

EMBL International PhD Programme

Excellence in advanced training

European Molecular Biology Laboratory



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EMBL Heidelberg,
Germany



EMBL-EBI, Hinxton,
UK



EMBL Grenoble,
France



EMBL Hamburg,
Germany



EMBL Monterotondo,
Italy



Welcome to the EMBL International PhD Programme

Unique in the world and waiting for you

The years you spend as a PhD student play a pivotal role in your career as a scientist. The personal friendships and professional networks you make during this time, as well as the spirit of doing science that you encounter during your PhD, will shape the rest of your working life. Clearly, a successful PhD project will also open doors that may otherwise be difficult to step through.

Doing science 'EMBL style' means that you work at the cutting edge of science in a laboratory that has been ranked as the top non-US research institution in the world*. Our research projects are interdisciplinary and offer exciting opportunities for biologists, chemists, physicists, computer scientists, mathematicians and medical graduates who want to pursue a PhD in the molecular life sciences.

Do you want to work in an international environment and in small groups with close contact to mentors? Collaboration and collegiality are hallmarks of the successful and fun EMBL culture. Whether you are looking for a friendly lab with open doors or a powerful scientific network, EMBL offers both.

In addition to hosting open and interactive research groups and providing state-of-the-art equipment, EMBL is a hub for the best scientists in the world. Its seminar programme is matched by few. We are committed to providing a fine balance between carefully mentoring students and fostering early independence. Our students are not only active researchers, but they also take part in many other initiatives: they independently organise the acclaimed EMBL PhD Student Symposia, participate in Science and Society debates and meetings,

and relax with the many musical, sports and social activities available at EMBL. Our students also have the privilege of exploring and benefiting from the enriching environments of EMBL's five sites, located in Germany, Italy, France and the UK. As EMBL students, you are ambassadors of your culture and country to EMBL, and of EMBL to your home country.

The EMBL International PhD Programme is also unique in the way its students obtain their PhD degree. We have established partnerships with some of the best universities across Europe to award joint PhD degrees with EMBL. Consequently, you may obtain your degree from either one of EMBL's partner universities or from a national university of your choice.

We invite you to apply to become an active member of the 'EMBL culture', so please read on.

We are committed to making these most valuable years of yours a great success.

Helke Hillebrand and Lars Steinmetz



Right, Helke Hillebrand, Dean of Graduate Studies and Lars Steinmetz, Joint Head of Genome Biology Unit and EIPP Academic Mentor; left, former Deans Anne Ephrussi, Head of Developmental Biology Unit and EICAT Coordinator and Matthias Hentze, Associate Director of EMBL

* ISI Science Indicator, World Rankings in Molecular Biology and Genetics, 1997–2007.

“EMBL’s International PhD Programme is a key part of the institute. The students create a youthful, dynamic atmosphere in the lab and we give them the resources and help they need to succeed.”

Iain Mattaj, EMBL Director-General




180 students are currently enrolled in the programme

Freedom for your independent spirit

GENOMES

GENOMES



Imagine a career that takes you anywhere you want to go. Where you can focus on bold questions whose answers will shape the future of science. This is a PhD in molecular biology, a frontier wide-open for discovery, which offers young people from many disciplines wonderful career opportunities all over the world.

Choosing the right career path is not easy. As you finish your undergraduate degree, you will likely find yourself facing many opportunities. A PhD is one option that stands out above the rest. It allows you to develop your independent scientific thinking, exercise your creativity, solve

fundamental biological problems and surround yourself with like-minded colleagues and advisors.

Choosing where to do your PhD degree is another important decision. Many factors come into play when you look for an institution. EMBL's excellent resources and solid funding mean that you have the security to focus on your project. The lack of barriers between research units gives you a chance to collaborate with scientists from different disciplines, bringing out the best ideas and solutions to problems. An 'open door' policy gives you the chance to discuss projects and the challenges that are invariably

associated with novel research. And camaraderie among your colleagues gives you the support you need to become an independent thinker and researcher.

The EMBL International PhD Programme provides the ideal environment for ambitious students. Our resources, facilities, and staff are second to none. We continually strive to make this the best possible place for creative PhD students. Over the course of your studies, you will develop new insights, mature into a modern researcher and make important contributions to the life sciences.

150 applicants (out of ~1000)
are invited for an interview every year

Modelling spindle positioning in the *C. elegans* embryo



Cleopatra Kozlowski

Nationality: British/Japanese/Polish
Graduated from EMBL in 2007. Cleo is now a postdoc at Genentech Inc., a large biotech company in San Francisco, California

“Being among people in the pure pursuit of knowledge is very important in learning to ask the right questions.”

As a child, Cleo was always curious about how things worked – “especially the weird things,” she says. “What first motivated me to study biology may have been the images of a two-headed fly in a first year molecular biology course about the role of Hox genes in development.”

While studying at Cambridge University in the UK, Cleo decided that EMBL was the place to continue building her scientific career, so she applied to the Cell Biology and Biophysics Unit. There she pursued her PhD in the modelling of spindle positioning in the *C. elegans* embryo using computer simulations. “Although I had worked as a summer student and undergraduate in several institutions, EMBL was the first place where I found everybody – from masters students to the heads of labs – to be truly dedicated to basic science,” she says. “It was very motivating to be among an international group of people who are united by their interest in understanding life. For a PhD student, being among people in the pure pursuit of knowledge is very important in learning to ask the right questions. That’s why I’m very glad that I was at EMBL at the PhD stage of my scientific career.”

