

**EMBL Australia:  
expanding opportunities  
for science and scientists**

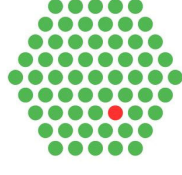


**Nadia Rosenthal**

**Head, EMBL-Monterotondo Outstation, Rome  
Director, Australian Regenerative Medicine Institute, Melbourne**

## New Australian research opportunities

- Australia has been granted the first non-European (Associate) Membership in the European Molecular Biology Laboratory (membership started March 2008)
- Australia joins 20 European member states in “ownership” of EMBL, the highest ranked non-US institute in research performance



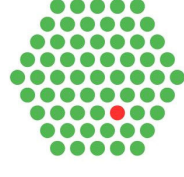
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# EMBL belongs to Australia

## Initial Associate Membership for Australia for 7 years

Membership fee contributed by:

- Monash University
- University of Queensland
- University of Western Australia
- University of Sydney
- CSIRO
- DEST



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# EMBL at a glance



- EMBL was established in 1974 and is supported by twenty member states including nearly all of Western Europe, Iceland and Israel.
- EMBL is one of the top research institutions in the world; it is the flagship of European molecular biology.
- EMBL is an international centre for life science and advanced training. Over 1300 people from 60 nations currently work at EMBL.

## EMBL at a glance



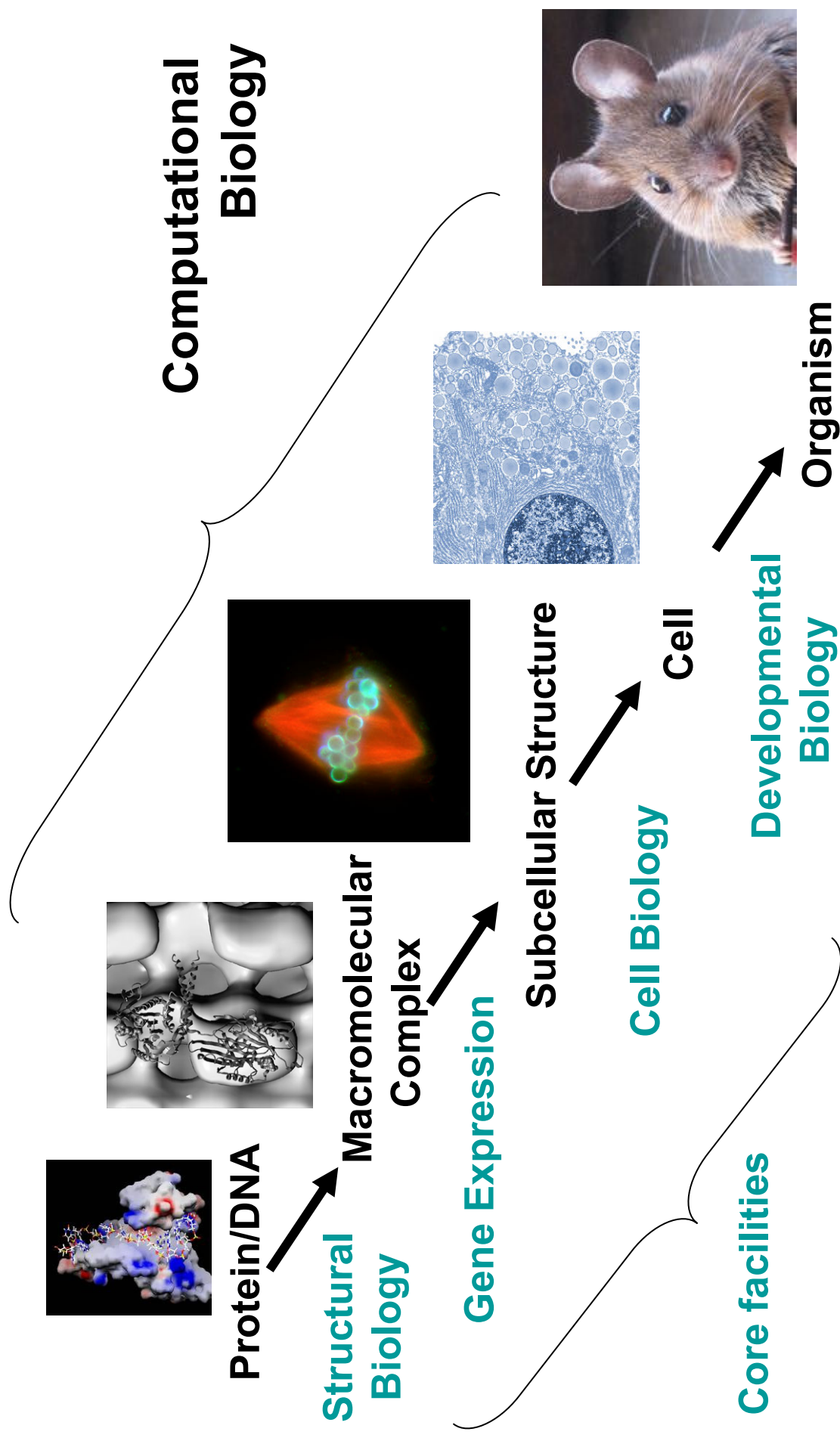
- The Research Units of the Laboratory support six or more small Research Groups, each with scientific independence, generous continued internal funding, access to outstanding PhD students and fellows, and a fixed term contract of up to 9 years.

