extensive dataset related to preclinical diagnosis of type 1 diabetes. This dataset has resulted in a clinical trial, the Type 1 diabetes prevention trial in which intranasal insulin is being tested as a vaccine to prevent type 1 diabetes.

Future Directions

Clinical data from the collaborating institutions will form one of the largest and most complete datasets guiding diabetes management in the country. The involvement of further institutions will further strengthen the importance of the data for quality of care analysis and research into better treatments and outcomes for people with diabetes.



TUMOUR STREAM: SARCOMA

Dr Jayesh Desai is the leader of the BioGrid rare tumour stream. Dr Desai is a medical oncologist at Royal Melbourne Hospital, Peter MacCallum Cancer Institute and Ludwig Institute for Cancer Research.

Sarcomas are a diverse group of malignant tumours that develop from bone and soft tissues (fat, muscle, fat, nerves and blood vessels). Although rare; they comprise about 1% of adult and 15% of paediatric malignancies. The morbidity and community impact of sarcomas is significantly greater given the greater proportion of younger people affected than most other solid tumours. It has been estimated that 17 years of life are lost per sarcoma patient, 3 times the rate of bowel or breast cancer.

Progress and Challenges for 2007–08

Improving outcomes for patients with an uncommon cancer like sarcomas has proven difficult, given the need to more clearly define each tumour subtype, and then study these in a systematic way. Over the past 12 months, we have defined and piloted a minimum dataset at sites treating the majority of sarcoma patients in NSW and Victoria. This is now being built into an electronic database, which will allow for sharing of data between these sites. Work has also begun on expanding data collection to the other states in the next year

Future Directions

In collaboration with the Australian Sarcoma Study Group, the goal for 2008–09 is to develop an integrated Australia wide sarcoma database with comprehensive clinical data matched to corresponding tumour specimens.

BioGrid can play a key role in helping meet some of these challenges. By enabling collaborative efforts between centres specialising in sarcoma nationally we can better define and benchmark the impact of this disease, its effects on quality of life and outcomes from treatment in the Australian context.



NEUROPSYCHIATRY

Dr Dennis Velakoulis heads the BioGrid neuropsychiatry stream. Dr Velakoulis is the Clinical Director of the Melbourne Neuropsychiatry Centre, a joint Centre of Melbourne Health and the University of Melbourne. A neuropsychiatrist's aim is to understand the relative contributions of psychiatric, neurological, cognitive and social factors in any one patient and to use that information for diagnosis and treatment. The information collected in the course of neuropsychiatric assessments includes psychiatric, neuropsychological, functional and imaging data across a broad range of neurological and neuropsychiatric disorders. Within the research setting MNC has collected clinical, imaging and neuropsychological data on over 2000 subjects with neuropsychiatric disorders, in particular patients with psychotic illnesses.

Progress and Challenges for 2007–08

The initial project for the neuropsychiatry stream was to incorporate cognitive screening data from the NUCOG, Neuropsychiatry Unit cognitive screening tool into the BioGrid database. Dr Mark Walterfang, co-author of the NUCOG, has worked closely with the BioGrid team to develop an on-line version of the NUCOG.

The Neuropsychiatry team (Dr Sophie Adams) has continued its close clinical collaboration with the epilepsy service and we now have a database of over 200 patients with focal epilepsy who have been assessed across a variety of neuropsychiatric and neurological domains.

A major challenge arising from this project has been to develop a template database for neuropsychological and personality (MMPI-2) data from the clinical services. BioGrid has been working closely with the Neuropsychiatry stream including

Dr Walterfang, Dr Amy Scholes (neuropsychology) and Dr Alexia Pavlis (neuropsychologist) to develop this database. The neuropsychiatry neuropsychological database currently includes 80 younger onset dementia subjects with at least two neuropsychological assessments at different time points.

Future Directions

The MNC's own Bioinformatics development project (Ms Bridget Soulsby, Dr Katherine Manson, Professor Chris Pantelis) aims to integrate our behavioural, cognitive, neuropsychological and imaging data through the development of a flexible conceptual data model and data dictionary.

We will be working closely with BioGrid in the future to further develop these models and their application to neuropsychiatric research. We plan to examine the role of BioGrid in the wider psychiatric setting and the integration of large psychiatric databases into the BioGrid project.