Cleo also enjoyed her EMBL experience outside the lab. “As a ‘hybrid’ myself (I’m half Japanese, half Polish), I felt really comfortable in the international environment,” she says. “I also truly enjoyed my time in Heidelberg, and visiting the surrounding beautiful German villages.”

Taking science from the bench to society



Giuseppe Testa

Nationality: Italian
Graduated from EMBL in 2001. Giuseppe is now at the Laboratory of Stem Cell Epigenetics, European Institute of Oncology, Milan. He is a recipient of the Branco Weiss Fellowship ‘Society in Science’.

“EMBL unleashes your scientific curiosity and encourages you to take science beyond the bench.”

During his studies at medical school in Perugia, Italy, Giuseppe became increasingly fascinated with molecular biology – seeing it as the real future of medicine. He knew that EMBL was the place he wanted to be. “When EMBL called me for an interview, I didn’t hesitate,” he says.

At EMBL, Giuseppe enjoyed the vibrant mix of languages, cultures and people. “You feel really immersed in Europe at EMBL, and the friendships that you build during your PhD stay with you long after you leave the lab,” he says.

As a PhD student at EMBL, Giuseppe felt encouraged to pursue his intellectual curiosity and push boundaries. His research focused on establishing a mouse model of an acute form of leukemia and led to the breakthrough development of a new approach for the engineering of the mouse genome. This project gave him the tools with which to pursue his current work on the differentiation of embryonic stem cells.

Giuseppe also took an active role in the laboratory’s ‘Science and Society’ activities. He helped to open the dialogue between science and the public, and pursued the social implications of biotechnology through reading clubs, study sessions, conferences and workshops, while doing postdoctoral research in Dresden. This involvement led him to start a similar initiative while in Dresden, where he chaired the Dresden Forum on Science and Society at the Max Planck Institute of Molecular Cell Biology and Genetics. For his interdisciplinary project on the legal and ethical framing of cloning and stem cell research in different political cultures, he was awarded the prestigious Branco Weiss Fellowship ‘Society in Science’ in 2003.

Straight from the students: What's the best thing about doing your PhD at EMBL?

“The predoc course was great – getting to know all of the students was the best way to start my PhD” – Jelena Erceg, EMBL PhD student from Croatia.

Every year, EMBL accepts about 50 students into its International PhD Programme. These students will work at any of the EMBL sites, taking up positions in Hamburg, Grenoble, Heidelberg, Hinxton, or Monterotondo. But before they start working in their labs, the students are brought together in Heidelberg for a two-month core course in molecular biology to get an overview of the research at EMBL and to hear about new areas of science. Students learn where to go if they need help on a certain problem or technique during their PhD. They also participate in practical activities, journal clubs and discussions.

Many of our students come from physics, mathematics and chemistry backgrounds and the

course gives them a good idea of problems facing molecular biologists. Students are guaranteed close contact with EMBL group leaders, giving them a chance to learn more about their research and expertise. And perhaps most importantly, the students get to know each other during the courses and in the many social events that are organised for and by the new predocs. EMBL students have a wide social network in the lab, which often leads to fruitful scientific collaborations.

“What struck me is that people actually listen to what you have to say” – José Afonso Assunção, EMBL PhD student from Portugal.

When it comes to science and research, there are few molecular biology institutes that can be compared to EMBL. The fact that many group leaders are also beginning their scientific careers and only stay at EMBL for a limited number of years guarantees a

young, dynamic and informal environment. This open and collegial atmosphere encourages students to share their opinions and ideas. They feel that what they say really matters.

Students are given guidance and supervision by group leaders, but are encouraged to look independently for expertise and collaborative projects in their area of research. Students are encouraged to take their projects in the direction that interests them most.

“Great science done by great scientists. And it's easy to find people to discuss your next experiment over a cup of coffee” – Joseph Foster, EMBL PhD student from the UK.

EMBL gives students exposure to the most exciting research in molecular biology. With experts in the fields of bioinformatics, gene expression, cell biology and

Straight from the students: What's the best thing about doing your PhD at EMBL?

biophysics, developmental biology, structural and computational biology and mouse biology, students have a wealth of knowledge from which to draw. Because the institution has a training mentality, EMBL scientists are easily reachable to discuss scientific projects, hear about a student's work or develop collaborative projects. Doors are always open, questions welcome and help available when you need it. The relaxed atmosphere in the lab enables easy communication with scientists and provides many opportunities to make connections and establish collaborations.

“Organising the PhD symposium broadened my knowledge and offered inspiration” – Alex De Marco, EMBL PhD student from Italy. PhD students are also given a very unique opportunity – to independently organise their own conference.

The EMBL International PhD Symposium is organised by students from beginning to end. They decide the topic, select and invite the speakers, and secure funding. Previous symposia have dealt with a variety of interdisciplinary themes, such as ‘From Genes to Thoughts’, ‘Evolution’ and ‘Design of Life: Learning from Nature’. Every year, this event brings together hundreds of students and the feedback from the participants and the speakers has been very enthusiastic.

“Life at EMBL stretches far beyond the laboratory bench” – Orit Hermesh, EMBL PhD student from Israel.

