

EMBL Australia Annual Report

[March 2011 – February 2012]



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Annual Report of the Chair of EMBL Australia Council



Well, what a year it has been!

After finally settling the governance arrangements and the completion of the headquarter node for EMBL Australia at Monash University, 2011 was a year when the scientific dividends from the participation in the EMBL programme and through the internal collaboration of the EMBL Australia partners really became evident.

Significant achievements for EMBL Australia in 2011 included the establishment of the first two EMBL Australia Partner Laboratories, under group leaders Edwina McGlenn and Nicolas Plachta at the Australian Regenerative Medicine Institute, Monash University, and the launch and commencement of operation of the EMBL Australia Mirror of the EMBL-EBI at The University of Queensland.

EMBL Australia sponsored the Winter School in Mathematical and Computational Biology at The University of Queensland and the Summer Symposium in Bioinformatics (BioInfoSummer) at the Walter and Eliza Hall Institute. It hosted the EMBL Workshop on Targeted Genome Editing Using Zinc Finger Nucleases at ARMI with support from EMBL and Sigma. EMBL Australia led a successful bid to host the 15th International Conference on Systems Biology in Melbourne in 2014.

EMBL Australia collaborated with BioPlatforms Australia and CSIRO to appoint the inaugural Head of the Australian Bioinformatics Network, Dr David Lovell, who will be based at CSIRO in Canberra.

Significantly, EMBL Australia admitted the Australian National University and the Universities of Adelaide, Melbourne and New South Wales as non-financial members of EMBL Australia, ensuring that the eight universities with the most extensive biomedical research as well as CSIRO were all part of EMBL Australia. This provides a great basis for collaborative research programmes, workshops, PhD training programmes and shared major research platforms between these Australian partners.

An agreement was signed with the Australian Nuclear Science and Technology Organisation (ANSTO) to explore collaboration between ANSTO, EMBL Australia and EMBL.

In summary, 2011 has been a year of intense activity. 2012 will build on these activities and achievements with a particular emphasis on developing and launching a

training school for early PhD students modelled on the EMBL programme and with the participation of EMBL staff. In addition, the PhD Travel Grants programme will be launched to enable Australian PhD students to visit and participate at EMBL in Europe. The Bioinformatics node at The University of Queensland will be expanded in collaboration with EMBL.

A major challenge for EMBL Australia is to achieve renewal and extension of its government funding to realise the full potential of this wonderful initiative to allow Australian life sciences research to be at the forefront of international excellence. Benefits from this will flow to the Australian community and to the Australian economy.

A handwritten signature in black ink that reads 'Richard G. Larkins'.

Richard G. Larkins AO
Chair, EMBL Australia Council

Annual Report of the Scientific Head



I am delighted to report on our recent progress in building EMBL Australia. As a natural extension of the enormous contribution made by the researchers of this country to the life sciences, the idea of EMBL Australia grew out of the recognition that more cross-pollination between Australian and European scientists would be mutually beneficial and synergistic. The formation of EMBL Australia and the Partner Lab pays tribute to the great Australian life scientists of the past and present, and paves the way for tomorrow's scientific leaders, showcasing Australia as a training destination for the scientific world.

Our second year of operations has been dedicated to that goal, with the establishment of two new laboratories in Melbourne headed by EMBL Australia Group Leaders, selected from an outstanding international applicant pool, the opening of a second node of EMBL Australia in Brisbane to underpin the EMBL Australia Bioinformatics Resource acting initially as a mirror of the EMBL-EBI bioinformatics facility, and the expansion of our partners to include all of the Group of Eight universities.

In Europe, EMBL has built its reputation by backing bright young scientists. It's a culture that we hope to encourage within EMBL Australia by fostering young independent investigators and their groups. By awarding the best emerging researchers solid funding for up to nine years; mentoring from senior staff; and access to the best research facilities, EMBL Australia seeks to create a dynamic and energetic research culture to nurture both students and early-career scientists, and provide them with the necessary support and state-of-the-art infrastructure to achieve their highest potential and attain outstanding international reputations.

In the years since Australia became EMBL's first non-European Associate Member, I've discussed the EMBL model with governments, universities and research institutions around Australia. They agreed with me that Australia would benefit profoundly from a dedicated, stable career path for our brightest young scientists. Challenging the prevailing culture by promoting youth as the driving force of progress has been difficult for some to accept, but if the experiment is successful it could change young Australian minds about a career in research, and convince the nation to support them. In the next years we plan to expand the EMBL Australia research base, both at existing nodes and through the development of new nodes at one or more of EMBL Australia's partners among the Group of Eight.

This last year also saw the establishment of the EMBL Australia Bioinformatics Resource, forming the second node of EMBL Australia at The University of Queensland. Underpinning this node, local web services provide an up-to-date, readily accessible resource of the most significant data stored at EMBL's European Bioinformatics Institute (EBI) at the Hinxton campus in Cambridge, UK. It's a vital service as bioscience research undergoes a paradigm shift in the analysis and integration of large heterogeneous datasets. Perhaps the greatest challenge facing the contemporary life sciences is to develop tools that enable the medical research community to make optimal use of the avalanche of biological data being produced to support research and to promote health and innovation. In the next year, the EMBL Australia Bioinformatics Resource will expand to include additional databases, services and training in advanced bioinformatics, providing a comprehensive resource for Australian biomedical researchers, to exploit complex datasets and gain new insight into biological processes and perturbations in disease.

Alongside the EMBL Australia Bioinformatics Resource, we are pleased to be partnering with CSIRO and BioPlatforms Australia to build the Australian Bioinformatics Network, which will tackle these issues head-on—developing and maintaining an active and nationally inclusive membership base and providing an effective training program for bioinformaticians and life science researchers through Winter and Summer Schools. Facilitating specialist bioinformatics training will further develop computational skills and expertise in Australia through interactions with international bioinformatics centres of excellence, and developing key links with stakeholders including government and funding agencies. Realisation of these initiatives will require a significant increase in funding, but is critical for the Australian health and medical research community to set trends and push the limits of technology in this exploding field.

As our programs continue to grow to meet the needs of the Australian research community, we are committed to building collaborations and connections between EMBL and our Australian colleagues. I'm looking forward to it.

A handwritten signature in black ink, reading "N. Rosenthal".

Prof Nadia Rosenthal
Scientific Head, EMBL Australia

About EMBL Australia

EMBL Australia was initiated in March 2008 to maximise the benefits of a partnership between Australia and the European Molecular Biology Laboratory (EMBL). Australia's Associate Member status, which runs until the end of 2014, allows Australian institutions to benefit from activities such as funded research positions, collaborative ventures and the formation of research institutes.

Formed by the Australian universities of Monash, Queensland, Sydney and Western Australia, along with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), EMBL Australia has a small secretariat located at Monash University within the Australian Regenerative Medicine Institute. It is also supported by the research infrastructure investments of the Australian Government, and in 2011 The Australian National University and the universities of Adelaide, Melbourne and New South Wales joined as participants.



EMBL Australia seeks to connect and internationalise Australian research through integrated research networks that connect to global partnerships. It aims to enhance research quality through the development of world-class scientific leaders.

EMBL Australia delivers on these aims through four primary activity streams:

- providing first-class scientific training and collaborative opportunities for Australian life scientists;
- establishing the EMBL Australia Partner Laboratory across Australia;
- pursuing new opportunities in international co-funding for research;
- exchanging expertise, resources, services, and innovation between Europe and Australia.

In March 2010, EMBL Australia was boosted by the appointments of Prof Nadia Rosenthal as its first Scientific Head, and Dr Edwina McGlinn as the first Group Leader in the EMBL Australia Partner Laboratory. Dr Nicolas Plachta was appointed as a second Group Leader later that year. All are based at Monash University's Australian Regenerative Medicine Institute.