NEUROSCIENCES

Neurosciences stream is lead by Professor Terence O'Brien. Currently epilepsy (led by Dr Raju Yerra), multiple sclerosis (Dr Helmut Butzkueven) and stroke (Prof. Stephen Davis) are the conditions included in this stream. Clinical research in neuropsychiatry (Dr Dennis Velakoulis) and neuro-radiology (Prof. Trish Desmond) also fall under this division, including creation of a research database of historical MRI images.

All these chronic neurological illnesses are known to cause enormous physical and psychosocial impact on the individual and family involved and come at a huge cost to the community in terms of loss of productivity and economic burden. These are common illnesses and for example epilepsy affects about 1% of general population.

The neurosciences division research encompasses both basic and clinical research, from genomic studies to study of psychosocial outcomes.

Besides the Royal Melbourne Hospital, most other teaching hospitals in Victoria are involved in the current research projects.

Progress and Challenges for 2008–09

The plan for the coming year is to:

1. Make databases more user-friendly and easy to analyse so that more and more hospitals across Australia, including those without any research infrastructure could join in.
2. Involve interstate hospitals in ongoing research projects; measures are afoot for Queensland to come on board soon.

Future directions

If the progress so far is any indication, we expect the BioGrid neurosciences stream to evolve into a broad based platform for interdepartmental and interstate collaboration in research in neurological sciences in coming years.



AUSTRALIAN CANCER GRID – RESEARCH PROJECTS PROGRESS REPORT

1. Merging of Colorectal Cancer Surveillance Databases (CSIRO, RMH, FMC) from Tertiary Institutions across States

Principal Investigators/Institutions:

Professor Finlay Macrae, Head, Colorectal Medicine and Genetics, The Royal Melbourne Hospital

Dr Gregor Brown, Consultant Physician, Head, Bowel Cancer Surveillance Programme, Colorectal Medicine and Genetics, The Royal Melbourne Hospital

Professor Graeme Young, Director, Flinders Centre for Innovation in Cancer

Dr Peter Bampton, Consultant Physician, Head, Endoscopy Unit, Flinders Medical Centre

Dr Paul Hollington, Colorectal Surgeon, Flinders Medical Centre

Additional Collaborators

Stephen Strange, Engineering Manager, CSIRO e-Health Research Centre

Marilla O'Dwyer, Senior Consultant, CSIRO e-Health Research Centre

Kerri Budd, Data Analyst, CSIRO e-Health Research Centre

John O'Dwyer, Implementation Support Officer, CSIRO e-Health Research Centre

Aims:

1. To demonstrate successful integration of disparate databases informing and monitoring bowel cancer surveillance across two states and tertiary institutions; and
2. To integrate in-hospital endoscopy reporting software, surveillance databases, and, where feasible, colorectal cancer databases, to facilitate operations of in-hospital monitoring of care and health outcomes as well providing a model informatics system of direct relevance to the national bowel cancer screening programme (NBCSP).

Progress:

1. Completed – Basic and Advanced Data Cleaning
2. Data Preparation phase is uncovering the detailed differences of the data capture at either site
3. Data managers report each week on progress and issues
4. Monthly meetings with key stakeholders
5. Clarification of the data requirements and terminology across the two sites is ongoing. Key are managed by the CSIRO team
6. Some issues threaten to impact project scope but are being managed
7. Data from Flinders allow a microcosm view of the final merged data
 - a. This will allow trial reporting and analysis, and uncover any potential data issues
8. Project members have access to BioGrid
 - a. This will allow familiarisation with the software for data extraction and viewing the linked/merged data.

Milestones/timeline:

1. Basic and advanced data cleaning is complete.
2. Modelling clinical data required for reporting and analysis is underway.
3. Publication plans are being developed with clinical and IT topics being considered for papers.

