

## National Health and Medical Research Council

**ENABLING GRANT FUNDING SCHEME  
SECOND, THIRD AND FOURTH ANNUAL PROGRESS REPORT**

- In accordance with the NHMRC Deed of Agreement, a Progress Report must be submitted by the date advised by the NHMRC for each calendar year in which there were payments or a carry-forward of funds, except the final year when the Final Report form must be used.
- Progress Reports enable the NHMRC to assess whether satisfactory progress is being achieved.
- Please complete the survey at Section F for all funded projects to assist the NHMRC address National Research Priorities.
- All entries must be printed or typed.
- The report must be signed by the Chief Investigator A on behalf of all investigators and by the Institution's Responsible Officer.
- The signed original is to be submitted to the NHMRC at the following address:

NHMRC Progress Reports  
Research Funding Schemes  
Centre for Research Management  
National Health and Medical Research Council

Mail: MDP33  
GPO Box 1421  
Canberra ACT 2601

Courier: Level 5, 20 Allara Street  
Canberra City, ACT 2601

Address for electronic submission of completed form: [enabling@nhmrc.gov.au](mailto:enabling@nhmrc.gov.au)

**Note 1:** An electronic version of completed form should be provided in addition to the original posted copy.

**Note 2:** Every page of attachment to this report should be dated, initialled by the CIA and clearly identified by the NHMRC Application ID number, Section of the report and corresponding question number (ie: 28 September 2006; .....(initial); ID: 354358; SECTION C, 3.1)

**SECTION A – Administration**

Grant Type	Enabling Grant
NHMRC Application ID	418033
Administering Institution	ANU
Chief Investigator A	<b>Professor Robert Saint</b>
Project Title	Australian <i>Drosophila</i> Biomedical Research Support Facility
Year Funding Commenced	<b>2007</b>

**SECTION B – Overall Progress (No More Than One Page)**

*For this Section, enter only information that is additional/different to the answers provided in Section B of the previous annual report(s)*

**1. Please summarise the original objectives of the funded facility/activity (as specified in the original application)**

To establish a national research support facility that would provide specific and relevant services to lower the barriers that currently inhibit *Drosophila* research in Australia. These include; maintaining and distributing commonly used genetically defined *Drosophila* stocks; maintaining and distributing EST clones; providing a micro-injection service to generate custom transgenic stocks; creating a record of all stocks maintained throughout Australia; and co-ordinating and streamlining the importation of *Drosophila* stocks into Australia.

**2. Indicate the progress to date in achieving facility/activity milestones and performance indicators (as specified in the original application).**

The facility continues to co-ordinate and streamline the importation of *Drosophila* stocks into Australia for most *Drosophila* labs; maintaining approximately 3,500 genetically distinct lines of *Drosophila*, importing approximately 2,000 genetically distinct lines and distributing approximately 800 lines. The facility also maintains a record of stocks held throughout Australia. The facility's website ([www.ozdros.com](http://www.ozdros.com)) is live, with information about the services provided readily available.

**3. Have the time-lines for the facility/activity changed? If yes please provide details.**

Not since 2007.

**4. Has the direction of the facility/activity changed (from that specified in the original application)? If so how?**

Yes. With the advent of large scale stock generation (RNAi lines for every gene, overexpression lines for every gene, new modes of gene insertion etc.), it has been decided to place greater emphasis on stock importation, maintenance and distribution instead of provision of a microinjection service for genetic transformation. The advent of reasonably priced commercial services for microinjection was another factor in making this decision.

**5. If satisfactory progress towards achieving the facility/activity milestones and performance indicators has not been achieved, please explain why this has occurred and how the issues are being addressed.**

Progress has been satisfactory.

**SECTION C – Governance and Access**

The following questions are intended to assess compliance with the *NHMRC Enabling Grant Access to Facilities Policy* (available at [www.nhmrc.gov.au/funding/apply/granttype/enable/index.htm1](http://www.nhmrc.gov.au/funding/apply/granttype/enable/index.htm1))

***For this Section, enter only information that is additional/different to the answers provided in Section C of the previous annual report(s)***

**1. General**

**1.1 Has an application form for access to the facilities/activities been developed and made available electronically?**

**YES**

The access agreement form is distributed by email to labs wishing to make use of the facility. Services are not provided to laboratories that have not signed an access agreement.