The European Molecular Biology Laboratory

The European Molecular Biology Laboratory is the flagship of Europe's molecular biology research. Renowned as one of the world's top research institutes, it is the most cited scientific institution outside the USA in molecular biology and genetics, with an extremely high impact of an average of 66.02 citations per paper (ISI Science Indicators 1999–2009).

Working at the forefront of innovation in life sciences research, technology development and transfer, EMBL provides outstanding training and services to the scientific community.

EMBL has made distinctive contributions to traditional and new fields of research including bioinformatics, proteomics, comparative and functional genomics and systems biology. Increasing understanding of biological systems will have implications beyond the boundaries of molecular biology—in health, agriculture, biotechnology and pharmaceutical research.

2011 Highlights

In 2011 EMBL Australia:

- Established the first two EMBL Australia Partner Laboratory Groups, led by Edwina McGlinn and Nicolas Plachta, at the Australian Regenerative Medicine Institute (ARMI), Monash University.
- Opened the EMBL Australia Mirror of the EMBL-EBI at The University of Queensland.
- Sponsored the Winter School in Mathematical and Computational Biology at The University of Queensland.
- Sponsored the Summer Symposium in Bioinformatics (BioInfoSummer) at the Walter and Eliza Hall Institute.
- Hosted the EMBL Workshop, Targeted Genome Editing Using Zinc Finger Nucleases, at ARMI with support from EMBL and Sigma.
- Successfully bid to host the 15th International Conference on Systems Biology in Melbourne in 2014.
- Admitted the Australian National University and the universities of Adelaide, Melbourne and New South Wales as participant members of EMBL Australia.
- Signed an agreement with the Australian Nuclear Science and Technology Organisation (ANSTO) to explore collaboration between ANSTO, EMBL Australia and EMBL.
- Finalised agreement with BioPlatforms Australia and CSIRO to set up the Australian Bioinformatics Network.
- Signed agreements with BioGrid Australia, the Australian Genome Research Facility, the Australian Microscopy and Microanalysis Research Facility and the Australian Phenomics Facility to support Australian life science research in 2012 through joint activities including collaboration and sharing of expertise.



EMBL Australia Scientific Head, Prof Nadia Rosenthal flanked by Partner Laboratory Group Leaders Dr Nico Plachta (left) and Dr Eddy McGlinn (right).

2012 Outlook

During 2012 EMBL Australia will:

- Complete staffing of the two EMBL Australia Partner Laboratory Groups at ARMI/Monash.
- Appoint Adjunct Faculty Members to the EMBL Australia Partner Laboratory nodes at ARMI/Monash and the EMBL Australia Mirror of the EMBL-EBI Facility at The University of Queensland.
- Appoint a Director for the Australian Bioinformatics Network.
- Develop training and other programs and a communications strategy for the Australian Bioinformatics Network.
- Appoint a Director and steering committee for the EMBL Australia Mirror of the EMBL-EBI Facility.
- Launch student programs including grants for Australian PhD students to travel to EMBL.
- Develop and launch the 2013 program for a training school for early PhD students.
- Develop a student portal for Australian PhD students to access information on scholarships, training courses and other opportunities at EMBL, EMBL Australia and other Australian institutions.
- Seek continued funding for the addition of more EMBL Australia Partner Laboratory Groups and other programs.
- Establish an association for the Australian alumni of EMBL and EMBL Australia.
- Prepare a discussion paper on potential membership of European Molecular Biology Organisation (EMBO).



Key activities

EMBL Australia Partner Laboratory

The EMBL Australia Partner Laboratory was established with the appointment of two Group Leaders, Dr Edwina McGlinn and Dr Nicolas Plachta, at EMBL Australia's first node—at the Australian Regenerative Medicine Institute within the Monash University Medical Biosciences Precinct in Melbourne. Both leaders established their group in 2011 following their appointment in 2010.

Ultimately, the Partner Laboratory will consist of 18 research groups networked throughout Australia. This structure is based on the highly successful EMBL model, with distributed, highly integrated research nodes focussing on complementary aspects of biological research.

At EMBL in Europe, young research groups enjoy the mentoring and experience of a small number of senior scientists, who normally have open-ended contracts and act as advisors to incoming Group Leaders. The EMBL Australia Council has agreed to adjunct appointments at each node of senior scientists who will mentor and support members of the Partner Laboratory. The first of these appointments will be made during 2012 at the first two nodes of the EMBL Australia Partner Laboratory: ARMI/Monash University and The University of Queensland.

Departing from the EMBL European model, in which EMBL campuses are independent entities, the EMBL Australia Partner Laboratory nodes are integrated within institutes situated on the campuses of participant organisations. These institutes have specific interests in the life sciences, and extensive networks with other Australian universities and research institutes.

When fully operational, six partner laboratory groups will be based at ARMI/Monash, and four will be based at each of three additional nodes. Each group will include at least one or two post-doctoral fellows, one or two PhD students and a research assistant.

Pending additional funding support for EMBL Australia, it is likely that additional groups will be established at ARMI/Monash University, The University of Queensland or other participant institutions within the next 12 months.

Below is additional information on each of the EMBL Australia Partner Laboratory research groups.

Growing a skeleton: The McGlinn Group

Dr Edwina (Eddy) McGlinn established the first EMBL Australia Partner Laboratory Group, based at the Australian Regenerative Medicine Institute (ARMI) at Monash University in January 2011. Working alongside regenerative medicine researchers, who investigate the ways in which the human body repairs, replaces, restores or regenerates damaged tissues and organs, Eddy and her team are studying the development stage of one particular organ—the skeleton.

The McGlinn group researches the genetics determining how the correct pattern of bones form in the vertebral column or the developing limb of vertebrate embryos. For example, how do cells in a limb bud know whether they are to form one skeletal element, such as the upper arm, or multiple elements, such as the fingers on the hand?

The team is concentrating on the role played by particular microRNA genes (the miR-196 family) which regulate the expression of Hox genes, which are known to play a critical role in vertebral column formation and limb development and patterning. Eddy is pioneering a novel approach, using both knockout mice, in which specific microRNA genes have been inactivated, and chick and mouse embryos in which the expression of targeted microRNAs is reduced through novel knockdown techniques.

Using these techniques, Eddy and her team hope to work out how this secondary layer of genetic regulation fits into the classical genetic hierarchy. Early indications suggest that microRNAs influence the robustness of the developmental processes, rather than drive development.

The group aims to build a complete molecular road-map of how the size, shape and number of bones form within the early vertebrate embryo. This knowledge will contribute to the basic understanding of developmental processes which in turn may assist in the treatment of a number of diseases—for example, it's possible that similar processes are important in some forms of leukaemia—as well as underpin applications in regenerative medicine.

Key activities (cont.)

Edwina McGlinn

Eddy McGlinn jumped at the chance to be EMBL Australia's first Partner Laboratory Group Leader.

"I was excited that it was a different funding model for Australia, with five or more years of funding," she explains. "It wasn't just about coming back to Australia."

Firmly on the science track since school, Eddy did her undergraduate degree and Honours at The University of Queensland, and her PhD at the nearby Institute of Molecular Bioscience with Carol Wicking. It was there she first became interested in the genetics that regulate the normal development of limbs and digits in embryos. It's an interest that took her to Harvard Medical School to work with Cliff Tabin and it still guides her research today.