Issues:

1. Scope creep is appearing around the extent of reporting and analysis. As the scope increases, the cost of constructing the data set increases. Records must be manually extracted from multiple systems, cleaned and imported into the merged data set. In the worst case, the data are not available in electronic form. Discussions are underway to make a compromise between the extent/integrity of reporting/analysis and the workload/availability of resources.
2. High demand on clinicians' time is slowing clinical modelling decisions in some cases. Processes have been developed to assist in the resolution of these issues as clinicians become available, but the timeframes are sometimes slower than expected.
3. Scope creep is emerging as an issue for the project. For example, some data manager time is being on non-project (clinical) tasks.
4. Data format is making extraction of data difficult. Kintrac stores multiple records storing the data in single text fields. Parsing these text fields is difficult as formatting within the fields is not standardised. Extracting the required data is slower than planned.

2. Methylation Profiling of Colorectal Cancers (CSIRO, LICR)

Principal Investigators/Institutions:

Dr Peter Molloy – CSIRO

Dr Lara Lipton – Ludwig Institute for Cancer Research (LICR)

Dr Peter Gibbs – LICR

Mara Giovannetti – LICR

Aims:

1. To investigate the role of global DNA hypomethylation and specific gene hypermethylation of CpG islands in colorectal carcinogenesis.
2. To correlate differences in DNA methylation in tumour and normal tissue pairs with clinicopathological features of tumours and disease specific outcome.
3. To develop simple methodology for measurement of MLH1 methylation and microsatellite instability which may be used in the clinic.

Progress

1. Research assistant employed in LCCI Biomarkers Laboratory.
2. Methylite PCR optimised for seven methylation markers (CIMP markers). Primers designed and validated, assays set up and standard curves established
3. Tissues sourced as for above. Assay performed on 48 tumour normal tissue DNA pairs.

4. Initial analysis of results including discarding markers showing <5% methylation
5. Good quality results.
6. Next 60 samples underway.

Milestones/timeline

1. Assays of global hypomethylation to commence 2008.
2. Continue analysis of CIMP markers in remained CRC samples. Continue methyltyping remaining 900 colorectal cancer samples – 2008 and 2009.
3. Analysis in relation to cancer pathology and outcome 2010.

Issues

1. May not be enough DNA to perform methylation studies on samples all currently given by tissue bank. May need to request further samples. Whole genome amplified DNA cannot be used.

3. Oncogenic Biomarker Program for Human Colon Cancer

Principal Investigators/Institutions:

Prof Tony Burgess – LICR

Dr Peter Gibbs – LICR

Dr Lara Lipton – LICR

Dr Jayesh Desai – LICR

Mara Giovannetti – LICR

Audrey Partaeneon – RMH

Matthew Chapman – Western Hospital

Dr Trevor Lockett – CSIRO

Dr Andrew Ruskiewicz – IMVS

Tissue processing and mutational analysis: Melanie Condron and others to be advised

DNA Sequencing: Sequencing: Contracted to Venter Foundation (to be paid by LICR)

Bio-informatics and statistics: Contracted from Bio21/MMIM and/or Victorian Bio-informatics Consortium

Aims:

1. To analyse the somatic mutation profile associated with 1000 colorectal tumours.
2. To link the epidemiological, clinicopathological, somatic genetic, germline genetic and outcome data for each patient.

3. To correlate the mutational profiles of cancers with patient prognosis, treatment response and disease free and overall survival.

Objectives:

1. To stratify a set of 1000 colorectal cancers derived primarily from the Victoria Cancer Research Tissue Bank and into distinct subsets based on clinical and molecular information. Subsets will be prospectively evaluated for significant differences in prognosis and need for adjuvant therapy.
2. To determine a minimum set of biomarkers which can be used to stratify risk and accurately predict prognosis.
3. To establish identify biomarkers predictive of response and adverse events following use of standard therapies to various medical therapies now available.

Progress

1. Tissue collection and DNA extraction. 400 fresh frozen colorectal cancers and matched normal tissue from the VCB and 300 from Royal Adelaide Hospital have been sourced and DNA extracted. A further 300 hundred samples are pending from VCB.
2. A research assistant has been employed by LCCI.
3. Whole genome amplification of DNA's to allow sufficient material for all studies is ongoing.
4. MSI and LOH testing is in progress in the LCCI laboratory for all samples. Samples from Adelaide have already had MSI testing performed.
5. Pathological, clinical and outcome data is being collated for all samples.
6. A pilot project for mutation detection has been completed in collaboration with the J Craig Venter Centre (Washington DC). This pilot has compared mutation detection results in a key set of six genes in DNA extracted from CRC samples which have been macro-dissected by a standard method or by laser capture microdissection. The results of this pilot indicate that standard macro-dissection is the preferable methodology and the remaining samples will be processed in this way. Quality of DNA and sequencing was excellent.