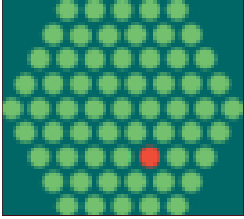
# EMBL culture

- Flexible internal organisation: from isolated departments to a collegial matrix
- Interdisciplinary centres
- Joint appointments
- Inter-institutional cooperation
  - Research partnerships
  - Training partnerships (joint PhD degree)
  - Centres of excellence and integrated projects (EU)
  - Integrated projects
- EMBL: from European to global integration

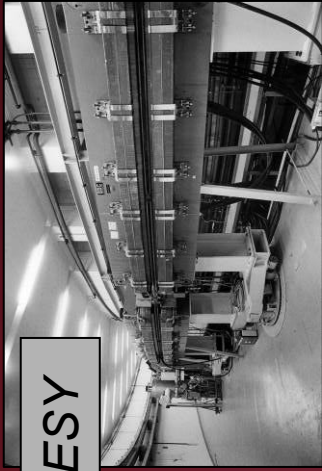


# Biology in the 21st century





# Five branches of EMBL



**DESY**

**Hamburg:**  
Structural Biology

**ILL, ESRF**



**Grenoble:**  
Structural Biology



**Sanger  
Centre**

**Hinxton:**  
European Bioinformatics  
Institute (EBI)

**EMBO**



**Heidelberg:**  
Basic research in  
molecular biology

**EMMA  
CNR**



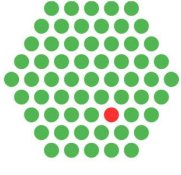
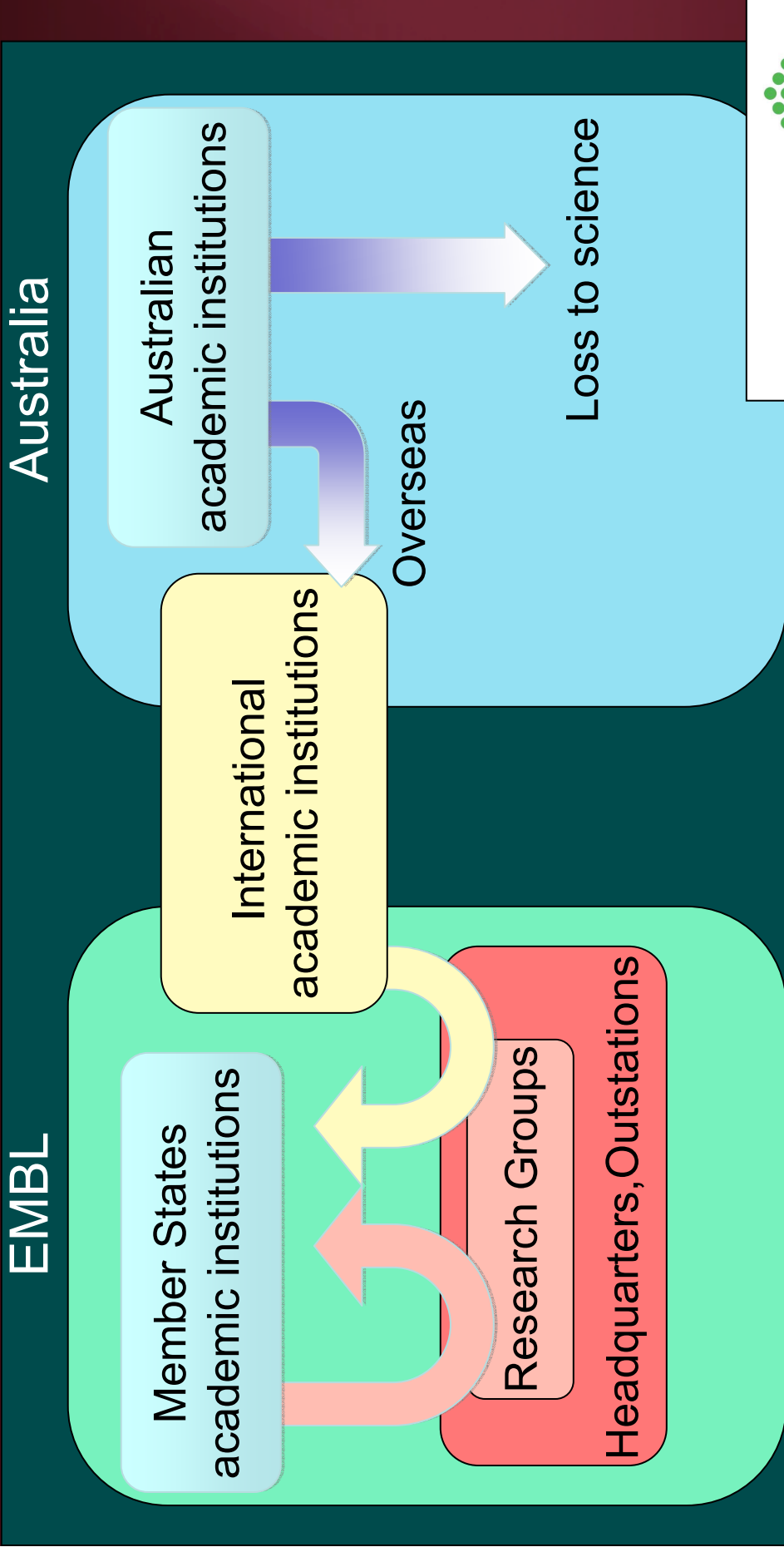
**Monterotondo:**  
Mouse Biology

# What can EMBL bring to Australia?

1970's



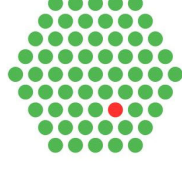
# Shortage of young talent in Australia



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# New Australian research opportunities

1. New international funding opportunities through EU Framework Program (collaborations with EMBL groups)
1. Through the EMBL Australia Faculty Development Program, at least two Group Leaders from Australia spend 5 years at EMBL with a repatriation scheme of 4 years back in Australia (funded by NH&MRC and ARC)
2. Associate Membership is a prerequisite for establishing an EMBL Partner Laboratory Network across Australia



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# The EMBL advantage

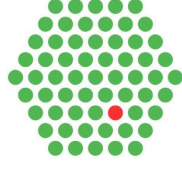
## EMBL Australia Faculty Development Program:

Group Leaders spend 5 years at EMBL, then 4 years in an Australian university/institute with equivalent funding