**1.2 Has a clear and transparent access policy which enables equitable access for all Australian researchers been put in place?**

**YES**

The access policy is provided by email to anyone interested in using the facility. A copy of the policy is attached.

**1.3 What rates (in AUD) apply to internal and external users of the facilities?**

A charge of \$2,000 per annum for subscription to the Facility is inclusive for all general services (stocks, EST clones and access to database). External users (i.e. people not subscribing but wishing to use services) pay the following costs:

Rates:

\$2.00 per vial

\$50.00 import charge on stocks going through quarantine

\$10.00 for a small box (for shipping orders)

\$15.00 for a large box (for shipping orders)

**1.4 Have any limitations been placed on access (ie: limits on the type or amount of access)?**

No limitations are placed on access once the access agreement has been signed.

**1.5 Is the facility open to access from international or commercial researchers?**

**NO**

## SECTION C

## 2. Management Committee

**2.1 Has an appropriately constituted management committee been established to oversee applications for access to the facility/activity?**

YES

*(i) List names and titles/functions of committee members?*

Chairman: Prof. Robert Saint (Chairman); Members: Prof Sharad Kumar, Prof Scott O'Neill, Assoc. Prof Rob Richards, Dr Gary Hime and Dr Helena Richardson; Independent member: Dr Edward Bertram from the Australian Phenomics Facility.

*(ii) Which members are independent from the day to day running of the facilities/activities?*

Prof Sharad Kumar, Prof Scott O'Neill, Assoc. Prof Rob Richards, Dr Gary Hime, Dr Helena Richardson and independent member Dr Edward Bertram.

*(iii) What procedures are in place to manage potential conflicts of interest?*

Independent member, Dr Edward Bertram, will mediate conflicts of interest. Dr Bertram has extensive experience at running a facility (the Australian Phenomics Facility).

**2.2 Has an independent dispute resolution or appeals process been established to handle any dispute that might arise over access to the facility/activity?**

YES

*If YES, please provide details:*

An Access Agreement and Policy is in place that should prevent most disputes from arising. In the event that a dispute does arise, the independent member will be involved to help resolve it.

## 3. Governance

**3.1 Has an independent body (an Advisory Board or similar structure) been put in place to oversee the facility/activity?**

NO

The management committee comprises many of the senior Australian biomedical researchers who use *Drosophila* as a model organism. It is felt that an additional Advisory Board is unnecessary. The Management Committee constitute an appropriate Advisory Board.

## SECTION C

## 4. Acknowledgement

**4.1 Are researchers accessing the facility required to agree to acknowledge in their published work the contribution of the facility to research?**

YES

The Access Agreement clearly states that users are required to acknowledge the Facility for its contributions to published work.

**4.2 Has suggested acknowledgement wording been developed for use by such researchers?**

YES

“Services and/or stocks were provided by the Australian *Drosophila* Research Support Facility, [www.ozdros.com](http://www.ozdros.com)”

**4.3 Is a policy in place as to whether any Chief Investigators associated with this grant will be entitled to authorship of research arising from the use of the facilities or activities?**

**YES**

In the Access Policy it states that there is no case for automatic authorship for CIs associated with this grant. An exception is made for investigators who provide significant input, to be merited on publications according to the Australian Code for the Responsible Conduct of Research.

**4.4 Has NHMRC funding of the activity/facility been recognised in promotional material and on the activity/facilities' internet site?**

**YES**

Recognition of funding support via the NH&MRC Enabling Grant is located prominently on the website homepage and is noted on all promotional material (both the NH&MRC logo and wording).

## SECTION C

### 5. Ethics

**5.1 Please describe procedures that are in place to ensure that researchers using the facility have obtained ethics approval for the research?**

As part of the Access Agreement all laboratory PIs wishing to become members/users of the Facility have to show evidence of PC2/OGTR insectary certification so that stocks sent to these laboratories are maintained under the appropriate conditions/regulations. No other form of ethical approval is required for research using *Drosophila*.