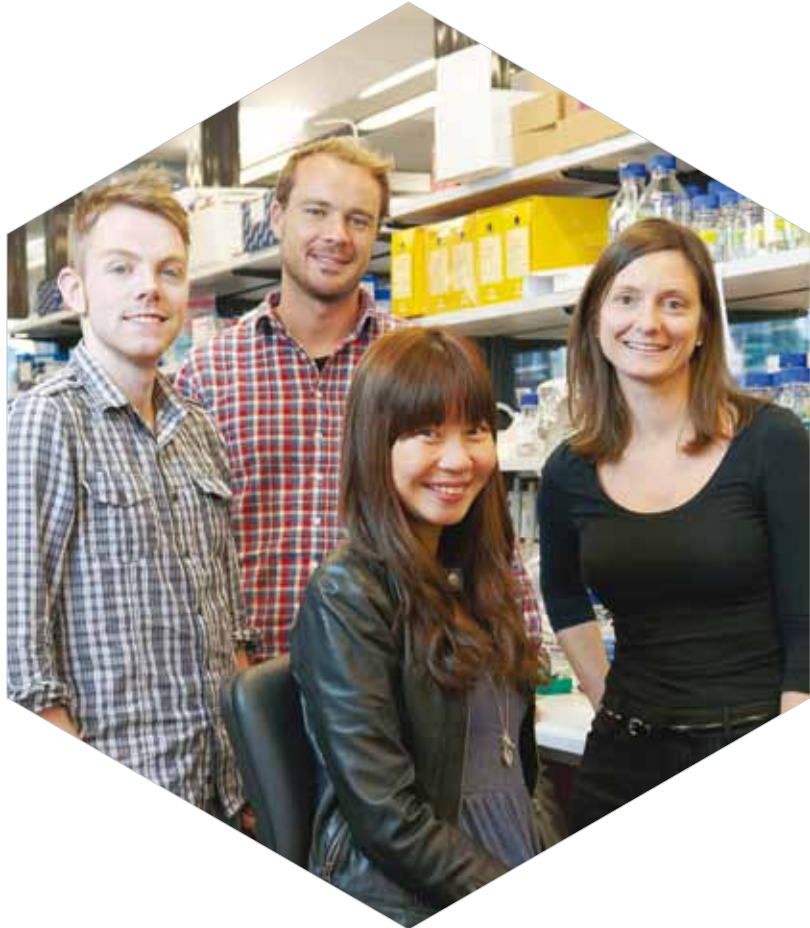
Her research focuses on the role of tiny snippets of RNA, called microRNA, in controlling development in the embryo. These microRNAs seem to influence the robustness of the developmental processes, stopping it from going awry. She is using knockout mice—lacking the ability to make specific microRNAs—to examine their role in development.

The big picture is the development of the vertebrate skeleton—how it grows to the right size and shape, with the correct number of bones and limbs and digits.

"This is basic biology, but similar things go wrong in diseases like cancer," Eddy says. "We're trying to integrate a new level of genetic regulation into the classical genetic hierarchy."

Since starting at EMBL Australia in early 2011, at its headquarters at the Australian Regenerative Medicine Institute based at Monash University, Eddy's team has grown to four with a research assistant, an Honours student who is now undertaking a PhD in the lab, and a post-doc who joined the lab from the US last year. She has a second post-doc due to start in June as well as a visiting scientist who has been working in the lab.

"I'm really looking forward to building strong ties with other EMBL groups, both in Europe and eventually here in Australia too," she says.



McGlinn Group Members (L to R) Eamon Coughlan, Janus Jacobsen, Lisa Wong and Eddy McGlinn.

2011 Group highlights

- Miss Lisa Siew Fen Wong joined the lab as a research assistant in January 2011.
- Mr Eamon Coughlan joined the lab as an Honours student in Feb 2011. Eamon received first class Honours, was awarded an Australian Postgraduate Award, and commenced his PhD in the lab in February 2012. Eamon's thesis will investigate the role of miR-196 in the developing and adult central nervous system.
- Dr Alysha Heimberg (who has a PhD from Dartmouth College, USA) joined the lab as a post-doctoral researcher in October, 2011. Alysha has extensive experience in the evolution of microRNAs and will study how lineage specific Hox gene output across taxa is regulated by microRNAs.
- Dr Jesus Fernandez-Casanova has been appointed to investigate the role of miR-196b in skeletal formation and hematopoietic stem cell control. Jesus, who has a PhD from Centro Nacional de Investigaciones Cardiovasculares in Madrid, Spain, will take up his position in July 2012.

What controls our genes: The Plachta Group

We know that genes control development but what controls the genes themselves? Nicolas Plachta and his team are pioneering techniques that let them actually see the proteins that control gene expression as they move around the cells of living mammalian embryos. Understanding these mechanisms is critical to understanding human biology and disease.

Dr Nicolas Plachta heads the second of EMBL Australia's two Partner Laboratory Groups. His team, based at EMBL Australia's hub at Monash University's Australian Regenerative Medicine Institute, are using imaging technologies he developed to study molecular and cellular events during embryonic development in mammals. In particular, they are interested in the proteins that control gene expression when embryonic cells begin to take on specialised roles.

It's an area of research that is likely to have wide application, not just for basic research into embryonic development but for reproductive medicine, regenerative medicine, and the differentiation of cells within adult cells and tissues.

The team has developed techniques that allow them to visualise the movement of transcription factors—proteins that regulate gene expression—inside the cell in real time. They tag the proteins with fluorescent dyes which show up under the microscope. They can then track movement of the proteins in real time in single cells of intact embryos. With the help of computational and mathematical modelling, they are looking at how changes in the mobility of these proteins relate to cell differentiation events as the embryo develops.

The technology may be sensitive enough to characterise small differences between individual embryonic cells and the embryonic stem cell lines cultured from those cells. Ultimately this will lead to a better understanding of the processes that drive early embryo development and differentiation into different cell types.

Nicolas Plachta

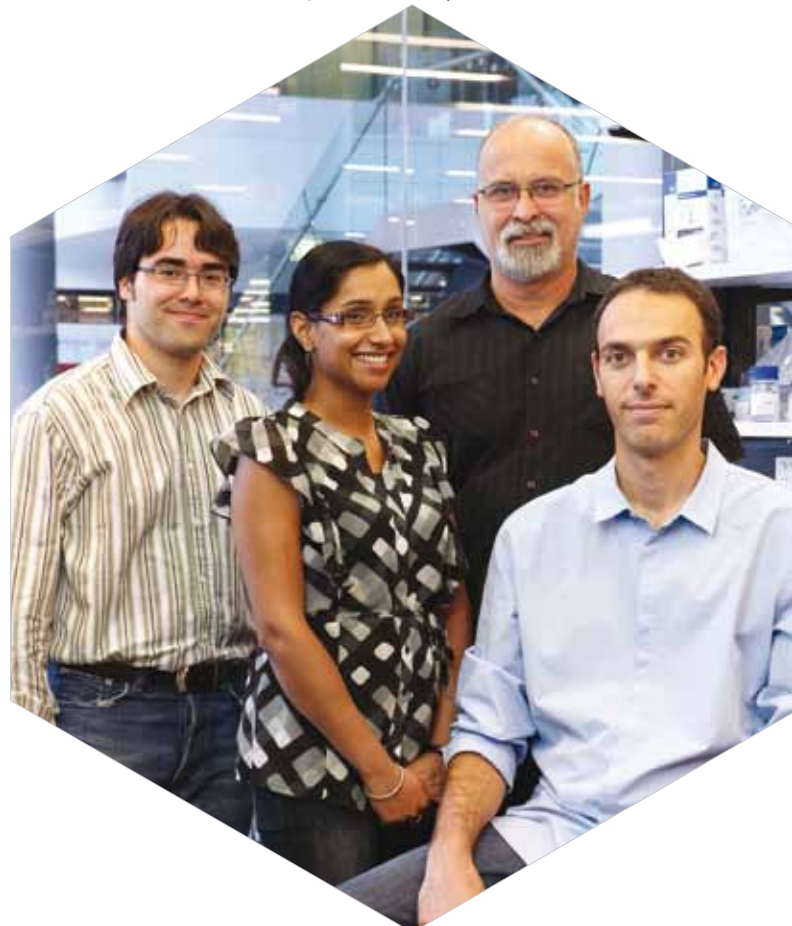
Argentinian scientist Nicolas Plachta is enthusiastic about the direction his research is taking. Armed with the techniques he has developed to tag and track the movement around the cell of transcription factors—proteins that control gene expression—he is now looking at protein movement within intact, live mouse embryos.