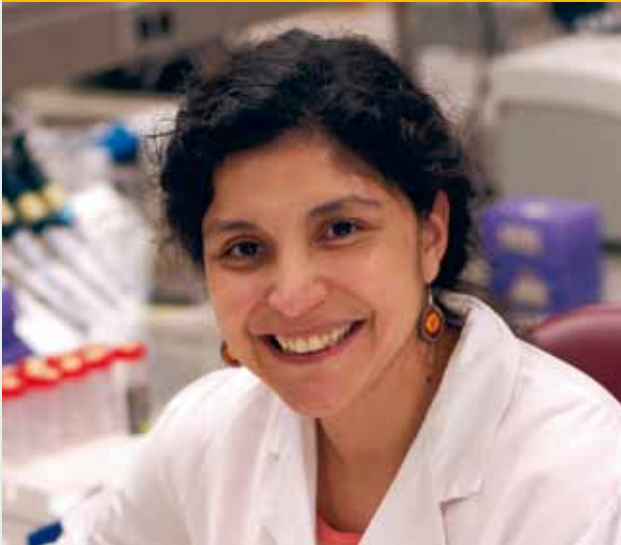
EMBL's Staff Association generously supports different activities outside the lab. The music club organises concerts for EMBL scientists who enjoy playing or singing to share their music with others. The movie club shows recent films each week, and the various sports clubs, including

diving, climbing and waterskiing, offer special rates and even trips to exotic locations. Throughout the year, parties bring all the departments together to enjoy the mix of cultures at EMBL. In January, the Scots throw a traditional ‘Burns’ night, the Germans celebrate ‘Oktoberfest’ in the autumn and the Greek community has been known to bring all nationalities together for great food and traditional dancing.

“All the EMBL sites offer superb scenery and access to great European cities” – Romain Gibeaux, EMBL PhD student from France.

Whether it be skiing on the local hills in Grenoble, enjoying the classic student town of Cambridge, biking through the forest in Heidelberg, strolling along the famous Hamburg harbour, or touring around Rome, students get to know and enjoy the beautiful European locations of EMBL.

Opening doors to a career in science



Marina Ramirez-Alvarado

Nationality: Mexican

Marina was the first student representative at EMBL and graduated in 1998. She is now an Assistant Professor at the Mayo Clinic in Rochester, Minnesota, USA.

“Doing my PhD at EMBL opened every door for my career.”

Now an Assistant Professor at the Mayo Clinic in Minnesota, Marina is studying diseases associated with misfolded proteins. Her interest in protein structure began at EMBL. She was drawn to the lab by its world-class facilities, interdisciplinary environment and international staff.

“EMBL trained me to exercise my creativity and to believe in what I do. It gave me the confidence to set my goals high and the knowledge to reach those goals.”

Marina's PhD work at EMBL involved the design and characterisation of different peptides using a variety of spectroscopy. The work of Marina and her colleagues was an important first step towards understanding the beta-sheet structure of proteins, which plays a key role in Alzheimer's and other diseases. After finishing her PhD, Marina went to Yale University to do postdoctoral research – to study how infectious proteins form very stable beta-sheet structures called amyloid. At the Mayo Clinic, she is studying the molecular mechanisms underlying a rare amyloid disease called light chain amyloidosis.

In addition to her work at the lab bench, Marina enjoys teaching courses in molecular biology to graduate students at the Mayo Clinic.

A fusion of physics and biology for a developmental blueprint



Philipp Keller

Nationality: German

Philipp graduated from EMBL in 2009 and is now a fellow at Howard Hughes Medical Institute's Janelia Farm Research Campus.

“It's much more important to think about what you really enjoy doing, rather than making a decision based on what you might or might not achieve.”

Philipp started out as a physicist, but found himself becoming interested in a fusion of biology and physics after getting involved in practicals at Heidelberg's Max Planck Institute for Medical Research. “When I was deciding where to do my PhD, someone suggested that I check out what the groups at EMBL were doing. I looked at the website and was really interested in EMBL's multidisciplinary projects – I found they were exactly the kind of topics I wanted to pursue.”

During his PhD, Philipp achieved a groundbreaking result – the first complete developmental ‘blueprint’ of a vertebrate – with his reconstruction of zebrafish embryonic development using a Digital Scanned Laser Light Sheet Microscope. The resulting video gained huge interest from the media and was named one of the top ten ‘breakthroughs of 2008’ by Science. “The technology we developed at EMBL was the key to producing the data needed to achieve this,” he says. “But from a scientific point of view, all my projects were just as invaluable in helping me develop my skills.”

Philipp was impressed by the possibilities offered at EMBL. “I pursued several projects during my PhD, which allowed me to explore entirely different areas of biology and find out for myself what I might want to continue with in the future,” he says. “The amazing thing about EMBL is that you can just go to a lab next door or down the hall and start a collaboration in whatever area interests you. It's also great to come to EMBL at the beginning of your career and to be exposed early on to all the different topics, and to be involved in research at the cutting edge of science.”

EMBL Research Units

EMBL science covers a wide spectrum of themes in basic research. The focus ranges from the study of sequences and structures of single molecules to their functions in cell structures and behaviour and their influence on the development and lives of organisms. Increasingly, many research groups are combining their multidisciplinary skills in a systems biology approach.

Research is organised into units at the five EMBL sites. Technical and support groups interact heavily with and participate in the work of

the researchers. For example, EMBL's pioneering role in the field of bioinformatics has led to a fruitful integration of computational scientists with those that work at the bench. And the staff of the core facilities develop new methods as they help users learn to use advanced instruments and techniques.