## ARC EMBL Australia Fellow: **Marcus Heisler, PhD.**

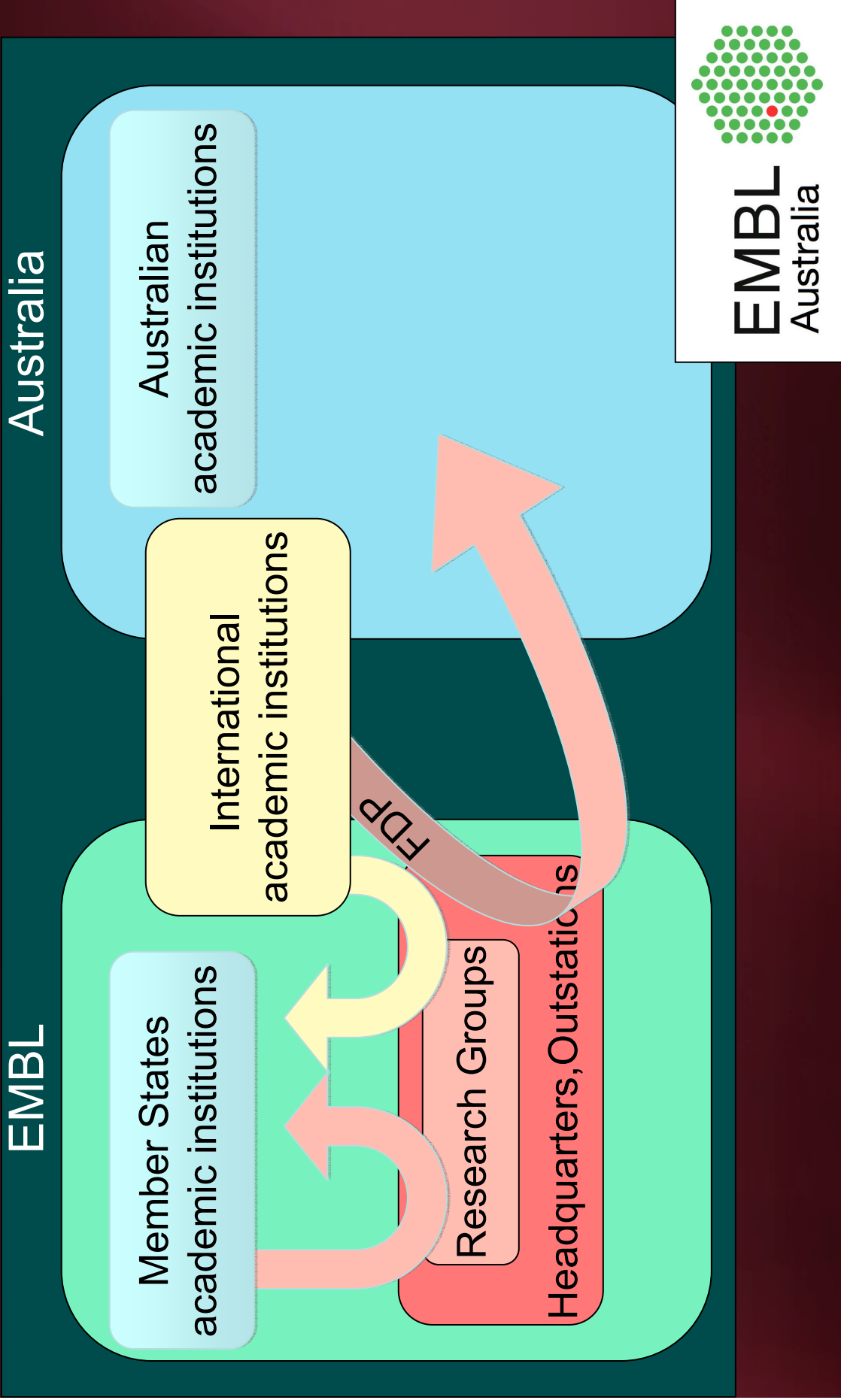
- Past: Melbourne University
- Current: Caltech
- EMBL: Heidelberg (Developmental Biology) 2009-2013
- Australia: U. Sydney 2014-2018

NH&MRC EMBL Australia Fellow: being recruited



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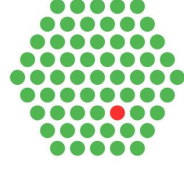
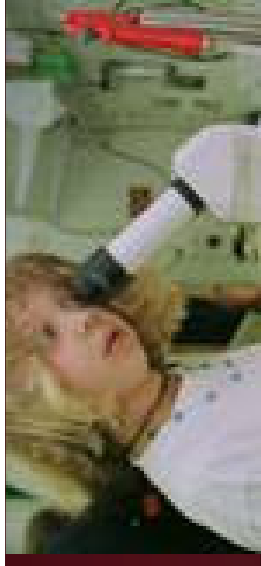
# New flow of young talent into Australia



# The EMBL advantage

Associate Membership allows establishment of an **EMBL Partner Laboratory Network** in Australia leveraging the successful EMBL model to provide