"It's allowing us to study the dynamics of gene expression in the living embryo," he says. "We can see how the movement of specific proteins changes as differentiation occurs. It's wonderful to get this knowledge in real time."

Already, the techniques have been used to get a better understanding of the development of the early embryo, demonstrating differences in protein movement between cells that are destined to end up in the placenta and those which will continue to develop into the foetus.

And the technology is likely to have wide application, Nicolas says, both in the basic understanding of development and differentiation and in more specialised applications in reproductive and regenerative medicine.

"Nature tends to recycle mechanisms. So the way that adult cells differentiate will have parallels in early differentiation and development," he says.



Plachta Group Members (L to R) Juan Gonzalez, Gurpreet Kaur, Juan Silva and Nico Plachta.

Key activities (cont.)

Nicolas joined EMBL Australia in July 2011, after completing post-doctoral research in Scott Fraser's lab at the California Institute of Technology. While there, he started working on the imaging techniques that underpin his research today. But his interest in developmental biology stretches back to his undergraduate studies at the University of Tel Aviv in Israel and his PhD at the University of Basel in Switzerland.

He came across EMBL Australia when he was looking around for a place to establish his own research group.

"I was attracted by the model that EMBL Australia was promoting," Nicolas says. "EMBL Australia has been really supportive and the way the funding is structured gives a huge advantage to a scientist starting his own lab."

Nicolas's group is growing fast—he's been joined by a technician from Caltech and two post-doctoral fellows. A third post-doc is scheduled to start in mid-2012.

"I really want to push real time molecular imaging in vivo," he says. "And I want to see EMBL Australia get off the ground."

2011 Group highlights

- Juan Carlos Silva joined the Plachta lab as a research assistant. Juan has 20 years of experience working with mouse embryos and transgenic approaches at the California Institute of Technology, USA.
- Dr Gurpreet Kaur (who has a PhD from Monash University, Australia) joined the Plachta Group as a post-doctoral researcher. Gurpreet is studying transcription factor dynamics and cell differentiation in the developing mouse embryo.
- Dr Juan-Carlos Fierro Gonzalez joined the Plachta Group as a post-doctoral researcher. Fierro, who has a PhD from Karolinska Institute, Sweden, is studying biophysical mechanisms underlying embryonic patterning in mammals.
- Dr Melanie White will join the team in June 2012. Melanie is an expert in neurobiology and will be studying transcription dynamics during neuronal growth, plasticity and degeneration.

Funding support

- Australian Research Council Discovery Project (starting 2012; AU\$250,000)
- Australian Research Council Discovery Early Career Award (starting 2012; AU\$375,000)
- Wenner Gren Foundation Post-doctoral Fellowship (to J.C. Fierro-Gonzalez, starting 2012; AU\$70,000)

Faculty Development Program

The EMBL Australia Faculty Development Program (FDP) supports early-career scientists considered to show high potential in molecular biology research with long-term funding that enables them to establish themselves in a research career. The program provides research group leaders with generous funding for five years at an EMBL station in Europe, followed by four years at an Australian institution. Groups are funded by external Australian grants (for example, from the NHMRC or ARC) and/or by Australian research institutions.

Dr Marcus Heisler, the first FDP appointee, has been based at the Heidelberg, Germany, campus of EMBL since 2009 where he has a research team of eight people, including post-doctoral researchers, PhD students and technical staff. His position is supported by the Australian Research Council and The University of Sydney. Marcus has also been awarded a European Research Council Starting Grant in 2010 for his project "The establishment and function of dorsiventral boundaries in plant organs", which will extend his stay in Germany by 18 months. After his time in Heidelberg, Marcus will relocate to The University of Sydney for the remaining years of his appointment.

As an Associate Member of EMBL, Australia can place up to two group leaders at EMBL laboratories at any one time. Interviews for a second position (funded by the NHMRC) were conducted by EMBL in 2010 and 2011, with no applicant considered suitable. Discussions between the NHMRC and EMBL regarding the funding for the program are ongoing, with NHMRC currently reviewing its commitment to this program.

Key activities (cont.)

Pattern development in growing plants: The Heisler Group

Like animals, many plants are complex multicellular organisms containing specialised tissues and organs. How these tissues and organs become differentiated from the initial embryo cells and arranged into stems, leaves and other structures, as the plant grows are fundamental questions in plant developmental biology. A growing plant continually produces new tissues and structures, which provides an interesting contrast to animals whose body parts are complete at birth (or hatching) and simply grow larger and mature over time.

At EMBL in Heidelberg, Germany, Australian scientist Dr Marcus Heisler and his research group are investigating developmental patterning in plants, using the small flowering annual *Arabidopsis thaliana*, whose simple genome is well understood, as a model. They are studying leaves and meristems (the growth zones) to understand the processes underpinning organogenesis—that is, how organs (in this case, leaves) are specified, differentiate and grow. In particular, they are focussing on two factors that affect organ development: cell polarity (how cells align to each other) and hormone transportation.

Dynamic, high-resolution microscopy lets the team see the active processes of developing cells and tissues. They use fluorescent markers to look at gene expression and protein localisation within the cells and tissues of the developing organs. This technique lets them investigate how leaves or other organs become positioned along a shoot, how organ shape and size are determined (morphogenesis), and how the cells and tissues within organs differentiate into functionally distinct layers of tissue. They are also investigating the role of the plant hormone auxin and its transport system in the generation and positioning of leaves and flowers along a shoot.

The team has recently demonstrated that patterns of cell polarity play a critical role in these processes. Different patterns of cell polarity correlate with gene expression patterns in the different tissue layers of the growing shoot tip. Now Marcus and his team plan to look more closely at how this patterning of gene expression and cell polarity in the shoot drives organogenesis.

Marcus Heisler

The first time Marcus Heisler heard about EMBL Australia's Faculty Development Program was when he was being interviewed for his current position as a Group Leader at EMBL in Heidelberg.

"They told me about this unique opportunity to spend some time in Germany and then return to Australia to complete the remainder of my appointment," he says. "I thought it was a great way to be able to do research at a top institute and also have a way to return to Australia at the end of it."

The Faculty Development Program allows scientists to spend the first five years of their appointment as a group leader at EMBL, and then follow it up with four years at an Australian university. Marcus joined EMBL's Heidelberg Laboratory in 2009 and plans to return to Australia to set up a lab at The University of Sydney.

But Marcus's time at EMBL will extend beyond those first five years, as in late 2010 he was awarded a prestigious European Research Council grant worth €1.5 million over five years. Because the grant requires him to remain in Europe, his return to Australia will be delayed for 18 months.

Like many scientists, Marcus took a while to find his field of scientific specialisation. His early interest in astrophysics gave way to the biological sciences while he was an undergraduate at The University of Melbourne, and eventually Marcus drifted to plants by way of genetics. An Honours project with Adrienne Clarke and Marilyn Anderson was followed by a few years working as a research assistant, before knuckling down to do his PhD with Monash University's David Smyth in plant developmental genetics.

From Monash, Marcus moved to the USA where he spent eight years working for Elliot Meyerowitz at CalTech.

"That was when my interest really broadened in terms of plant development," Marcus says. "I started to look at developmental patterning of organs such as leaves and flowers—how they get positioned, how the cell types are specified and the shape and size of the organs."

His research at EMBL focuses on organ development, including the positioning of organs, the laying down of different cell types and generation of organ shape. Using

confocal microscopes to examine plant tissue as it grows and specialises, proteins can be localised within cells, providing clues to patterning. He's also investigating the role of the plant hormone auxin, its transport system and how it influences the positioning of organs along a shoot.

In the future, Marcus hopes to push the boundaries of developmental biology using transcriptomics, the profiling of RNA molecules to compile a catalogue of gene expression in single cells within tissues, to build up a dynamic picture of how cells specialise and coordinate during development.