Recent years have seen a dramatic increase in interdisciplinarity within molecular biology: researchers looking at embryonic development are rapidly learning about the biochemical and cellular

functions of key genes; data from physical measurements lead to mathematical simulations that can suggest experiments in cells and organisms; gene expression studies are allowing scientists to create new hypotheses about 'missing links' in evolution. EMBL has created scientific 'centres' to further encourage such cross-disciplinary work.

The following summarises the activities of the research units at EMBL. To find out more about specific research projects, visit www.embl.de/research_general.

50 students are accepted
into the programme each year

EMBL-EBI, Hinxton, UK

Bioinformatics



Janet Thornton
Director



Graham Cameron
Associate Director

As a hub of bioinformatics in Europe, EMBL's European Bioinformatics Institute (EMBL-EBI) is a world leader in the bioinformatics revolution: it provides data resources in all the major molecular domains and has a diverse and thriving research base. It also provides training and industrial support. Its mission is to provide freely available data and bioinformatics services to all facets of the scientific community in ways that promote scientific progress; to contribute to the advancement of biology through basic investigator-driven research in bioinformatics; to provide advanced bioinformatics training to scientists at all levels, from PhD students to independent investigators; and to help disseminate cutting-edge technologies to industry.

The EBI grew out of EMBL's pioneering work in providing public biological databases to the research community. Its comprehensive range of databases includes EMBL-Bank, Ensembl, ArrayExpress, UniProt, the Protein Data Bank in Europe, InterPro, IntAct and Reactome.



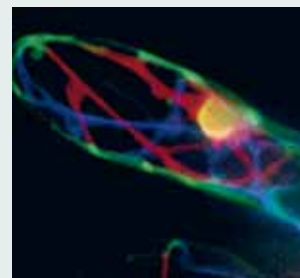
EMBL Heidelberg, Germany

Cell Biology and Biophysics



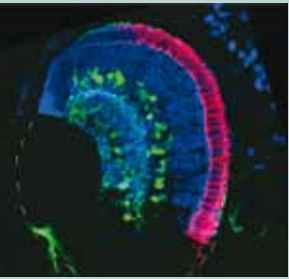
Jan Ellenberg
Head of Unit

The Cell Biology and Biophysics Unit concentrates on understanding the molecular mechanisms and physical principles that give rise to cellular organisation and function, in particular membrane trafficking, cytoskeletal networks and chromosomes and the nucleus and their role in mitosis and meiosis, as well as in development. New directions are being explored at the interface between cell and developmental biology to understand how the cellular organisation and collective cell behaviour lead to organ formation. Physicists and chemists work together with biologists to try to elucidate the fundamental rules that govern dynamic cell organisation and function while developing new instruments and tools. Novel developments in microscopy and computer simulations are a particular strength of the unit.



Developmental Biology

EMBL Heidelberg, Germany



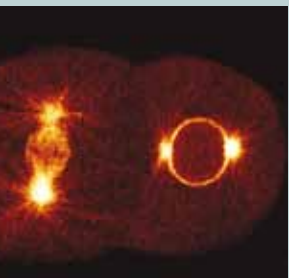
Developmental Biology is concerned with how the body patterns of multicellular animals are designed and constructed. The life of a multicellular animal starts from a single haploid cell, the egg, which shortly after fertilisation begins to divide to make the embryo. Groups in the Developmental Biology Unit seek to understand how the genetic information is used to make the many different types of cells in the embryo and organise them in a coherent body plan. Research in the unit is aimed at elucidating the basic principles and mechanisms underlying fundamental developmental processes: cell fate-specification and polarity, tissue morphogenesis, organogenesis and growth control, developmental timing, and the evolution of developmental strategies. Using animal and plant model organisms, groups in the unit combine genetics, biochemistry, bioinformatics, high-throughput genomics, proteomics, and live imaging to understand how cellular and molecular processes evolved and are coordinated in living organisms.



Anne Ephrussi
Head of Unit

Genome Biology

EMBL Heidelberg, Germany



The genome encodes the genetic blueprint that coordinates all cellular processes. The Genome Biology Unit takes a systems biology approach to unravel the tightly regulated, complex processes of gene expression at transcriptional, post-transcriptional and post-translational levels. We are particularly interested in understanding how the genome is utilised to give rise to specific phenotypes and how genetic variation results in phenotypic diversity and disease.

A particular strength of the unit is its ability to address questions at different scales, from detailed mechanistic studies to genome-wide studies, to understand the processes leading from genotype to phenotype. The synergy between computational and wet-lab groups provides an interactive and collaborative environment to yield unprecedented insights into how genetic information is 'read' and mediates phenotype through molecular networks.



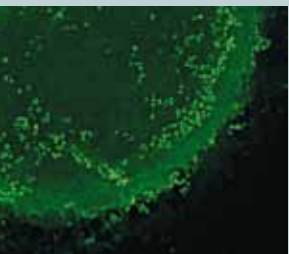
Lars Steinmetz
Joint Head of Unit



Eileen Furlong
Joint Head of Unit

Mouse Biology

EMBL Monterotondo, Italy



The EMBL Mouse Biology Unit based at the Monterotondo outstation near Rome is a basic research centre of excellence and innovation in mouse genetics and functional genomics, the premier model for mammalian development and human diseases. New opportunities and applications of genetic manipulation are captured through alliances with other EMBL research units, neighbouring facilities in the European Mouse Mutant Archive (EMMA) and Italian national research (IBC-CNR) groups, as well as other European centres.