7. The primers for the 20 gene set are currently being developed and optimised by the Venter Centre.
8. A contract with the Venter Centre was finalised at the LICR New York Office in April 2008 allowing the remainder of the project to proceed.
9. Over three hundred samples are ready to be sent to the Venter Centre.
10. Paraffin blocks for samples requested from VCB tissue bank and request approved.

Milestones/timeline

1. First set of two hundred DNA samples will be sent to the Venter centre by end June.
2. Results for two hundred samples by end 2008.
3. Completion of 1000 samples by end 2010.

Issues

1. Delays due to contract between LICR and Venter Centre now resolved.
2. Delay in obtaining follow-up data for Royal Adelaide Hospital Samples.
3. Awaiting further fresh frozen tissues and paraffin blocks from VCB.

BIOGRID FACILITATED/ ASSISTED GRANTS/ FUNDING 2007–2008

Colorectal cancer:

2008–2010 National Health and Medical Research Council Program Grant; (\$595,000).

Analysis of gene amplification/loss and methylation associated with progression to metastatic colorectal cancer.

Plexixikon/Roche translational collaboration with Ludwig Institute of Cancer Research – Melbourne Branch; (\$200,000). *Defining the Presence and Impact of V600E BRAF in Colon And Rectal Cancer.*

Renal:

2007–2010 Victorian Cancer Agency – Clinician Researcher Fellowship; (\$440, 000). *In situ immunology and biology of urological cancers.*

2007–2012 Australian National Health and Medical Research Council (NHMRC) Practitioner Fellowship (Honorary 2007–mid 2010); (\$202,125). *In situ immunology and biology of urological cancers.*

2008–2009 Victorian Cancer Agency-Tumour Streams Grant; (\$220,910).

Systematic collection and retrieval of data and tissue in patients with renal cell carcinoma (RCC).

Melanoma:

2008–2009 Victorian Cancer Agency-Tumour Stream Research Funding; (\$338,846).

Melbourne Melanoma Project.

BIOGRID PUBLICATIONS 2007–2008

A critical review of the GPS for colorectal cancer.

Shedda S, Kosmider S, Faragher I, Jones I, Gibbs P. *Annals of Surgery.* 247;1087-8:2008

APER rate has multiple limitations as an indicator of quality in rectal cancer surgery.

Shedda S, Jones IT, Croxford M, Gibbs P. *Annals Surgery.* (Accepted May 2008)

Colorectal Cancer Screening: anxiety associated with positive FOBT. (Letter to the Editor)

Kosmider, S., Field, K., Macrae, F., Gibbs, P. *Medical Journal Australia* (Accepted June 2008)

Patient Age and Co-Morbidity are Major Determinants off Adjuvant Chemotherapy use for Stage III Colon Cancer in Routine Clinical Practice.

S. Ananda, K. Field, S. Kosmider, P. Gibbs. *Journal of Clinical Oncology* (Accepted July 2008)

Residual Treatment Disparities after Oncology Referral for Rectal Cancer.

K Field, S. Kosmider, P. Gibbs. *Journal of the National Cancer Institute* (Accepted July 2008)

DNA copy-number alterations underlie microsatellite instability (MSI) associated gene expression changes in colorectal cancer.

Jorissen R, Lipton L, Gibbs P, Chapman M, Desai J, Jones I, Yeatman T, East P, Tomlinson I, Kruhoffer M, Ørntoft M, Andersen C, Sieber O. *Clin Cancer Res.* (Accepted July 2008)

Comparing Survival Outcomes for Patients with Colorectal Cancer Treated in Public and Private Hospitals. (Letter to the Editor)

Kosmider S, Jones I, Hayes I, Gibbs P. *Medical Journal of Australia* 2007; 187: 250–251; Author reply 251

Surveillance Following Treatment For Colorectal Cancer (CRC) In Australia. Has Best Practice Been Adopted By Medical Oncologists? (Original Article)