Marcus says EMBL provides a close, supportive and collaborative atmosphere with a very high standard of research.

"Together with the financial support, this environment enables you to really try and push the boundaries," he says. "For Australian scientists, EMBL Australia's Faculty Development Program provides an opportunity to take advantage of one of the world's best biological research institutes to grow considerably and create a world-class research group while also providing a good pathway to bring it all back to Australia."



From bottom left anti-clockwise: Hanno Wolters, Philip Brennecke, Neha Bhatia, Marcus Heisler, Monica Pia Caggiano, Avisheck Paul, Carolyn Ohno, Paz Merelo, Hathi Ram, Pia Sappl and Nicol Siegel.

Key activities (cont.)

EMBL Australia Mirror of EMBL-EBI Facility and the National Bioinformatics Network

EMBL Australia is committed to bioinformatics in Australia. In 2011 it opened a major bioinformatics resource for Australian scientists—a database that mirrors the data held at the EMBL European Bioinformatics Institute (EBI) Facility in the UK.

The EMBL Australia Mirror of the EMBL-EBI, based at The University of Queensland, forms EMBL Australia's second node and gives EMBL Australia a presence beyond the hub at Monash University.

The Mirror underpins the Queensland node of the Australian Partner Laboratory, and will support and synergise all other EMBL Australia nodes and activities across the country. It is intended that the Queensland node will be further developed by the establishment of research groups in addition to this infrastructure core.

And in partnership with CSIRO and BioPlatforms Australia, EMBL Australia is forming the Australian Bioinformatics Network, to connect, support and provide training to the Australian bioinformatics community.

EMBL Australia Mirror of the EMBL-EBI at The University of Queensland

The EMBL Australia Mirror of the EMBL-EBI Facility (the EMBL Australia EBI Mirror) at The University of Queensland was launched on 21 June 2011 as an up-to-date mirror of the 13 terabytes (TB) of data available at the European Bioinformatics Institute (EBI) of EMBL.

The European Bioinformatics Institute is based in Hinxton, UK, and is one of the five campuses of EMBL. It is a leading centre for research and services in bioinformatics. The EBI grew out of EMBL's pioneering work to provide public biological databases to the research community. The Institute manages databases of biological data including nucleic acid, protein sequences and macromolecular structures.

The EMBL Australia EBI Mirror, which is co-located and tightly integrated with the National Computational Infrastructure—Specialised Facility in Bioinformatics (NCI-SFB), replicates the most-used data services of EBI and makes them freely available online to the Australian and international science community.



EMBL Australia Mirror of the EMBL-EBI Team L to R: Lanna Wong, William Hsu, Danny Sheehan, Jeremy Barker, Alexander Varlakov, Mark Ragan, Gerald Hartig, Graham Cameron, Jeremy Parsons, Gavin Graham, Pierre-Alain Chaumeil, Elham Gharazi, Dominique Gorse, Nicholas Rhodes.

The EMBL Australia EBI Mirror provides a service function—it is not a research facility, although focused research is required to develop unique, customised data services in selected areas. It is managed in accordance with EMBL policies that emphasise open access to data.

Among the data resources offered by the EMBL Australia EBI Mirror are public-domain genome, DNA and protein sequences, protein structures, and integrated data services for medical and agricultural sciences, biodiversity and biotechnology. Novel datasets and capabilities and integrated data services are being added.

In conjunction with high-performance computing resources and scalable storage, and delivered through high-bandwidth national research networks, the EMBL Australia EBI Mirror enables large-scale integrated analyses that have previously not been feasible.

Analytical tools, such as NCBI-BLAST, PSI-BLAST, ClustalW2 and ENSEMBL, are also available via the EMBL Australia EBI Mirror website. The EMBL Australia EBI Mirror website offers simple web interfaces to these tools, enabling their use by a broad range of researchers and students. To date, the website has had over 800 unique visitors, and the data mirror has served over 1 TB of data to over 1400 clients from most major centres of life sciences research across Australia.

Among the users of the EMBL Australia EBI Mirror are:

- The Atlas of Living Australia—Researchers at the EMBL Australia EBI Mirror have used the Atlas of Living Australia's datasets of Australian organisms to extract relevant information from the Facility's data resources. The resulting data collections have been made available back to the Atlas of Living Australia through Research Data Australia.
- The International Cancer Genome Consortium—Australian researchers taking part in the International Cancer Genome Consortium are using the EMBL Australia EBI Mirror to search for genes underlying pancreatic and ovarian cancers.

The EMBL Australia EBI Mirror has also been involved informally in some training and outreach activities, including information sessions in several capital cities around Australia, some workshops and participation in bioinformatics user groups. Training and outreach activities will receive greater emphasis in 2012.

Australian Bioinformatics Network

Major Australian bioinformatics providers have joined to develop and support the Australian Bioinformatics Network, which will provide information, support, and advanced training in bioinformatics to Australian bioinformaticians and users of bioinformatics resources.

EMBL Australia announced the Network as an initiative to support the EMBL Australia EBI Mirror in 2010. Since then, implementation and operational arrangements for this shared network, including its proposed governance, have been developed by BioPlatforms Australia and CSIRO in conjunction with the Bioinformatics Advisory Committee of the EMBL Australia Council.

International PhD Program

The EMBL Australia International PhD Program enables Australian students to undertake their PhD at an EMBL facility. The PhDs are jointly-awarded and co-supervised by EMBL and the student's Australian university.

The Program offers Australian students the opportunity to be exposed to the EMBL philosophy and training. EMBL is renowned for the internationality of its students, the interdisciplinary nature of its training, the dedicated mentoring provided by its supervisors and the early independence granted to its researchers. Fellowships are competitively awarded based on written applications, panel interviews and one-on-one meetings with the researchers. Entry to the program is extremely competitive. In addition to the stipend provided by EMBL, the Australian institution provides funding to support travel between Australia and EMBL for both the student and the Australian mentor. Students may use an Australian Postgraduate Award for the program.

EMBL recruits PhD students twice a year, with positions available for up to three Australian students to commence each year. In the 2011 call for applications there were 914 applications in total with 137 invited for interview in Feb 2012. There was one application from Australia who was invited for interview and was successful. This student (from The University of New South Wales) will commence with the EMBL pre-doctoral program in September 2012.

Key activities (cont.)

Alliances and partnerships

In 2011, EMBL Australia expanded its partnerships and alliances considerably. Following the agreement with BioPlatforms Australia (BPA), which promised access to all of their platform technologies, EMBL Australia signed agreements to support Australian life science research in 2012 through joint activities including collaboration and sharing of expertise via workshops, training and other opportunities with the following facilities:

- Australian Genome Research Facility (AGRF)—AGRF, a not-for-profit company, is Australia's largest provider of genomics services and solutions. AGRF has laboratories in Brisbane, Sydney, Melbourne, Adelaide and Perth, each providing a gateway to a national network of state-of-the-art facilities, technology and expertise.
- Australian Microscopy and Microanalysis Research Facility (AMMRF)—AMMRF have expertise in microscopy and microanalysis that provides nano structural characterisation capability and services, including widely used optical, electron, X-ray and ion-beam techniques and world-leading flagship platforms.
- Australian Nuclear and Scientific Organisation (ANSTO)—ANSTO is responsible for delivering world-class research and innovation in nuclear science and technology to government, industry, academia and other research organisations. It does so through the development of new knowledge, delivery of quality services and support for business opportunities.
- Australian Phenomics Facility (APF)—The APF helps researchers develop, characterise and archive new mouse models of human disease.
- BioGrid Australia—a secure research platform and infrastructure that provides access to real-time clinical, imaging and biospecimen data across jurisdictions, institutions and diseases. The web-based platform provides ethical access while protecting both privacy and intellectual property.

15th International Conference on Systems Biology

In late 2011, EMBL Australia successfully bid to host the 15th International Conference on Systems Biology in Melbourne in 2014.