The unit participates in several Europe-wide initiatives to establish an international research and information network, linking advances in genetics, phenotyping, physiology and biomedical features.



Nadia Rosenthal
*Head of EMBL
Monterotondo*

Structural and Computational Biology

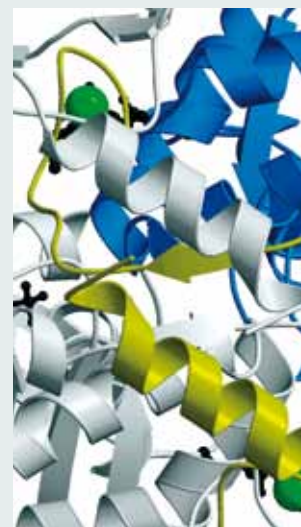


Peer Bork
Joint Head of Unit



Christoph Müller
Joint Head of Unit

Structural and computational biology research at EMBL aims to bridge the world of small biological entities (proteins, nucleic acids) to the world of larger ones (cells and organisms). The **Heidelberg** Structural and Computational Biology (SCB) Unit consists of twelve research groups using structural biology techniques including X-ray crystallography, NMR (nuclear magnetic resonance) and EM (electron microscopy) as well as covering a number of bioinformatics areas such as genome analysis, network biology and tool development. Biochemistry, chemical biology and single molecule fluorescence spectroscopy and integrative aspects of computational biology complement these activities and are applied to a wide range of research areas from single molecules to cellular systems leading to a comprehensive description of biological function.



Stephen Cusack
*Head of EMBL
Grenoble*

EMBL **Grenoble** has a very active research programme in structural biology of cellular processes (e.g. transcription, translation, RNA quality control, viral replication, innate immunity, small non-coding RNAs). Research is facilitated by the wide range of techniques (molecular biology, biochemistry, cryo-electron microscopy and tomography, high-throughput expression and crystallisation robotics, neutron scattering, NMR, X-ray crystallography and small angle X-ray scattering (SAXS)) available through the Partnership for Structural Biology which links the European Synchrotron Radiation Facility (ESRF), Institut Laue Langevin (ILL) and local French structural biology institutes. The outstation also develops new technologies for high-throughput crystallisation and makes significant contributions to the instrumentation and MX and SAXS services at the ESRF, and is part of an international research unit focused on virus-host cell Interactions with the city's University Joseph Fourier and the CNRS as partners.



Matthias Wilmanns
*Head of EMBL
Hamburg*

EMBL **Hamburg's** research programme is highly attractive to biologists, chemists, physicists and engineers. Key activities on challenging projects in structural biology are in the following areas: development of the embryonic immune system, host/pathogen mechanisms leading to tuberculosis, the architecture of muscle sarcomeres, peroxisome biogenesis and transport, mechanisms in protein kinases and phosphatases. In addition, there are research projects to develop methods for automatic interpretation of structural biology data in protein crystallography and small angle X-ray scattering (SAXS), and in synchrotron instrumentation.

EMBL sites

EMBL Heidelberg

The main Laboratory of EMBL is nestled in the forested hills above Heidelberg, Germany. About 960 staff members work closely in its integrated research units, and the central service facilities and administration of EMBL are also located here. The large number of university students contribute to Heidelberg's young and dynamic flair. The narrow, picturesque streets of the Old Town are filled with theatres, cinemas and countless restaurants and pubs. The famous Schloss (castle) is majestically set above the centre of the city.

EMBL Hamburg

The city of Hamburg, Germany offers a wide spectrum of activities from art exhibitions, music, theatres, sports and the ambience of a large city. You find water almost everywhere, at the historical port, the inner-city lake Alster, the river Elbe and the nearby North and Baltic seas. The EMBL Hamburg Unit is located on campus of the German photon science research centre DESY, which hosts world-leading synchrotron and laser facilities: DORIS-III, PETRA-III, FLASH and X-FEL. EMBL is constructing a new integrated structural biology research facility, EMBL@PETRA3, which will host three beamlines for applications in structural biology, complemented by facilities for biological sample characterisation and automatic data evaluation.

