

EMBL

International PhD Training

Mikko Taipale, PhD
Whitehead Institute/MIT
Cambridge, MA
USA



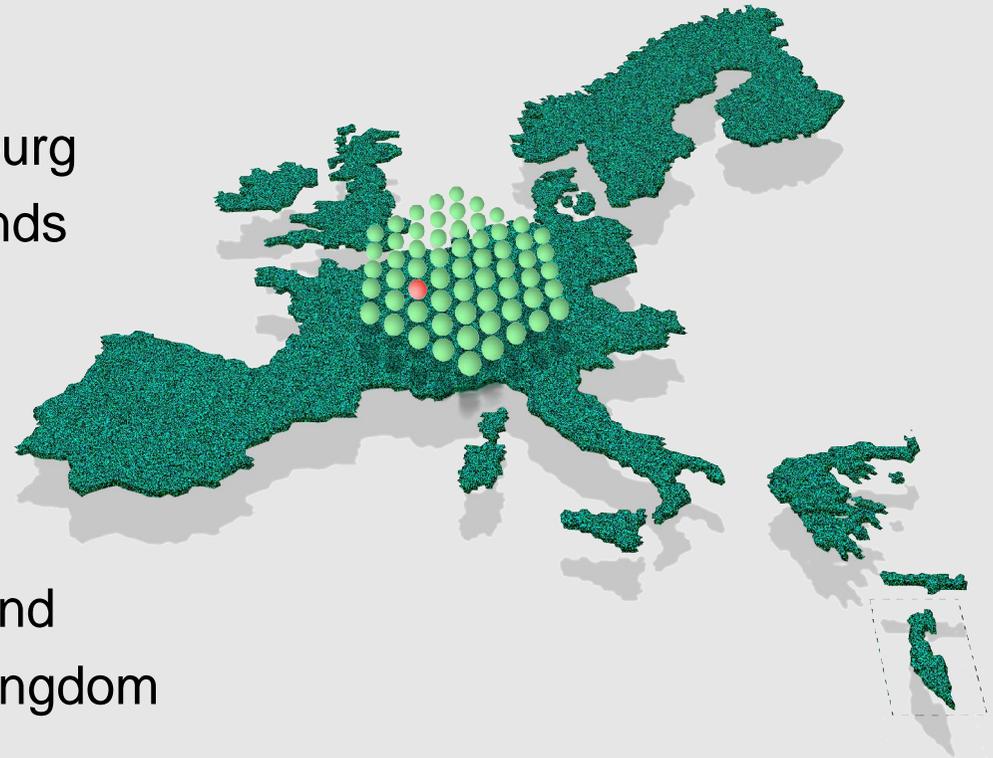
Why create an EMBL?

- The structure of DNA had been solved and first protein structures were being identified in the 1960s
- European brain-drain due to heavy US investment in science
- Europe needed a “CERN” for the new field of molecular biology
- The radical internationalization of science required new training possibilities, better scientist mobility, and large-scale services
- EMBL legally established in 1974, Heidelberg laboratory completed in 1978
- Currently, one of Europe’s largest inter-governmental scientific research organizations (with e.g. CERN, ESA, ESO, ESRF, ILL, EFDA-JET)
- More than 1400 people from 60 nations work at EMBL



20+1 Member States

- Austria
- Belgium
- Croatia
- Denmark
- Finland
- France
- Germany
- Greece
- Iceland
- Ireland
- Israel
- Italy
- Luxembourg
- Netherlands
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- United Kingdom



+ Australia (associate member)



Five EMBL Units

- Heidelberg (main laboratory)
 - Cell biology
 - Developmental biology
 - Gene expression
 - Structural and computational biology
 - Biological instrumentation
 - Grenoble (structural biology)
 - Hamburg (structural biology)
 - Hinxton (EBI-EMBL, bioinformatics)
 - Monterotondo (Research Programme in Mouse Biology)
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- Nordic EMBL Partnership in Molecular Medicine (2007)
 - Finnish Institute for Molecular Medicine (Helsinki)
 - Centre for Molecular Medicine (Oslo)
 - Laboratory for Molecular Infection Medicine (Umeå)



EMBL missions

Basic
research

Technology
Transfer

Training at
all levels

Services to
the Member
States

Development
of new
instruments
and methods



Training at all levels

Staff: Time-limited contracts

Scientists at all levels pursue ambitious projects in an interdisciplinary, international environment; staff leave after 9 years.