The conference bid was put forward to the International Society for Systems Biology by a consortium led by EMBL Australia and including BioPlatforms Australia and CSIRO and with support from the Melbourne Convention and Visitor's Bureau and the Victoria State Government.

The conference will be held at the Melbourne Convention and Exhibition Centre from 13–19 September 2014.

Governance

EMBL Australia participant expansion

In June 2011 EMBL Australia expanded its membership to include all of the Group of Eight universities. Thus the current membership of EMBL Australia includes CSIRO, The Australian National University, Monash University, The University of Adelaide, The University of Melbourne, The University of New South Wales, The University of Queensland, The University of Sydney and The University of Western Australia, with the support of the Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE).

EMBL Australia Council

The EMBL Australia Council includes two representatives from each participating institution as well as a number of independent scientist members.

Council members include:

Chair

Prof Richard Larkins, AO

Australian National University

Prof Andrew Cockburn, Director of the ANU College of Medicine, Biology & Environment

Prof Chris Goodnow, Head of the Department of Immunology

CSIRO

Dr Louise Ryan, Chief of CSIRO Mathematical and Information Sciences

Dr Graeme Woodrow, Chief of CSIRO Molecular and Health Technologies

EMBL

Prof Iain Mattaj, Director General

Dr Silke Schumacher, Director International Relations

Monash University

Prof Edwina Cornish, Senior Deputy Vice-Chancellor and Deputy Vice-Chancellor (Research)

Prof Steve Wesselingh, Dean, Faculty of Medicine, Nursing and Health Sciences (to September 2011)

Prof Ross Coppel, Deputy Dean and Director of Research of the Faculty of Medicine, Nursing and Health Sciences (from October 2011)

The University of Adelaide

Prof Mike Brooks, Deputy Vice-Chancellor (Research)

Assoc Prof Paul Thomas, School of Molecular and Biomedical Sciences

The University of Melbourne

Prof Jim McCluskey, Deputy Vice Chancellor (Research)

Prof Paul Gleeson, Head of the Department of Biochemistry and Molecular Biology

The University of New South Wales

Prof Merlin Crossley, Dean of Science

Prof Warwick Dawson, Director of Research Partnerships

The University of Queensland

Prof Deborah Terry, Deputy Vice-Chancellor (Academic)

Prof Brandon Wainwright, Director of the Institute for Molecular Bioscience

The University of Sydney

Prof Trevor Hambley, Professor of Chemistry and Dean of Science at The University of Sydney

Prof Jill Trehwella, Deputy Vice-Chancellor (Research)

The University of Western Australia

Prof Peter Leedman, Head of Laboratory for Cancer Medicine, Deputy Director of WAIMR and Director of Research at Royal Perth Hospital

Prof Robyn Owens, Deputy Vice-Chancellor (Research)

Independent Members

Prof David Day, Deputy Vice Chancellor (Research) at Flinders University of South Australia

Prof Simon Foote, Director of Menzies Research Institute, University of Tasmania

Prof Steve Wesselingh, Executive Director of South Australian Health and Medical Research Institute (from October 2011)

Prof Doug Hilton, Director of The Walter and Eliza Hall Institute of Medical Research and Head of the Department of Medical Biology of The University of Melbourne

Governance (cont.)

Meeting dates:

1 February 2011
4 May 2011
21 June 2011
2 August 2011
4 October 2011
6 December 2011

Planning and Finance Committee

The Planning and Finance Committee was set up to assist Council to fulfil its planning and financial responsibilities. It reported to Council on matters such as financial management practices and EMBL Australia accounts and was responsible for setting and reviewing annual targets and objectives in discussion with the Scientific Head. It was replaced by the Executive Committee of Council in late 2011 (see below).

Planning and Finance Committee members included:

Prof Steve Wesselingh, Monash University (Chair)

Prof David Day, Flinders University

Ms Janet Kemp, Monash University

Prof Robyn Overall, University of Sydney

Prof Nadia Rosenthal, EMBL Australia

Dr Ian Taylor, University of Queensland

Dr Campbell Thomson, The University of Western Australia

Mr Silvio Tiziani, EMBL Australia

Meeting date:

15 Aug 2011

Executive Committee of Council

In 2011, the Executive Committee of Council was formed to assist the Council in fulfilling its strategic planning and financial responsibilities for the EMBL Australia initiative.

The EMBL Australia Executive Committee members are:

Emeritus Prof Richard Larkins, Chair of the EMBL Australia Council

Prof Nadia Rosenthal, Scientific Head of EMBL Australia

Prof Edwina Cornish, Senior Deputy Vice-Chancellor & DVC (Research) at Monash University

Prof David Day, Deputy Vice-Chancellor (Research) at Flinders University

Prof Brandon Wainwright, Director of the Institute for Molecular Bioscience, The University of Queensland

Prof Trevor Hambley, Professor of Chemistry and Dean of Science at The University of Sydney

Dr Graeme Woodrow, Chief of CSIRO Molecular & Health Technologies

Silvio Tiziani, Executive Director of EMBL Australia

Meeting date:

7 Feb 2012

Bioinformatics Advisory Committee

The role of the Bioinformatics Advisory Committee (BAC) of EMBL Australia Council is to assist and advise the Council in all matters relating to the provision of bioinformatics and related services to the EMBL Australia Partner Laboratory and the Australian life science research community.

The Bioinformatics Advisory Committee members are:

Dr Louise Ryan (Chair), Chief of CSIRO Mathematics, Informatics and Statistics

Prof Nadia Rosenthal, Scientific Head of EMBL Australia

Prof Dave Adelson, Professor and Chair of Bioinformatics at The University of South Australia

Dr Jean Yee Hwa Yang, Senior Lecturer in the School of Mathematics and Statistics at The University of Sydney

Dr Ewan Birney, Senior Scientist at EMBL-EBI

Prof Paul Bonnington, Director of e-Research at Monash University

Dr David Lovell, Leader of Transformational Biology Bioinformatics and Analytics at CSIRO

Prof Grant Morahan, Laboratory Head and Director of the Centre for Diabetes Research at The University of Western Australia

Prof Mark Ragan, Head of Genomic and Computational Biology Division at The University of Queensland

Prof Terry Speed, Head of Bioinformatics Division at The Walter and Eliza Hall Institute

Mr Silvio Tiziani, Executive Director of EMBL Australia

Prof Brandon Wainwright, Director of the Institute of Molecular Bioscience at The University of Queensland

Prof Marc Wilkins, NSW Systems Biology Initiative at The University of New South Wales

Meeting dates:

31 March 2011

21 June 2011

21 September 2011

16 December 2011

Staff

EMBL Australia Secretariat

Prof Nadia Rosenthal, Scientific Head

Nadia has exceptional scientific credentials, including 16 years working at Harvard Medical School. She is the Scientific Director of the Australian Regenerative Medicine Institute at Monash University and Director of the European Molecular Biology Laboratory (EMBL) Outstation in Monterotondo, Italy. She also serves as Scientific Director of the Heart Science Centre at Imperial College London.

Silvio Tiziani, Executive Director

Silvio is a member of the Australian Institute of Company Directors (AICD) and the Australian Institute of Management (AIM). He has extensive experience in financial analysis and budget management, business development, strategic planning, leadership and corporate governance.

Laura Crilley, Executive Support

Laura coordinates office arrangements and the support of clerical activities within the secretariat office. Laura has more than 30 years' experience working as an executive assistant, including 12 years working with Professor Carl Wood, IVF pioneer. She has also worked in the fields of clinical medicine and law.

Lisa Ryan, Executive Assistant

Lisa coordinates the day to day administration of the EMBL Australia secretariat. Lisa has 25 years' experience as an executive assistant, working in both private and public sector organisations, predominantly in telecommunications.

Jane McCausland, Student Programs Coordinator

As Coordinator of Student Programs Jane is responsible for the development and coordination of the EMBL Australia student programs, helping to develop and deliver the Council approved programs in Australia and to increase student exposure to EMBL and its student programs.