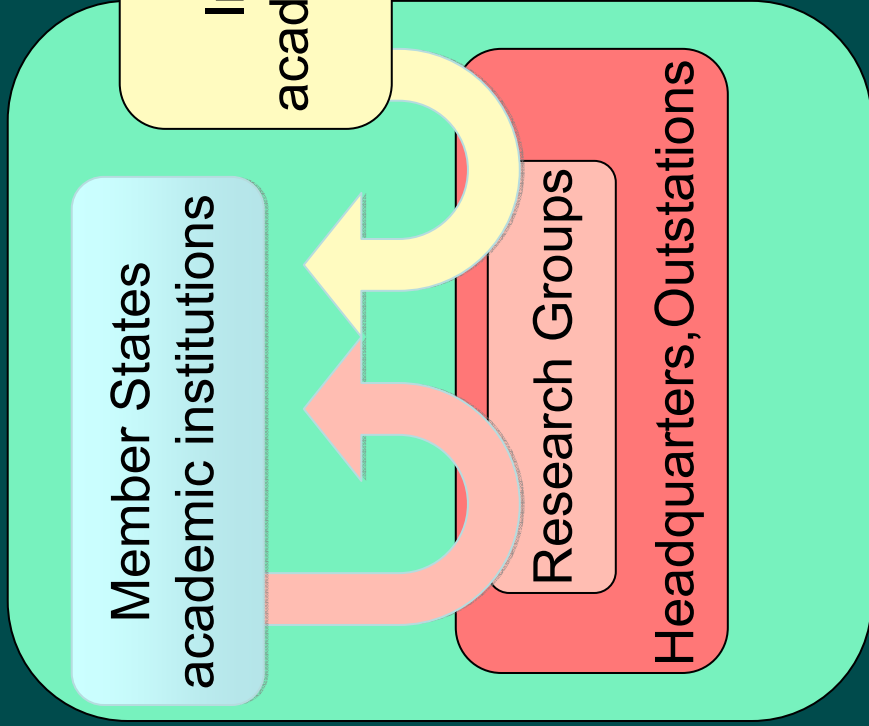
- generous fixed-term packages for outstanding young national and international research groups
- an interlinked system of state-of-the-art facilities
- an international training ground for high calibre PhD students and postdoctoral scientists within Australia



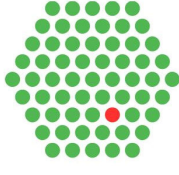
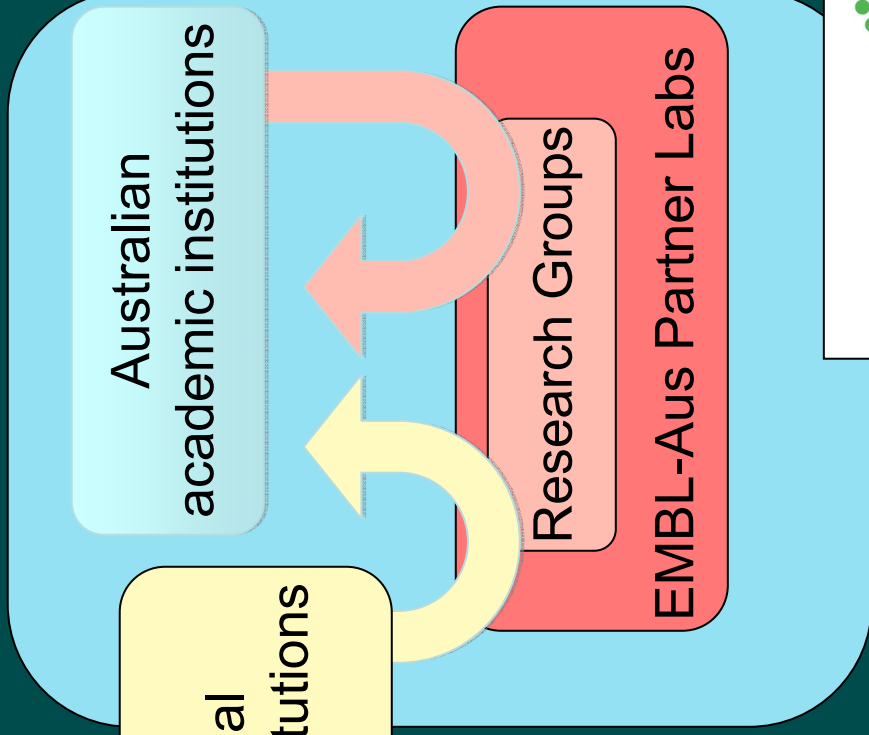
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# New flow of young talent into Australia