Visitors: Visitors Programme

Over 12% of the people at EMBL are working visitors; more than 3000 visitors per year

Dozens of seminars, workshops and conferences each year

Non-specialist community: Outreach activities

ELLS: Science training for high-school teachers

Students: International PhD Programme

Degree-granting authority with strong links to national universities



EMBL International PhD Programme

General information

- Created in 1983 (from 8 students/year to ~50 students/year)
- Four-year PhD programme
- EMBL fellowships only for students from member states
- Students from non-member states can join the programme, but only with external funding
- 60% EMBL fellowships / 40% external fellowships
- Currently: 185 students from 38 countries
- All PhD students must enter through the same admission procedure
- “Applicants must hold, or anticipate receiving before enrolment, a university degree that would formally qualify them to enter a PhD or equivalent programme in their home country.”



EMBL International PhD Programme

Recruitment and Admission

- Over 500 applicants/year
 - self-selection
 - 1:5 interviewed, 1:10 accepted
- Applications go through:
 - Evaluation by EMBL scientists familiar with the countries' national education system
 - Evaluation by 2 designated EMBL units
- 5-day selection by EMBL Faculty
 - Each short-listed candidate interviewed by all Group Leaders of two EMBL units
 - Candidate must pass the Initial Admissions Assessment, a panel interview with representatives of all EMBL units
 - Final admission 1:2



EMBL International PhD Programme

Tutoring, Guidance and Thesis Defense

- Students attend a two-month core course at the start of their PhD training
 - Students are guided by a Thesis Advisory Committee
 - 3 EMBL Group Leaders and 1 University Professor
 - Students meet annually with Thesis Advisory Committee
 - present a written report and discuss annual progress
 - discuss proposed future work
 - Students are enrolled for up to 4 years to complete their PhD project
 - Students can defend and obtain their PhD degree
 - from EMBL
 - jointly from EMBL and one of its partner universities
 - from national universities
- **Since inception, several hundred students have defended their PhD-Thesis at more than 90 universities**



EMBL International PhD Programme

EMBL Core Course

- Compulsory, two-month course on molecular biology
 - Over 350 contact hours
- Most EMBL Group Leaders participate by introducing their research topic and relevant methods
- Practical workshops
- Genomics, evolution, developmental biology, behaviour, proteomics and structural biology, cell biology, chromatin and translation, disease mechanisms and pathogens, bioinformatics
- Visit to the outstations
- Scientific communication
- Good scientific practice
- Science & society, bioethics
- Intellectual property and technology transfer
- EMBO/EMBL Meeting on Science and Society
- International PhD symposium (10th in November 2008)



EMBL International PhD Programme

The statutes of EMBL PhD programme

- Students are guided by a Thesis Advisory Committee
 - 3 EMBL Group Leaders and 1 University Professor
- Students meet annually with the committee
 - present a written report and discuss annual progress
 - discuss proposed future work
 - permission to submit the PhD thesis (final year)
- Students are enrolled for up to 4 years to complete their PhD project
- Students can defend and obtain their PhD degree
 1. from EMBL
 2. jointly from EMBL and one of its partner universities
 3. from national universities

➤ **Since inception, hundreds of students have defended their PhD theses at more than 90 universities**



EMBL International PhD Programme

Joint PhD degrees

- The EMBL PhD degree statutes can be adapted as necessary to take into account the procedures of the respective national university
 - Thesis requirements
 - Evaluation of thesis
 - Thesis examination procedures
- EMBL faculty participate in the evaluation and examination of the thesis
- Successful candidates will receive a PhD certificate that indicates the joint EMBL/University doctorate
- 29 universities in 19 different countries currently collaborate with EMBL International PhD Programme



29 Partner Universities

| | | |
|---|--|---------|
|  | 1. Katholieke Universiteit Leuven | BELGIUM |
|  | 2. University of Zagreb | CROATIA |
|  | 3. University of Copenhagen | DENMARK |
|  | 4. Technical University of Denmark | DENMARK |
|  | 5. University of Helsinki | FINLAND |
|  | 6. Åbo Akademi University | FINLAND |
|  | 7. University of Turku | FINLAND |
|  | 8. Université Louis Pasteur de Strasbourg | FRANCE |
|  | 9. Université Joseph Fourier de Grenoble | FRANCE |
|  | 10. Université Denis Diderot de Paris VII | FRANCE |
|  | 11. Université Pierre et Marie Curie de Paris VI | FRANCE |
|  | 12. University of Heidelberg | GERMANY |
|  | 13. University of Munich | GERMANY |
|  | 14. University of Crete | GREECE |



| | | |
|---|------------------------------------|-----------------|
|  | 15. Eötvös Lorand University | HUNGARY |
|  | 16. University of Iceland | ICELAND |
|  | 17. University College Cork | IRELAND |
|  | 18. University of Milano | ITALY |
|  | 19. University of Bergen | NORWAY |
|  | 20. University of Oslo | NORWAY |
|  | 21. Universidade de Lisboa | PORTUGAL |
|  | 22. Universidade Nova de Lisboa | PORTUGAL |
|  | 23. University of Moscow | RUSSIA |
|  | 24. Universidad Autonoma de Madrid | SPAIN |
|  | 25. Karolinska Institutet | SWEDEN |
|  | 26. University of Stockholm | SWEDEN |
|  | 27. University of Geneva | SWITZERLAND |
|  | 28. Radboud Universiteit Nijmegen | THE NETHERLANDS |
|  | 29. University of Dundee | UNITED KINGDOM |