### 6. Consumer Representation

**6.1 Please provide details on consumer representative involvement in the facility/activity.**

Nearly all current Australian *Drosophila* labs/PIs partake in the services provided by the Facility as members/users. Consumers are asked to give any feedback to the Manager of the Facility to ensure they are represented and have effective involvement in the future development of the Facility. This ensures that the Facility offers relevant services to the *Drosophila* community of Australian researchers. Most members of the committee are also external users of the facility and this will ensure any decisions made by the committee will benefit consumers.

**SECTION D – Performance Measures and Outcomes**

*For this Section, enter only information that is additional/different to the answers provided in Section D of the previous annual report(s)*

**1. Please list all publications arising from research enabled by the facility/activity:****1.1 Books, Book Chapters, Journal Articles, Conference Publications**

- G. Hallson, M. Syrzycka, S.A. Beck, J.A. Kennison, D. Dorsett, S.L. Page, S.M. Hunter, R. Keall, W.D. Warren, H.W. Brock, D.A.R. Sinclair, and B.M. Honda (2008) The Drosophila cohesin subunit Rad21 is a trithorax group (trxG) protein. **Proc. Natl. Acad. Sci. USA** 105: 12405-12410.
- Gregory, S.L., S. Ebrahimi, J. Milverton, W. M. Jones, A. Bejsovec, R. SAINT. (2008) Cell division requires a direct interaction between microtubule-associated RacGAP and the contractile ring component, Anillin. **Curr. Biol.** 18:25-29.
- Dow, L.E., Elsum, I.A., King C.L., Kinross K.M., Richardson, H.E. and Humbert P.O. (2008). Loss of human Scribble promotes cell invasion through deregulation of the Ras-MAPK signalling pathway. **Oncogene.** 27:5988-6001.
- Cakouros D, Mills K, Denton D, Daish T, Paterson A, Kumar S (2008) dLKR/SDH regulates hormone mediated histone arginine methylation and transcription of cell death genes. **J. Cell Biol.** 182: 481-495.
- Cathie M. Pflieger, Kieran F. Harvey, Hua Yan and Iswar K. Hariharan (2007). Mutation of the Gene Encoding the Ubiquitin Activating Enzyme Uba1 Causes Tissue Overgrowth in Drosophila. **Fly.** 1, 95-105.
- Deb, D.K., Tanaka-Matakatsu, M., Jones, L., Richardson, H.E. and Du W. (2008). Wingless signaling directly regulates cyclin E expression in proliferating embryonic PNS precursor cells. **Mech. Dev.** 125:857-64
- Denton D, Mills K, Kumar S (2008) Methods and protocols for studying cell death in Drosophila. **Methods in Enzymol.** 446: 17-37.
- Brumby, A.M. and Richardson H.E. (2008). Modelling cancer in Drosophila. **Encyclopedia of Life Sciences (Wiley)**. Published online: 14 March, 2008.
- Eid, J.P., Martinez Arias, A., Robertson, H. Hime, G.R. and Dziadek, M. (2008) The Drosophila STIM1 orthologue, dSTIM, has roles in cell fate specification and tissue patterning. **BMC Dev Biol.** 8:104 (This paper has been given “Highly Accessed” status).
- Kieran F. Harvey, Jaakko Mattila, Avi Sofer, F. Christian Bennett, Matthew R. Ramsey, Leif W. Ellisen, Oscar Puig, and Iswar K. Hariharan (2008). FOXO-regulated transcription restricts overgrowth of Tsc mutant organs. **J Cell Biol.** 180, 691-696.
- M.M. Murray and R. SAINT. (2007) Photoactivatable GFP resolves Drosophila mesoderm migration behaviour. **Development** 134: 3975-3983.  
[Selected as ‘recommended’, Faculty of 1000, 5 Nov 2007  
<http://www.f1000biology.com/article/id/1092815/evaluation>]
- Gregory, S.L., T. Shandala., L.V. O’Keefe L. Jones M.J. Murray and R. SAINT. (2007) A *Drosophila* overexpression screen for modifiers of a sensitized cytokinesis Rho signalling phenotype. **Fly** 1: 13-22.
- Hime, G.R., Loveland, K.L. and Abud, H.E. (2007) Drosophila spermatogenesis: Insights into testicular cancer. **International Journal of Andrology** 30: 265-274
- Humbert, P.O., Grzeschik, N.A., Brumby, A.M., Galea, R. Elsum, I, and Richardson, H.E. (2008). Control of tumourigenesis by the Scribble/Dlg/Lgl polarity module. **Oncogene**, 27:6888-6907.