Suzanne Kosmider, Kathryn Field, Michael Jefford, Ross Jennens, Peter Gibbs
Internal Medicine Journal (accepted for e-publication 25.08.07)

Toward Establishing a National Colorectal Cancer Database: Lessons Learnt From Bio21-MMIM (Original Article)

Kosmider S., Jones I., Hibbert M., Hunter A., McLaughlin, S., Johns J, Chapman, M, Gibbs P. *The ANZ Journal of Surgery* (accepted for publication 8.07)

Anticoagulation Prophylaxis for Central Venous Cather-Associated Thrombosis in Cancer Patients: an Australian Perspective(Original Article)

Suzanne Kosmider, Kathryn Field, Michael Jefford, Peter Gibbs
Asia Pacific Journal of Clinical Oncology (accepted for publication 10.1.08)

Chemotherapy dosing strategies in the obese, elderly and thin patient: results of a nationwide survey (Original Article)

Kathryn Field, Suzanne Kosmider, Michael Jefford, Michael Michael, Michael Green, Ross Jennens
Peter Gibbs
J Oncol Pract 4:108–113, 2008

Preoperative Investigations for Metastatic Staging of Colon and Rectal Cancer across Multiple Centres – What is Current Practice? (Original Article)

Suzanne Kosmider, Damien L. Stella, Kathryn Field, Maggie Moore, Sumitra Ananda, Catherine Oakman, Madhu Singh, Peter Gibbs
Colorectal Disease (Accepted for e-publication 27.06.2008)

Chemotherapy treatments for metastatic colorectal cancer – is evidence-based medicine in practice? (Original Article)

K. Field, S. Kosmider, M. Jefford, R. Jennens, M. Green, P.Gibbs
Journal of Oncology Practice (Accepted for publication 10.06.2008)

Epilepsy

Analysis and Validation of large scale SNP genotyping in pharmacogenetic analysis of anti-epileptic drugs.

An abstract with the above title was presented at the Human Genetics Society of Australia meeting, Auckland, New Zealand, July, 2007.

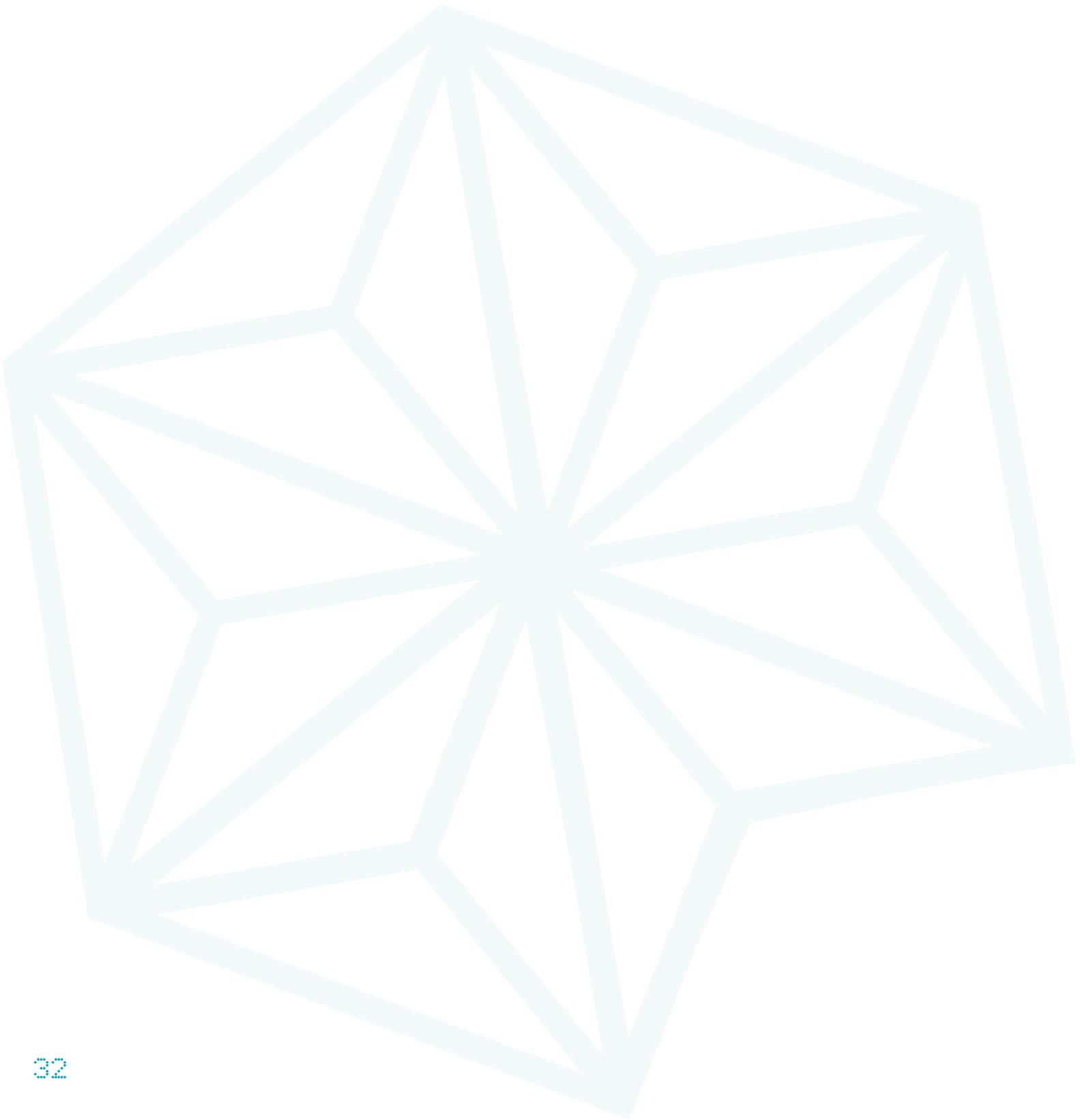
Authors: Sheffield, L.J., Petrovski, S., Gasko, H., Szoeki, C.E.I., Goldstein, D.B., Cavalleri, G. & O'Brien, T.J.