EMBL Grenoble

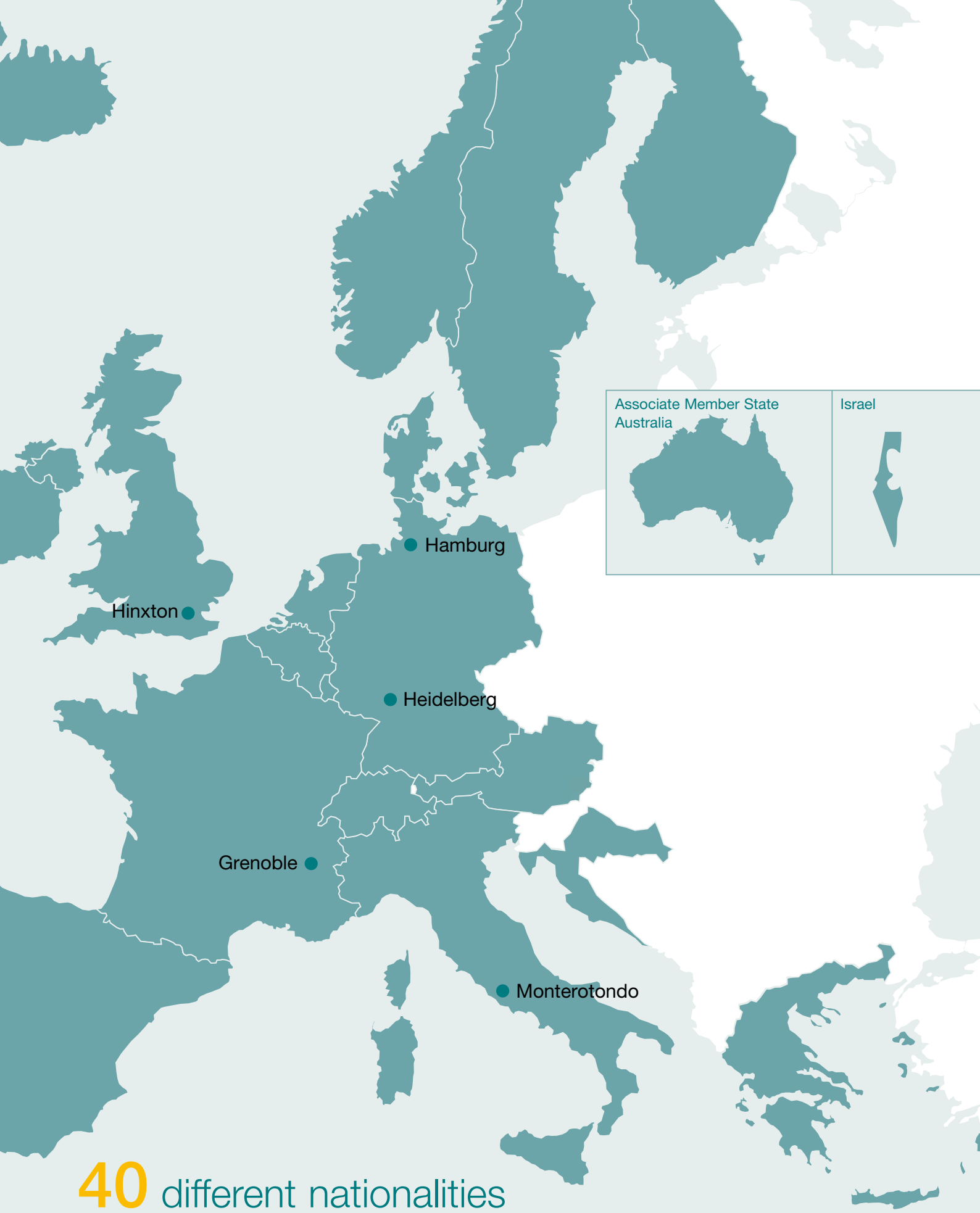
This EMBL outstation shares a campus with the Institut Laue Langevin (ILL) and the European Synchrotron Radiation Facility (ESRF) in Grenoble, France. Situated in the heart of the Alpine mountain range, Grenoble is the capital of the French Alps and a lively university town, with students representing one-tenth of the population. Residents enjoy activities such as hiking, mountain climbing, skiing and snowboarding, rafting, kayaking, and canoeing as well as a wide variety of cultural activities in the city.

EMBL-EBI Hinxton

The European Bioinformatics Institute (EMBL-EBI) is located on the Wellcome Trust Genome Campus in Hinxton, near Cambridge (UK). The campus provides an exceptionally stimulating environment in which to conduct top-quality research, and is regularly visited by some of the greatest minds in the biomedical sciences. The EBI is housed in modern buildings in a beautiful rural setting and is only a stone's throw from the historic university town of Cambridge, where ancient college buildings rub shoulders with peaceful meadows. As one of the world's most important academic centres for almost 800 years, Cambridge has an unrivalled reputation for scientific achievement. Its strength in pure science has spilled over to the region's commercial sector, which boasts one of the most mature and commercially successful biotechnology clusters in Europe.

EMBL Monterotondo

The EMBL Monterotondo campus in Italy is situated in a green park, 20 km north of central Rome. The Eternal City is an easy train ride away, and the nearby Lazio countryside features medieval hill towns, spectacular mountain terrain and lakes for hiking, biking, skiing and swimming. EMBL shares the Monterotondo campus with Italian national research groups (IBC-CNR) and the European Mouse Mutant Archive (EMMA).



40 different nationalities
are currently represented by
the student body

The EMBL philosophy: open doors and collaboration



Antonio J. Giraldez

Nationality: Spanish

Antonio graduated from EMBL in 2002 and stayed as a bridging postdoc until February 2003. He's now an assistant professor at Yale University in New Haven, Connecticut.

"I know of no other institute quite as special as EMBL, both as a place to do science and a place to have fun."

"From the PhD interviews onwards you're exposed to dozens of different nationalities at EMBL," says Antonio, who studies how RNAs shape embryo development. "Arriving as a student in a foreign country – something that could be intimidating – becomes a fantastic experience, because fifty other students are in the same boat. It's the perfect recipe for firm friendships and camaraderie, as well as a great breeding ground for scientific collaborations and networks."

Antonio spent a summer internship in an EMBL lab before applying to the PhD programme. "I found myself in one of the scientific centres of the world," he says. "I got exposure to amazing science both from my colleagues and from the numerous lectures and courses run by world leaders in their fields."