- Martin, V., Mrkusich, E., Steinel, M.C., Rice, J., Merritt, D.J. and Whittington, P.M. (2008) The L1-type cell adhesion molecule Neuroglian is necessary for maintenance of sensory axon advance in the *Drosophila* embryo. **Neural Development** 3: 10.
- Mitchell, N, Cranna, N., Richardson, H., and Quinn, L. (2008). The Ecdysone-inducible zinc-finger transcription factor Crol regulates Wg transcription and cell cycle progression in *Drosophila*. **Development** 135:2707-16. (featured on the front cover).
- Narbonne-Reveau K., Senger S., Pal M., Herr A., Asano M., Richardson, H.E., Deak P. and Lilly M. (2008). APC/CFzr/Cdh1 promotes cell cycle progression during the *Drosophila* endocycle. **Development** 135:1451-61.
- O'Keefe, L.V., P. Smibert, A. Colella, T.K. Chataway, (2007) R. SAINT and R.I. Richards. Know Thy Fly. **Trends in Genetics** 23:238-242
- R.J. Rutkowski and W.D. Warren (in press) Phenotypic analysis of deflated/Ints7 function in *Drosophila* development. **Dev. Dyn.** (accepted 13/2/09).
- S.L. Page, R.S. Khetani, C.M. Lake, R.J. Nielsen, J.K. Jeffress, W.D. Warren, S.E. Bickel, and R.S. Hawley (2008) corona is required for higher-order assembly of transverse filaments into full-length synaptonemal complex in *Drosophila* oocytes. **PLoS Genet.** 4(9): e1000194.
- Perry, T. Heckel, D.G., McKenzie, J.A. and P. Batterham (2008). Mutations in *Dα1* or *Dβ2* nicotinic acetylcholine receptor subunits can confer resistance to neonicotinoids in *Drosophila melanogaster*. **Insect Biochem Mol. Biol.** 38(5):520-8
- Sgrò, C.M., Milton, C.C., Jensen. L.T., Frydenberg. J., Loeschcke, V., Batterham, P. and A.A. Hoffmann (2008). Nucleotide diversity in the *Hsp90* gene in natural populations of *Drosophila melanogaster* in Australia. **Insect Mol Biol.** 17(6):685-97.

## 1.2 In press (articles in newspapers, magazines)

### Conference presentations

- G.R. Hime (2008) "Repressor proteins prevent stem cell differentiation" Hunter Cell Biology Meeting, Pokolbin, NSW
- G.R. Hime (2008) "Genetic analysis of a stem cell niche" Germ cell-soma interactions in gonadal development and germ cell tumours, Baeza, Spain
- G.R. Hime (2008) "Signalling in the *Drosophila* testis" Australian Health and Medical Research Congress, Brisbane, QLD
- Siddall, N.A., Johnston, N.L., Been, R.P., Kalcina, M., Monk, A.C., McLaughlin, E.A. and Hime, G.R. (2008) "Musashi family proteins are functionally required in both somatic and germline stem cell populations in the *Drosophila* testis. 73rd Cold Spring Harbor Symposium on Stem Cells, New York, U.S.A.
- Monk, A.C., Siddall, N.A. and Hime, G.R. (2008) "The RNA-binding protein HOW is required for stem cell maintenance in the *Drosophila* testis. 2nd International Congress on Stem Cells and Tissue Formation, Dresden, Germany
- Monk, A.C., Siddall, N.A. and Hime, G.R. (2008) "The RNA-binding protein HOW is required for stem cell maintenance in the *Drosophila* testis". 20th International Congress of Genetics, Berlin, Germany
- Kieran Harvey 2008 Hunter Valley Cell Biology Meeting, "Control of organ size by the Salvador-Warts-Hippo pathway"