Penny Rowlett, Senior Finance Officer

Penny is primarily responsible for Budget and Planning. Penny has worked in the tertiary sector for 10 years, and prior to this, in the public finance and investment sector nationally and internationally.

EMBL Australia Partner Laboratory

Dr Edwina McGlinn, Group Leader, McGlinn Group

Edwina joined EMBL Australia as a group leader in January 2011. She completed her PhD at The University of Queensland in 2002. More recently, she was a researcher at Harvard University where she started looking at the role of microRNAs in development processes.

Lisa Siew Fen Wong, Lab Assistant, McGlinn Group

Lisa joined the McGlinn group as a lab assistant in 2011 having completed an Honours Degree at The University of Melbourne.

Eamon Coughlan, PhD student, McGlinn Group

Eamon is a PhD student in the McGlinn Group. He also did his Honours project in 2011 in the McGlinn Group, for which he was awarded first class Honours.

Dr Alysha Heimberg, Post-doctoral Researcher, McGlinn Group

Alysha joined the McGlinn Group in October 2011. She has a PhD from Dartmouth University in the USA.

Dr Nicolas Plachta, Group Leader, Plachta Group

Nicolas joined EMBL Australia as Group Leader in July 2011. He completed his PhD at the University of Basel, Switzerland, before undertaking his post-doctoral studies at California Institute of Technology.

Juan Carlos Silva, Lab Assistant, Plachta Group

Juan Carlos joined the Plachta Group as a lab assistant in July 2011. He has 20 years' experience working with mouse embryos and transgenic mice.

Dr Gurpreet Kaur, Post-doctoral Researcher, Plachta Group

Gurpreet joined the Plachta group in July 2011. He completed his PhD at Monash University in 2011.

Dr Juan-Carlos Fierro Gonzalez, Post-doctoral Researcher, Plachta Group

Fierro joined the Plachta group in July 2011. He completed his PhD at the Karolinska Institute in Sweden in 2011.

EMBL Australia Mirror of the EMBL-EBI

Gavin Graham, Senior IT Manager and EBI Mirror IT Project Manager

Gavin has been in the IT industry for 22 years, and worked in a management capacity for the last 12 years at some of Australia's iconic brands in the retail, manufacturing and dot-com verticals. He previously applied himself to developing corporate IT operations, governance and strategies for organisations that are preparing for their IPO and ISO accreditations. Having made the life-career decision to work for a cause rather than for shareholders, he now applies the same corporate diligence and management to life science and bio-IT projects in the EMBL Australia Mirror of EMBL-EBI.

Dr Gerald Hartig, Bioinformatics Manager, NCI Specialised Facility in Bioinformatics

Gerald's research background is in pharmaceutical development through computational modelling of protein-protein interactions using non-MD, high-dimensional search techniques. After his tenure as Operations Manager of a spin-out biotechnology company and attaining his MBA from INSEAD, he moved to telecommunications as a project manager for international software development teams implementing mission-critical real-time billing systems. He is passionate about helping researchers to carry out their work as effectively and efficiently as possible.

Alexander Varlakov, Web Applications Developer

Alexander has a background in bioscience and worked as a researcher and educator in ecology and conservation for eight years. For the last fourteen years he has pursued a career in database and web applications development for clients in wide range of industries from marine conservation, to GIS and GPS tracking, to e-commerce.

Elham Gharazi, Bioinformatician

Elham holds an MPhil in Bioinformatics and an MSc in Software Engineering from The University of Sydney. Her MPhil research addressed multiple sequence alignment and the inference of molecular phylogeny. She has over eight years' experience in programming, and worked at National ICT Australia as an analyst programmer before starting her career at National Computational Infrastructure Specialised Facility in Bioinformatics at The University of Queensland. Her current interest lies in developing protocols to integrate and serve heterogeneous bioinformatics tools in a unified platform.

Dr Grischa Meyer, Bioinformatician

Grischa, a trained physicist, obtained his PhD in experimental and computational structural biology at The University of Queensland. This was followed by post-doctoral research in computational biophysics at Monash University. He then gained extensive experience in academic and commercial software development. His academic software development was focused on scientific data processing and data management on the MyTardis platform at Monash University. Grischa enjoys solving challenging problems, in particular in his current field of interest, bioinformatics.

Dr Jeremy Parsons, Bioinformatician and Java Developer

Jeremy has more than a decade of experience as a bioinformatician working in Cambridge, UK, the USA, the Netherlands and Singapore. Jeremy has worked for many years in mainstream computing as a UNIX administrator and software developer in fields including arcade games, image processing and financial services. His favourite language is Java, and he has a special interest in parallel and graphical programming particularly for data presentation and DNA alignment visualisation. Jeremy holds a BSc in Microbiology, an MSc in Computer Science and a PhD from the Department of Medicine at the University of Cambridge.

Visitors

Australian Visitors to EMBL during period from March 2011 – Feb 2012

May

Dr Graeme Woodrow, Director, Health Technologies Strategy, CSIRO, visited EMBL Heidelberg

Dr Edwina McGlenn, Group Leader, EMBL Australia Partner Laboratory, visited EMBL Heidelberg

Dr Peter Currie, Deputy Director, Australian Regenerative Medicine Institute, visited EMBL Heidelberg

September

Lily Chisholm, Project Manager, Monash University, visited EMBL Heidelberg

October

Dr Joanne Tonkin was a visiting scientist in the Rosenthal Group, EMBL Monterotondo, Rome

Dr Alexander Pinto was a visiting scientist in the Rosenthal Group, EMBL Monterotondo, Rome

Other Australians at EMBL

Ellen Dearden worked as a database assistant in the Alumni Relations Unit at EMBL in Heidelberg for 3 years to January 2012

Dr Marcus Heisler has been a Group Leader in Heidelberg since 2009

Financial report

EMBL
Australia



MONASH
University

Financial Report

	<i>Actual 2011</i>	<i>Notes</i>
Income		
Grant Funding		
DIISR Funding Agreement (2011)	\$ 2,000,000	
Other Revenue		
DIISR NCRIS Funding for Bioinformatics Network	\$ 355,000	
Interest earned on invested income	\$ 195,526	1
CSIRO - Contribution to Bioinformatics Advisory Meeting	\$ 5,000	
CSIRO - Interaction Support Program	\$ 4,455	
Reimbursement of expenses	\$ 466	
Total Income	\$ 2,560,447	
Expenditure		
Salary Expenses		
Other Salary Related Expenditure	\$ 317	
General Administration	\$ 159,854	
Research	\$ 423,842	
Total Salary	\$ 584,013	2
Non Salary Expenses		
Travel	\$ 95,456	
Staff Related Expenses - Recruitment	\$ 16,647	
Printing & Stationery	\$ 19,142	
Minor expenses	\$ 3,254	
Advertising & Promotions	\$ 55,096	
Lab & Operating	\$ 117,540	
Sponsorships	\$ 27,500	4
Books & Library	\$ 10,255	
IT, Communications,	\$ 43,821	
Equipment & Maintenance	\$ 146,484	5
Consultants	\$ 1,264	
Building Expenses	\$ 46,032	
Allowance for Scientific Head	\$ 50,000	
Audit fees	\$ 1,500	3
Capital Equipment	\$ 541,201	6
Total Expenses	\$ 1,759,204	
Surplus for the Year	\$ 801,242.95	
Balance CF (carried forward) at 31/12/2010	\$ 3,618,511	
BALANCE AS AT: 31/12/2011	\$ 4,419,754	

Notes to Financial Report

1. Interest Received

\$195,526 interest was earned on invested income 2011 \$2M, and the balance of 2010 \$2M and 2009 \$2M as per the DIISR Funding Agreement.

2. Salary Expenditure including oncosts

General Administration salaries include Executive Director, Communications Officer and Executive Assistant.