Antonio admires the tremendous motivation of everyone at EMBL. "After leaving, I came to realise the wisdom of those that played a fundamental role in shaping the EMBL philosophy of open doors, communication and collaboration," he says. "Most importantly, I owe some of my best friends, and even my wife, to my time at EMBL."

A chance to inspire science teaching in schools



Elena Seiradake

Nationality: Greek

Elena graduated from EMBL in 2006 and was the first EMBL recipient of a Marie Curie E-STAR fellowship to defend her thesis. She is now a postdoc in the Division of Structural Biology at Oxford University's Wellcome Trust Centre for Human Genetics.

"The things that make EMBL such a great place are the excellent scientific facilities and the open minded, dynamic and multicultural people."

As a recipient of a Marie Curie Early-Stage Training in Advanced Life Science Research (E-STAR) fellowship, Elena was offered opportunities to learn extra skills to complement her scientific research. One such activity was a 'Learning Lab' for teachers, organised by EMBL's dedicated education facility, the European Learning Laboratory for the Life Sciences (ELLS).

"The teachers were very eager to learn about our work, and this really increased my regard for our own research," says Elena. The experience of communicating science to non-researchers was so positive that she became involved in other such events, including Grenoble's Science Teaching Festival.

When not communicating science, she found her work at the bench very rewarding too. "Besides giving me an exciting project, my supervisor found the perfect balance between giving advice and allowing freedom in the lab," she says. "The freedom motivated me by making me feel responsible for my project, but whenever I got stuck I could always ask him for help."

8 weeks are spent in Heidelberg during the Core Course in Molecular Biology

Our Partner Universities

Both, EMBL and its International PhD Programme strive to contribute to the European academic landscape by establishing bonds with national education systems. We are committed to meeting the highest standards for the education and training of PhD students in the molecular life sciences and to seeking innovative solutions to further improvements. In its mission, the EMBL International PhD Programme sees itself as a strong and loyal

partner of the universities in its Member States. Based on EMBL's authority to grant PhD degrees, we have initiated a Partnership Programme with some of the most highly respected universities in Europe. An important aspect of this initiative is that EMBL PhD students can obtain joint PhD degrees from us together with our partners.

Our long-term ambition is that these partnerships, which are

currently bilateral between EMBL and specific universities, will grow into a network for the optimal recruitment, training and career support of its PhD students. We are happy that the universities listed below have already become EMBL's partner universities, and look forward to more universities joining in the future. Please see www.embl.de/training/eipp/partner_universities/index.html for the latest update.

EMBL International PhD Programme Partner Universities (as of January 2010):

Belgium

Katholieke Universiteit Leuven

Croatia

University of Zagreb

Denmark

University of Copenhagen
Technical University of Denmark

Finland

University of Helsinki
Åbo Akademi University
Turku University

France

Université Joseph Fourier de Grenoble
Université Louis Pasteur de Strasbourg
Université Paris 7 – Denis Diderot
Université Paris 6 – Pierre et Marie Curie

Germany

Ruprecht-Karls-University of Heidelberg
Ludwig-Maximilians University of Munich

Greece

University of Crete

Hungary

Eötvös Loránd University

Iceland

University of Iceland

Ireland

University College Cork

Italy

University of Milano

Netherlands

Radboud University Nijmegen

Norway

University of Bergen
University of Oslo

Portugal

Universidade Nova de Lisboa
Universidade de Lisboa

Russia

Lomonosov Moscow State University

Spain

Universidad Autónoma de Madrid

Sweden

University of Stockholm
Karolinska Institutet

Switzerland

University of Geneva

United Kingdom

University of Dundee, Scotland

Quick guide to the programme

Are only students from member states eligible to apply? What about students from non-member states?

Highly qualified students of all nationalities may apply for the EMBL International PhD Programme (EIPP).

What type of degree will I need when I apply?

PhD applicants must hold, or anticipate receiving before enrolment, a university degree that would formally qualify them to enter a PhD or equivalent programme in the country where the degree was initially obtained. All applications are evaluated solely on the basis of qualification and scientific potential.

Can I apply for the PhD Programme before I receive my degree?

Yes. Applications can be submitted before obtaining the degree, though you must be scheduled to complete your degree by the start of your contract at EMBL.

Do I need to choose and contact a specific group leader with whom I want to work before applying to the EMBL International PhD Programme?

No. It is neither necessary nor recommended to contact group leaders individually. Students wishing to apply for the EMBL International PhD Programme will find all necessary information regarding research projects of the various units on the EMBL website. On the application form, the student may choose one or two units as well as selecting from a list of research keywords and, if invited, is interviewed by all group leaders of either or both of the units. Note that not all group leaders accept students each year.

When do I need to submit my application form?

The application deadlines and all relevant information are published well in advance on the PhD Programme website (www.embl.de/training/eipp/index.html). Please note that the entire application procedure is now online. There are two rounds of applications each year.

What is the format of the interviews?

Firstly, each candidate will be interviewed during the Initial Admission Assessment (IAA) interview. This is a 15 minutes pass interview and is the prerequisite to be eligible to join the EIPP. General knowledge questions will be asked taking the applicant's background into account. Everybody who passes this interview is, in principle, eligible to enter the EMBL International PhD Programme, and will be interviewed further in one-on-one chats with group leaders from the chosen units.

23 is the average age of an incoming PhD student

Will I receive feedback about my application even if I am not invited for an interview?