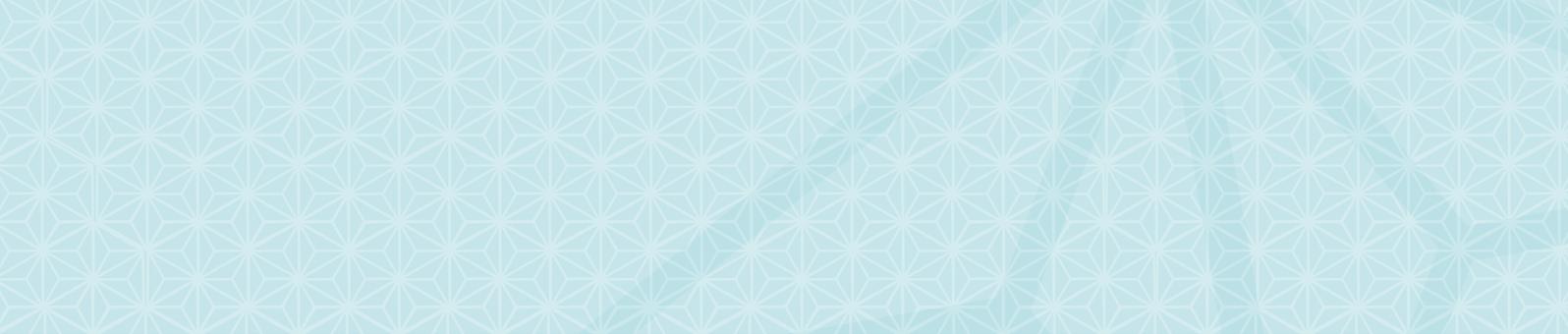
Diabetes

Molecular Medicine Informatics Model (MMIM)
– setting up a new tool for diabetes research and
quality assurance.

Abstract submitted to the Australian Diabetes
Society Annual Scientific meeting Christchurch,
September, 2007.

Authors: Colman, P., Jerums, J., Cameron, F.,
Ward, G., Oats, J., Gasko, H., and Hibbert, M.E.,
Royal Melbourne, Austin and Repatriation, The
Royal Children's, St. Vincent's Hospital and The
Royal Women's Hospitals.





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