Felix Grusche and Kieran Harvey 2008 Combio, Sydney, “Control of tissue regeneration and wounding by the Salvador-Warts-Hippo pathway”

Kieran Harvey 2009 Hippo pathway meeting, Rome, Italy, “Transcriptional output of the Salvador/Warts/Hippo pathway is controlled in distinct fashions in *Drosophila melanogaster*, and human breast epithelial cells”

Mrkusich, E., Osman, Z., Bates, K. and Whittington, P.M. “Molecular regulation of neuron polarity – the role of Netrin/DCC signalling in dendrite formation.” Poster presentation by E. Mrkusich at Axon Guidance, Synaptogenesis and Neural Plasticity Meeting. Cold Spring Harbor, Sept. 2008.

Saint, R.: European Molecular Biology Organization Workshop on the Molecular and Developmental Biology of *Drosophila*, Kolymbari, Greece 2008

Saint, R.: Lorne Genome Conference, Lorne, Vic Feb 2009

Saint, R.: ANZSCDB President’s Medal Lecture, Combio 2008

Athanasopoulos, V.: Analysis of the novel and highly conserved Roquin protein in *Drosophila melanogaster*. Combio 2008

Fraval, H.: Using recombineering to analyse the role post translational modifications have on proteins involved in cytokinesis in *Drosophila melanogaster*

**2. Please list all educational activities undertaken by the facility/activity and provide details of where, when and with whom.**

In 2008 OzDros has presented information at the Lorne Cancer Conference and the Lorne Genome Conference

**3. Please list facility/activity collaborations with industry that may result in future commercial outcomes**

No activity

**4. Please provide details of research/researchers who have utilized facility/activity over the last 12 months. Where the facility/activity has been utilised by NHMRC funded researchers, please provide grant ID number and title.**

Please see the attached list of users

NH&MRC funded projects that have been supported by the Facility:

2002-2008 Peter Doherty Australian Biomedical Training Fellowship

Recipient: Dr. Louise O'Keefe

2004-2008 NHMRC Senior Research Fellowship

Recipient: Dr. Helena Richardson

2005-2010 NHMRC Career Development Award, RD Wright research fellowship

Recipient: Dr. Leonie Quinn

2005-2007 - NHMRC New Investigator Grant #350267.

Chief Investigators: Leonie Quinn.

Title: Hfp activates proteolysis of positive cell cycle regulators

2005-2007 NHMRC Project Grant #316959

Chief Investigators: R. Saint and M. Murray

Title: Analysis of Rho GTPase signalling pathways in an epithelial to mesenchymal transition during development of the mesoderm

2006-2010 NHMRC Senior Principal Research Fellowship

Recipient: Dr. Sharad Kumar

2006-2008 - NHMRC project grant # 400114.

Chief investigators: Ross Hannan, Leonie Quinn.

Title: Regulation of ribosomal RNA gene transcription.

2006-2008NHMRC Project Grant # 399303

Chief Investigators: Prof Sharad Kumar and Dr Dimitrios Cakouros

Title: Transcriptional control of programmed cell death

2006-2009 NHMRC Project Grant # 399302

Chief Investigators: Prof Sharad Kumar

Title: Caspase function in animal development

2008-2010 NHMRC Project Grant # 519125

Chief Investigators: Prof Robert Richards, Dr. Louise O'Keefe

Title: Common Fragile Site Genes – Function and contribution to cancer cell biology

2007-2009 NHMRC Project Grant # 453674

Chief Investigators: Prof Robert Richards

Dominant Expanded Repeat diseases – a common RNA mediated pathogenic pathway?

2007-2009 Project Grant # 436806

Chief Investigators: Dr. Richard Burke and Prof James Camakaris

Title: Copper homeostasis and APP-induced neurodegeneration in Drosophila

2008-2010NH&MRC project # 509051

Chief investigator: Dr. Anthony Brumby

Title: Using Drosophila to define an epithelial cancer stem cell

2008-2010 NHMRC Project Grant # 4509158

Chief Investigators: G. Hime, H. Abud and W.G. Somers

Title: The role of Snail family proteins in stem cells and tumour growth.