The Research salaries refers to the two EMBL Group Leaders and their teams that commenced January 2011 and June 2011 respectively.

3. Consultants

Audit fees for 2011: \$1,500

4. Sponsorships

Sponsorship of Morphogenesis symposium \$2,500, Australian Society for Biochemistry & Molecular Biology Scientific Meeting, Cairns 25-29 Sept 2011; 2011 BioinfoSummer Workshop, University of Melbourne \$12,500; and 2011 Winter School Program, University of Queensland \$12,500

5. Equipment & Maintenance

Zeiss Service & Maintenance contract 3yrs for Leica LSM Microscope \$142,812

6. Capital

Contribution to the purchase of Leica LSM 780 Microscope \$500,000

Auditor's report

RSM Bird Cameron
Chartered Accountants

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www.rsmi.com.au

INDEPENDENT AUDITOR'S REPORT TO THE COMMONWEALTH DEPARTMENT OF INNOVATION, INDUSTRY, SCIENCE AND RESEARCH

This audit opinion is prepared for the purpose of the Grant Agreement dated 11th December 2009 for the EMBL Australia Partner Laboratory Network ("the Project") between the Commonwealth of Australia as represented by the Department of Innovation, Industry, Science and Research and Monash University.

Scope

We have conducted an independent audit in accordance with Australian Auditing Standards of the attached Statement of Income and Expenditure ("the Statement") for the period 1 January 2011 to 31 December 2011. The Statement specifies an amount of \$1,759,205 of expenditure on the Project and an amount of \$2,560,447 of contributions towards the Project.

Our audit involved an examination, on a test basis, of evidence supporting the amount of the grant funds incurred, and the amount of the income received on the Project. This included an examination of the University's financial records, and receipts, and an evaluation of the policies and procedures used to calculate the expenditure on the Project. These procedures have been undertaken to form an opinion as to whether the methodology used to calculate the expenditure is in accordance with the Agreement, and that the figures stated are true and fair.

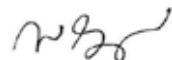
This audit opinion expressed in this report has been formed on the above basis.

Audit Opinion

We confirm that:

- the Statement of Income and Expenditure is true and fair;
- the funding was expended for the project in accordance with the Agreement; and
- the balance of funds as at 31 December 2011 is \$ 4,419,753.

RSM Bird Cameron
Chartered Accountants



WARWICK SPARGO

Director
11 May 2012
Melbourne, Victoria

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under Professional
Standards Legislation

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Outreach activities

Sponsorship

EMBL Australia was a proud supporter of several workshops and courses during the year including:

- 2011 Winter School in Computational and Mathematical Biology, 4–8 July 2011, Queensland Bioscience Precinct, The University of Queensland, Brisbane
- BioInfoSummer 2011, 5–9 November 2011, Gene Technology Access Centre, Walter and Eliza Hall Institute, Melbourne
- Targeting Genome Editing Using Zinc Finger Nucleases, 18–20 October 2011, ARMI, Monash University, Melbourne. This workshop was supported by EMBL Australia, Sigma and EMBL.

In addition, EMBL Australia has committed to supporting both the Winter School in Computational and Mathematical Biology and BioInfoSummer for 2012 and 2013.

Invited Seminars and Conference Presentations

Scientific Head Nadia Rosenthal and Group Leader Edwina McGlenn both gave a number of presentations during the period March 2011–Feb 2012.

Nadia Rosenthal

2012

Plenary Speaker: Infrafrontier – European mouse resources, Germany

Plenary Speaker: Keystone Cardiovascular Symposium, Taos, USA

Keynote Speaker: Everett Symposium, Charleston, USA

2011

Plenary Speaker/Organiser: Gordon Conference on Myogenesis, USA

Plenary Speaker: EMBO Myogenesis, Wiesbaden, Germany

Plenary Speaker: Myoage Workshop, Puglia, Italy

Plenary Speaker: Merck Endocrinology and Diabetes Forum, Sydney, Australia

Plenary Speaker: Chilean Society for Cell Biology, Puerto Varas, Chile

Plenary Speaker: Australian International Collaborative Workshop, Florence, Italy

Plenary Speaker: Vatican International Conference on Stem Cells, Rome, Italy

Plenary Speaker: Stem Cell Society Singapore Symposium, Singapore

Edwina McGlenn

2011

COST Action Meeting – Hox and Tale Transcription Factors in Development and Disease, Carry-le-Rouet, France

EMBO – Young Investigator Program, Heidelberg, Germany

St Vincent's Institute, Melbourne

Centenary Institute, Sydney

Centre for Cancer Biology/Hanson Institute, Adelaide
Brisbane Developmental Biology Symposium,
The University of Queensland, Brisbane

Department of Biochemistry and Molecular Biology,
Monash University, Melbourne

RnA Victoria Meeting, Melbourne

Department of Anatomy and Cell Biology, The University of Melbourne

2012

33rd Lorne Genome Conference, Victoria

Nico Plachta

2011

COMBIO Meeting, Cairns, Australia

Institute for Molecular Biology (IMB), The University of Queensland

Centre for Cancer Biology, Adelaide

Zoology Department, The University of Melbourne

Murdoch Children Research Institute (MCRI), Melbourne

Media

Scientists welcome bioinformatics bonanza, Leigh Dayton, Science writer, July 02, 2011 <http://www.theaustralian.com.au/news/health-science/scientists-welcome-bioinformatics-bonanza/story-e6frg8y6-1226085410008>

Scientists welcome bioinformatics bonanza

LEIGH DYTON, SCIENCE WRITER *The Australian* July 02, 2011 12:00AM

AUSTRALIAN researchers now have free access to one of the world's most comprehensive database resources.

Launched last month, a mirror facility at the University of Queensland in Brisbane means scientists can use their computers to enter the most used data services of the British arm of the European Molecular Biology Laboratory's European Bioinformatics Institute.

"Using the mirror, Australian researchers will be able to access important research data 10 times faster than it would normally take from the EBI, reducing download times from days to hours or hours to minutes," says EMBL Australia's chairman Richard Larkins.

Funding & Stakeholders

Participants

- Australian National University
- CSIRO
- Monash University
- The University of Adelaide
- The University of Melbourne
- The University of New South Wales
- The University of Queensland
- The University of Sydney
- The University of Western Australia

Funding and in-kind support

The following in-kind and financial contributions to the EMBL Australia initiative are acknowledged.

Australian Government, Department of Innovation, Industry, Science and Research and Tertiary Education

- Super Science Funding—for establishment of the EMBL Australia Partner Laboratory and the Australian Bioinformatics Network
- International Science Linkages Grant—to support development of the EMBL Australia secretariat

Australian National Data Service

- Financial support to establish the EMBL Australia Mirror of the EMBL-EBI Facility at The University of Queensland (via a separate agreement with The University of Queensland)

Bioplatforms Australia

- Access to core research facilities and services
- Financial support to establish the EMBL Australia Mirror of the EMBL-EBI Facility at The University of Queensland (via a separate agreement with The University of Queensland)

CSIRO

- Financial contribution to the Associate Membership Subscription

Group of Eight

- Support for International PhD Program and preparation of Framework Agreement

Monash University

- Financial contribution to the Associate Membership Subscription
- Accommodation for the partner laboratory groups and access to research facilities.
- Office accommodation and corporate support services (including legal and payroll) for EMBL Australia secretariat and Partner Laboratory staff

NCRIS

- Financial contribution to the Associate Membership Subscription

ARC

- Financial support for Faculty Development Program (Dr Marcus Heisler)

The University of Queensland

- Financial contribution to the Associate Membership Subscription

The University of Sydney

- Financial contribution to the Associate Membership Subscription
- Financial support for Faculty Development Program (Dr Marcus Heisler)

The University of Western Australia

- Financial contribution to the Associate Membership Subscription

Victorian Government, Department of Business and Investment

- Financial support for the establishment of the secretariat

Participants



Secretariat