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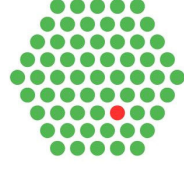
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## The EMBL advantage

- The EMBL Australia Partner Laboratory Network will enhance recruitment and retention of high calibre young scientists, increasing capacity for breakthrough discovery and international visibility

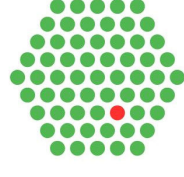


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# EMBL Australia Partner Laboratory Network

## Proposed research themes:

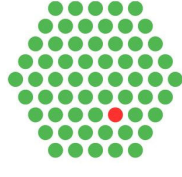
- *Regenerative medicine and stem cell biology*
- *Human genetics and disease*
- *Cancer and clinical research*
- *Chemical biology*
- *Plant biology*
- *Bioinformatics and computational biology*



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## Multi-level support

- *University*: capital investment, start-up phase
- *State*: capital and infrastructural investment
- *Commonwealth*: running costs, future EMBL membership fee



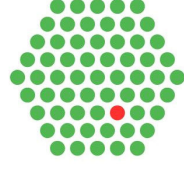
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# EMBL Australia Partner Lab Network support

Funding for the the EMBL Partner Laboratory Network (PLN) is being sought (average \$30M/ann) to support:

- Fixed term (9 year) packages for outstanding young research groups
- A network of national core facilities
- An Australian training ground for international high calibre PhD students and postdoctoral scientists

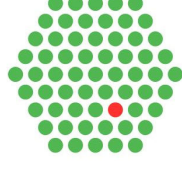
**PLN: A dynamic, sustainable model for globally competitive scientific excellence and inclusiveness across Australia**



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## New funding will provide:

- Recruitment of international early career stars for EMBL Partner Lab Program
- Sustainable research funding for the EMBL Partner Labs across Australia
- Core facilities for research and training activities for the Australian life sciences community



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# Case study: EMBL Australia-Melbourne

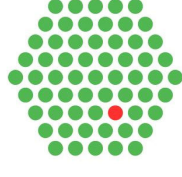
## Australian Regenerative Medicine Institute

ARMI is a newly established interdisciplinary research initiative that focuses on the basic mechanisms and clinical applications of regenerative biology.

To improve the repair or replacement of tissues and organs, regenerative medicine at ARMI will incorporate the use of genes, proteins, cells or other biological building blocks along with bioengineered materials and technologies.



MONASH University

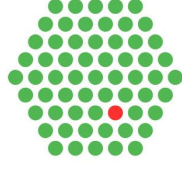


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# EMBL Australia - Brisbane

## UQ Core Capabilities– in progress

- *Comparative genomics*
- *Gene/environment networks and bioinformatics*
- *Organ development and cancer*

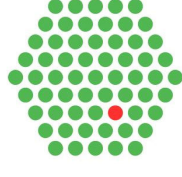


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# EMBL Australia- Sydney

## U Sydney Core Capabilities

- Chemical biology/ molecular imaging
- Small molecule screening
- Clinical trials (cancer)
- Plant biology

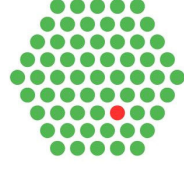


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# EMBL Australia- Perth

## UWA Core Capabilities – in progress

- Population databases
- Medical databases

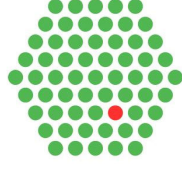


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# EMBL Australia - CSIRO

## CSIRO Core Capacities – in progress

- *Tissue engineering and stem cell biology*
- *Host-microbe interactions*
- *Plant biology*
- *Bioinformatics and computational biology*
- *Animal health/pathogens*

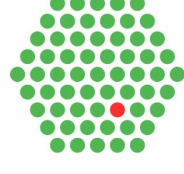


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# The Grand Challenge

Make a compelling case for EMBL Australia PLN support for 7 years and onwards to:

- The Australian life sciences research community
- The Department (DIISR)
- The Ministries of Science, Health, Finance
  - Square Kilometer Array
  - EMBL Australia
- State governments



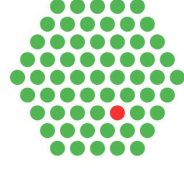
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