2008-2011 NHMRC Training Fellowship # 520307: Snail family proteins regulate stem cell differentiation

Recipient: Dr. W.G. Somers

2008-2011 NHMRC Career Development Award # 520307

Recipient: Dr. K. Harvey

2009-2011 Project Grant # 525447

CI's Prof. Robert Saint and Dr. Stephen Gregory

Title: Developing therapies for drug resistant cancers

2009-2011 Project Grant # 566700

CI: Dr. Kieran Harvey

Title: Control of tissue growth during organ development in cancer

2009-2011 NHMRC Project Grant:

E. McLaughlin and G. Hime

Title: RNA binding proteins in oocyte development.

**5. Please list any other grants (other than NHMRC) that were enabled by this facility/activity.**

2008 - CIA - Quinn, Cancer Council Victoria, grant in aid (\$100,000 for 2008 only). "The steroid hormone, Ecdysone, affects Wg/Wnt signaling to promote cell proliferation via the zinc finger factor, Crol".

2008-2010 ARC Centre of Excellence in Biotechnology and Development

R. Aitken, K. Loveland, P. Koopman, A. Sinclair, M. O'Bryan, G. Hime, D. Jans, S. Roman, E. McLaughlin, M. Holland

Budget AUD\$ 2.14M per year

2000-2008 ARC Special Research Centre for the Molecular Genetics of Development: R. Saint, R. Richards et al., \$1,500,000 per annum

2000-2008 ARC Special Research Centre for Environmental Stress and Adaptation Research, A. Hoffmann, P. Batterham, S. McKechnie \$800,000 per annum

2008-2011 P. Daborn. Insect development-the role of cytochrome P40s. ARC discovery project \$143,000 per annum

2009-2011 P. Batterham and M. Parker. Functional and regulatory analysis of n-acetylcholine receptors, key targets of insecticides. ARC discovery project. \$125,000 per annum

2009-2011 P. Batterham. Identification of the targets of a novel metalloproteinase inhibitor used for the treatment of human head lice. ARC Linkage grant \$92,000 per annum

2008-2009 P Batterham. Molecular targets of insecticides and mechanisms of resistance - Novartis Animal Health Australasia P/L \$92,000per annum

2009-2011 ARC Project Grant

CI: R. Saint.

Title: Discovering mechanisms of primary embryonic tissue migration through live cell imaging and novel genetic approaches. \$163,000pa.

Venture Grant from the Cancer Council of Victoria – 2007 - funding open-ended driven by milestone achievement

Title: Drosophila as a novel tool for anti-cancer drug discovery

CIA: Dr Anthony Brumby, CIB: Dr Patrick Humbert, CIC: Dr Helena Richardson, CID: Dr Ian Street

**6. Please list and describe any other performance measures and outcomes that are applicable to the facility/activity**

We use comments provided through the website email system as our guide to the level of satisfaction on the performance of the facility. We have also met our target of 4,000 lines maintained at this stage of the development of the facility.

**SECTION E – Stakeholder Satisfaction**

*For this Section, enter only information that is additional/different to the answers provided in Section E of the previous annual report(s)*

**1. Please describe mechanisms that are in place to monitor the level of stakeholder satisfaction with the activity/facility?**

We use comments through the website email and personal discussions with the users at the annual ‘Australian Dipteran Molecular Biology Workshop’ to judge the level of satisfaction. Later this year we will carry out a survey to seek the views of the users.

**2. Please provide a summary of any feedback received from stakeholders (including accessing researchers) on their level of satisfaction with the activity/facility.**

We are constantly receiving feedback, which is almost universally a vote of thanks for the importation and provision of usable stocks. There have been no complaints about the structure, management or services of the facility in 2008.

**3. Has a survey of stakeholder satisfaction been conducted? If so, please provide a summary of the results.**

**NO**

*If NO, please indicate the approximate date for the anticipated survey.*

As noted above, we are constantly receiving feedback through the website email comment system. However, we anticipate carrying out a survey in September of this year.