EMBL International PhD Programme

Joint PhD degrees

- By collaborating with national universities, EMBL can award PhD degrees
 - no need to negotiate at a national level
 - students' degrees are from the institute in which they worked
 - EMBL internationally well-known -> future prospects
- Joint PhD degrees with EMBL increase international collaboration of national universities
 - EMBL alumni have extensive international contacts



EMBL Alumni

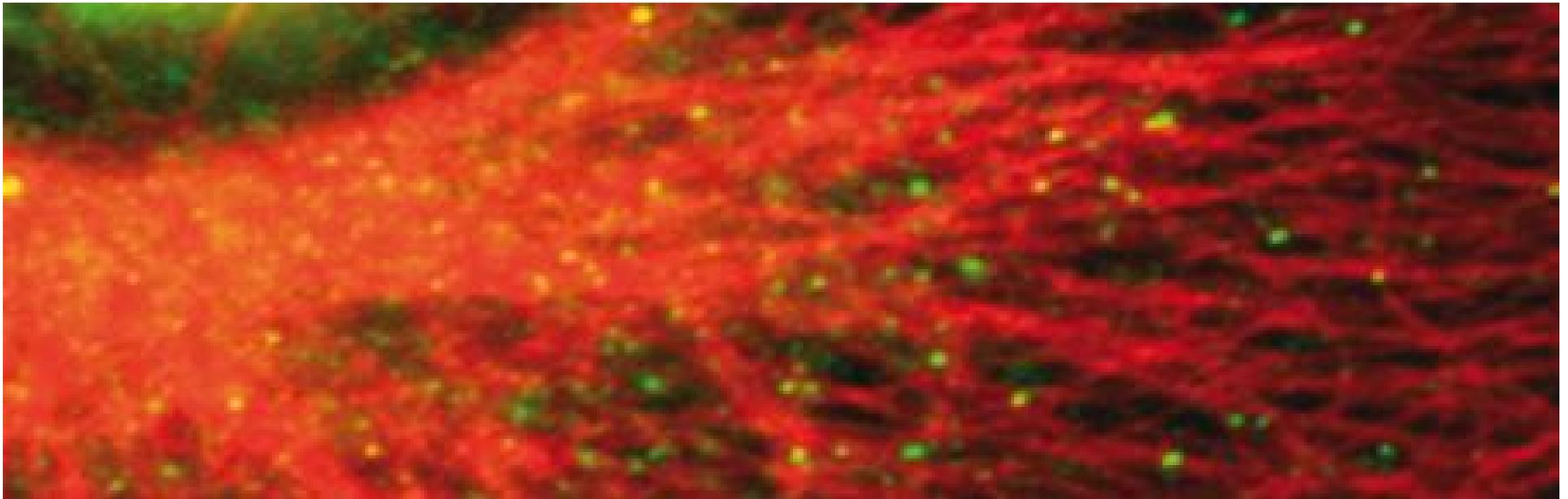
- There are currently over 4200 EMBL alumni worldwide
- 81% of alumni return to a member state
- 69 of alumni are Finnish
- 42 of them are back in Finland
- 13 have gone on to positions elsewhere in the world
- 4 non-Finnish researchers have taken up positions in Finland



EMBL International Centre for Advanced Training (EICAT)

- Foster information exchange and joint integrated planning
 - Promote joint activities within EICAT, between outstations, with EMBO and with institutions in member states
 - Creation of a state-of-the-art conference and training facility
 - Establish new strategic partnerships to promote top level advanced training in Europe
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- International PhD Programme
 - EMBL Courses and Conferences
 - European Laboratory for the Life Sciences (ELLS)
 - Visitors' Programme
 - Scholars' Programme
 - Postdoctoral Programme
 - Science and Society Programme
 - Collaborative Training Programme





www.embl.org



History of EMBL

- 1963 EMBO founded
- 1974-1976 EMBL legally established, operations in Hamburg and Grenoble
- 1978 Heidelberg Laboratory completed
- 1993 EBI in Hinxton, UK
- 1997 Mouse Biology Programme, Monterotondo, Italy
- 2007 Nordic EMBL Partnership in Molecular Medicine
 - Institute for Molecular Medicine (Helsinki)
 - Centre for Molecular Medicine (Oslo)
 - Laboratory for Molecular Infection Medicine (Umeå)