The very large number of applications to the programme makes it impossible for us to give specific feedback regarding the merits of each application. However, our online application system allows us to offer something unique even to those applicants who are not invited for interview: the Shared Applicant Pool. A question on the application form asks whether the applicant would like his/her application to be made available to other interested colleagues, in case he/she cannot be admitted to the EMBL International PhD Programme. So, with the click of a button, our applicants are given the opportunity to be considered for PhD positions in an even larger group of top-quality research laboratories. These include our Partner Universities and other excellent research groups with

whom EMBL has close ties. The effort of making a good application to the EMBL International PhD Programme can therefore bring extra benefits.

If invited for interview will EMBL cover my travel expenses?

EMBL covers reasonable travel expenses and will reimburse those during the interview week. All claims necessitate receipts.

If I am accepted for the EMBL International PhD Programme, when can I start?

Successful applicants can commence their PhD any time after the interviews and should ideally start by October at the latest of any given year. Starting dates are decided upon in agreement with the respective group leader.

Do I need to register with a university before I start my contract?

No. Students must register with a university during their first year in the EMBL International PhD Programme.

Is there help with finding accommodation?

Yes. EMBL has guesthouse apartments which can be rented for the first few months after your arrival, giving you time to find suitable accommodation. The EMBL housing service has apartments from local landlords on offer as well.

How will I finance my PhD studies?

EMBL provides a competitive stipend judged by international standards including broad health care benefits. Actual stipend rates are published on our webpage www.embl.de/training/eipp/index.html.

Quick guide to the programme

I have my own funding. Does this guarantee a place in the programme?

All applications are evaluated solely on basis of qualification and scientific potential. All invited candidates must successfully pass the interview procedure in order to be eligible.

What is the predoctoral course and do all students have to take it?

The predoc course is compulsory for all EMBL PhD students. This course, called the “Core Course in Molecular Biology,” is taught by EMBL faculty and is held at the beginning of the first academic year (i.e. October to December) at the main lab in Heidelberg. The course covers all scientific areas represented at EMBL and includes lectures, practicals and student seminars.

Who will supervise and mentor me during my studies?

In addition to the day-to-day supervision by a group leader, each EMBL PhD student has a Thesis Advisory Committee, consisting of the group leader and up to three

other advisors (typically one additional EMBL group leader from the same unit, one from a different unit and a non-EMBL scientist from the student’s university, who guide the student during thesis work. After the first six months, students prepare a written outline of their thesis project and discuss it with the committee. At the end of the first, second and third years, students write an annual report on their work, give a seminar, and discuss the report and seminar with their Thesis Advisory Committee.

How is the PhD thesis evaluated?

This will be affected by the requirements of the university at which you are registered. In general, the thesis is evaluated in terms of scholarly criteria by each member of a Thesis Examination Committee. One criterion is the likely acceptability of the thesis work for publication in international peer-reviewed journals. A decision is delivered by the Chair of the Thesis Examination Committee on the basis of the committee members’ written reports.

What type of degree will I receive?

In December 1997, in recognition of the high quality of its International PhD Programme, EMBL was granted the right to award its own PhD degrees. EMBL became the first international institution providing training in molecular biology in Europe with this capability. Currently, EMBL students obtain their degree from a national university or jointly with EMBL.

How long does it take students to complete their PhD?

Students enrolled in the EMBL International PhD Programme must complete their degrees within 3.5 to 4 years.

Contact information

For more information, please contact:

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Pictures

Cover: Course participant and Alexandra Manaia (photo by Maj Britt Hansen, EMBL); page 2: EBI campus (photo by Marietta Schupp); page 3: EMBL Heidelberg (photo by Maj Britt Hansen, EMBL-EBI, EMBL Hamburg (photos by Marietta Schupp), EMBL Monterotondo (photo by Udo Ringeisen), EMBL Grenoble (photo by Christine Panagiotidis); page 4: Matthias Hentze, Anne Ephrussi, Lars Steinmetz and Helke Hillebrand (photo by Marietta Schupp); page 5: Iain Mattaj (photo by EMBL Photolab), ELLS LearningLAB (photo by Hugo Neves); pages 6–7: Text books (photo by Maj Britt Hansen); page 8: Cleopatra Kozlowski (photo provided by Cleopatra Kozlowski), Giuseppe Testa (photo by Christine Panagiotidis); pages 9–10: Christine Panagiotidis, EMBL; page 11: Marina Ramirez-Alvarado (photo provided by Marina Ramirez-Alvarado), Philipp Keller (photo by Christine Panagiotidis); page 12: glasses (photo by Udo Ringeisen); page 13: Janet Thornton (photo by Marietta Schupp), Graham Cameron, Jan Ellenberg (photos by Maj Britt Hansen); page 14: Anne Ephrussi, Eileen Furlong (photos by EMBL Photolab), Lars Steinmetz (photo by Marietta Schupp), Nadia Rosenthal; page 15: Christoph Müller, Peer Bork, Matthias Wilmanns (photos by Marietta Schupp), Stephen Cusack (photo by Christine Panagiotidis); page 16–17: European Map (graphic by Petra Riedinger); page 18: Antonio Giraldez (photo provided by Antonio Giraldez), Elena Seiradake (photo by Aris Karastergiou); page 20: DNA Chip Slide (photo by Maj Britt Hansen); page 22: Beamline Board (photo by Maj Britt Hansen)

EMBL member states are

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Norway, Portugal, Spain, Sweden, Switzerland
and the United Kingdom. Associate member
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