**SECTION F – Viability and Future Planing**

*For this Section, enter only information that is additional/different to the answers provided in Section F of the previous annual report(s)*

**1. What is the projected life-span/relevance of the facility/activity?**

*If more than 5 years, describe the prospects/plans for financial viability beyond the 5 year Enabling Grant.*

*Drosophila* research has contributed enormously to the discovery of medically important pathways and genes (Notch, hedgehog, wnt, BMP, tyrosine kinase pathways, tissue polarity genes, cell death genes, asymmetric division genes etc.) and to the modelling of human diseases (e.g. Huntington Disease, fragile site, cancer, tumour metastasis etc.). These breakthroughs arise out of long term genetic screens followed by detailed molecular, genetic and cellular analyses. The advent of international genome scale stock generation such as regulatable RNAi expression for all 14,000 genes (each gene requiring at least one stock), is revolutionizing our capacity to undertake this type of work. The facility is required to support Australian research in this area for far longer than the 5 year funding period. There are no alternative sources of support for live animal maintenance (e.g. the ARC LIEF system will not consider non-equipment items), so we are dependent on the enabling scheme. Should the scheme discontinue its support for this facility, *Drosophila* researchers will fall back on their own limited resources, which will mean scaling back dramatically the type of approaches they can take to problems, particularly in the area of whole genome analyses.

2. If full sustainability is not an option and the facility is expected to be of relevance to the national research effort beyond the 5 year funding period, do you anticipate applying for a subsequent Enabling Grant (after cessation of the current Enabling Grant)? If so, at what level of funding? Please provide explanatory details.

**Important Note:**

*The NHMRC reaffirms that Enabling Grants are for 5 years and that refunding for subsequent 5 year periods is not automatic. The NHMRC recognises that some facilities/activities have the ability to either co-fund or become relatively self-sufficient whilst others may not. In the context of limited funds, the NHMRC wishes to encourage the former whilst recognising the reality of the latter. The provided information will not be used as part of the assessment of refunding but is important both as a 'performance indicator' and for future planning/forward projection.*

Yes, additional funding will be sought. The current level of funding (\$200K pa) supports a capacity for the maintenance of many thousand lines of *Drosophila*. While this is not enough to support full genome collections, we feel that it is sufficient to maintain a level of service that suits our needs, providing that the major international stock centres continue to be funded. As a consequence, we will be seeking additional funds at a slightly higher level to cover with the increased costs that arise over a five year period.

**3. Indicate whether the project attracted funding additional to the NHMRC grant.****YES***If YES, please provide details for the last 12 months:*

As noted above, the facility has enabled Australian researchers using *Drosophila* to propose genome scale research projects. Additional funding that is assisted by the existence of the Enabling Facility include:

Venture Grant from the Cancer Council of Victoria – 2007 - funding open-ended driven by milestone achievement

Title: *Drosophila* as a novel tool for anti-cancer drug discovery

CIA: Dr Anthony Brumby, CIB: Dr Patrick Humbert, CIC: Dr Helena Richardson, CID: Dr Ian Street

\$143,750 pa

2008 - CIA - Quinn, Cancer Council Victoria, grant in aid. "The steroid hormone, Ecdysone, affects Wg/Wnt signaling to promote cell proliferation via the zinc finger factor, Crol".

\$100,000

2008-2009 P Batterham. Molecular targets of insecticides and mechanisms of resistance - Novartis Animal Health Australasia P/L \$92,000per annum

2009-2011 P. Daborn. Insect development-the role of cytochrome P40s. ARC discovery project \$143,000 per annum

2009-2011 P. Batterham and M. Parker. Functional and regulatory analysis of n-acetylcholine receptors, key targets of insecticides. ARC discovery project. \$125,000 per annum

2009-2011 P. Batterham. Identification of the targets of a novel metalloproteinase inhibitor used for the treatment of human head lice. ARC Linkage grant \$92,000 per annum

2008-2010 ARC Centre of Excellence in Biotechnology and Development

R. Aitken, K. Loveland, P. Koopman, A. Sinclair, M. O'Bryan, G. Hime, D. Jans, S. Roman, E. McLaughlin, M. Holland

Budget AUD\$ 2.14M per year

2009-2011 ARC Project Grant

CI: R. Saint.

Title: Discovering mechanisms of primary embryonic tissue migration through live cell imaging and novel genetic approaches. \$163,000pa.

**4. Declare number of employees (including name of occupied position) funded from this grant for the last 12 months:**

Narelle Tunstall (Manager until June)

Cassis Lumb (Manager July-Dec)

Melissa Pert (Manager Dec)

Shabri Roy (Technical Assistant)

Priyadarshini Jeevaranjan (Technical Assistant)

**SECTION G – Feedback by Investigators****Please provide any comments that you may wish to pass to the NHMRC**

The enabling grant is now ramping up our capacity to carry out cutting edge research by supplying whole organism genome scale resources such as genome wide RNAi strains, advanced transformation and gene manipulation stocks, efficient import of genetically defined *Drosophila* stocks, etc. We have seen a quantum leap in our ability to carry out more challenging and potentially more rewarding research on a range of medical problems including cancer, neurodegenerative diseases, birth defects etc. This is an extraordinarily valuable scheme for many Australian biomedical researchers.

**SECTION H - Certification**

**I certify that:**

- 1. all Chief Investigators agree that this report is an accurate representation of the progress to date of the funded project; and**
- 2. relevant Institutional Approvals have been maintained to date in accordance Clause 2.2 of the Deed of Agreement.**

<p><b>Name of Chief Investigator A:</b> Professor Robert Saint</p> <p><b>Signature of Chief Investigator A</b></p> <p>.....</p>	<p>Date 7<sup>th</sup> May 2009</p> <p>...../...../.....</p>
<p><b>Name of Head of Department or equivalent:</b> Professor Robert Saint</p> <p><b>Signature of Head of Department or equivalent</b></p> <p>.....</p>	<p>Date 7<sup>th</sup> May 2009</p> <p>...../...../.....</p>
<p><b>Name of Responsible Officer or delegate:</b></p> <p><b>Signature of Responsible Officer or delegate</b></p> <p>.....</p>	<p>Date</p> <p>...../...../.....</p>
<p><b>Contact phone number of Responsible Officer or delegate</b></p>	

**SECTION I – Survey Of All Funded Projects Commencing In 2002**

On 5 December 2002 the Prime Minister announced four national research priorities and their associated priority goals. Detailed descriptions of the research priorities can be found at [http://www.dest.gov.au/priorities/goals\\_summary.htm](http://www.dest.gov.au/priorities/goals_summary.htm).

Commonwealth agencies such as the NHMRC will be developing plans outlining how they propose to implement national research priorities and will submit them to Government by May 2003. Completing this survey will assist the NHMRC advise the Government on the best way to proceed to implement research priorities.

Please indicate in the following table if your research project addresses any of the following national research priorities, by entering a percentage of research relevant to a priority. The total percentage should not exceed 100% but may be less. If no priority is relevant tick the box for no applicable priority.

<b>NATIONAL RESEARCH PRIORITIES</b>	<b>Percentage of research relevant to priority</b>
<b>AN ENVIRONMENTALLY SUSTAINABLE AUSTRALIA - <i>Transforming the way we use our land, water, mineral and energy resources through a better understanding of environmental systems and using new technologies</i></b> Water – a critical resource Transforming existing industries Overcoming soil loss, salinity and acidity Reducing and capturing emissions in transport and energy generation Sustainable use of Australia’s biodiversity Developing deep earth resources	
<b>PROMOTING AND MAINTAINING GOOD HEALTH - Promoting good health and preventing disease, particularly among young and older Australians</b> A healthy start to life Ageing well, ageing productively Preventive healthcare	20% 50%
<b>FRONTIER TECHNOLOGIES FOR BUILDING AND TRANSFORMING AUSTRALIAN INDUSTRIES - <i>Stimulating the growth of world-class Australian industries using innovative technologies developed from cutting-edge research</i></b> Breakthrough science Frontier technologies Advanced materials Smart information use	15% 15%
<b>SAFEGUARDING AUSTRALIA – <i>Safeguarding Australia from terrorism, crime, invasive diseases and pests, and securing our infrastructure, particularly with respect to our digital systems</i></b> Critical Infrastructure Protecting Australia From Invasive diseases and pests Protecting Australia from terrorism and crime Transformational defence technologies	
<b>NO APPLICABLE PRIORITY</b>	

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