



University of Helsinki

- Founded in 1640
- Operates on 4 campuses in Helsinki and at 19 other locations
- 4,000 researchers and teachers
- 35,000 students (+ 60,000 participate in adult education)



University of Helsinki

4 Campuses / 11 Faculties

City Centre Campus

- Arts
- Theology
- Law
- Behavioural Sciences
- Social Sciences

Kumpula Campus

- Science

Viikki Campus

- Biological and Environmental Sciences
- Agriculture and Forestry
- Veterinary Medicine
- Pharmacy

Meilahti Campus

- Medicine



University of Helsinki

4 Campuses / 11 Faculties



Viikki Campus

Biological and Environmental Sciences

Department of Biosciences

University of Helsinki

- **3-cycle education** (Bologna process):
Bachelor of Science (B.Sc.)
Master of Science (M.Sc.)
Doctor of Philosophy (Ph.D.)
- **European Credit Transfer and Accumulation System (ECTS):**
60 ECTS credits = 1500-1800 hours of study
- >30 International **Master's Programmes** (e.g. in Neuroscience)
- 33 Graduate Schools / **PhD programmes** (e.g. FGSN)



PhD degree in Finland

- Postgraduate studies: Courses, book exams etc. 60 credits
- PhD thesis: Research work → results published in peer-reviewed journals →
1-4 publications + literature review
- 2 pre-examiners of the thesis
- Public defence of the thesis

Finnish Graduate School of Neuroscience (FGSN)



Finnish Graduate School of Neuroscience (FGSN)

Department of Biosciences
P.O.BOX 65 (Viikinkaari 1),
00014 University of Helsinki, Finland

<http://www.helsinki.fi/fgsn>

Professor Kai Kaila, Chairman

Kai.kaila@helsinki.fi

Dr. Katri Wegelius, Coordinator

Katri.wegelius@helsinki.fi



HISTORY

- 1995** **Helsinki Graduate School in Neurobiology**
5 research groups, 6 doctoral students

- 1998** **Finnish Graduate School of Neuroscience**
18 research groups, 14 doctoral students

- 2010** **Finnish Graduate School of Neuroscience**
35 research groups, 57 doctoral students



FUNDING

Ministry of Education:

- 4-year student positions
about 5 starting positions/year
28.000 euros/student/year
- Coordinator (until 2013)



Academy of Finland:

- Courses, travelling (about 60.000 euros/year)

Universities / Foundations / EU / etc.

- Matching Funds Students
- Research groups
- Courses, travelling





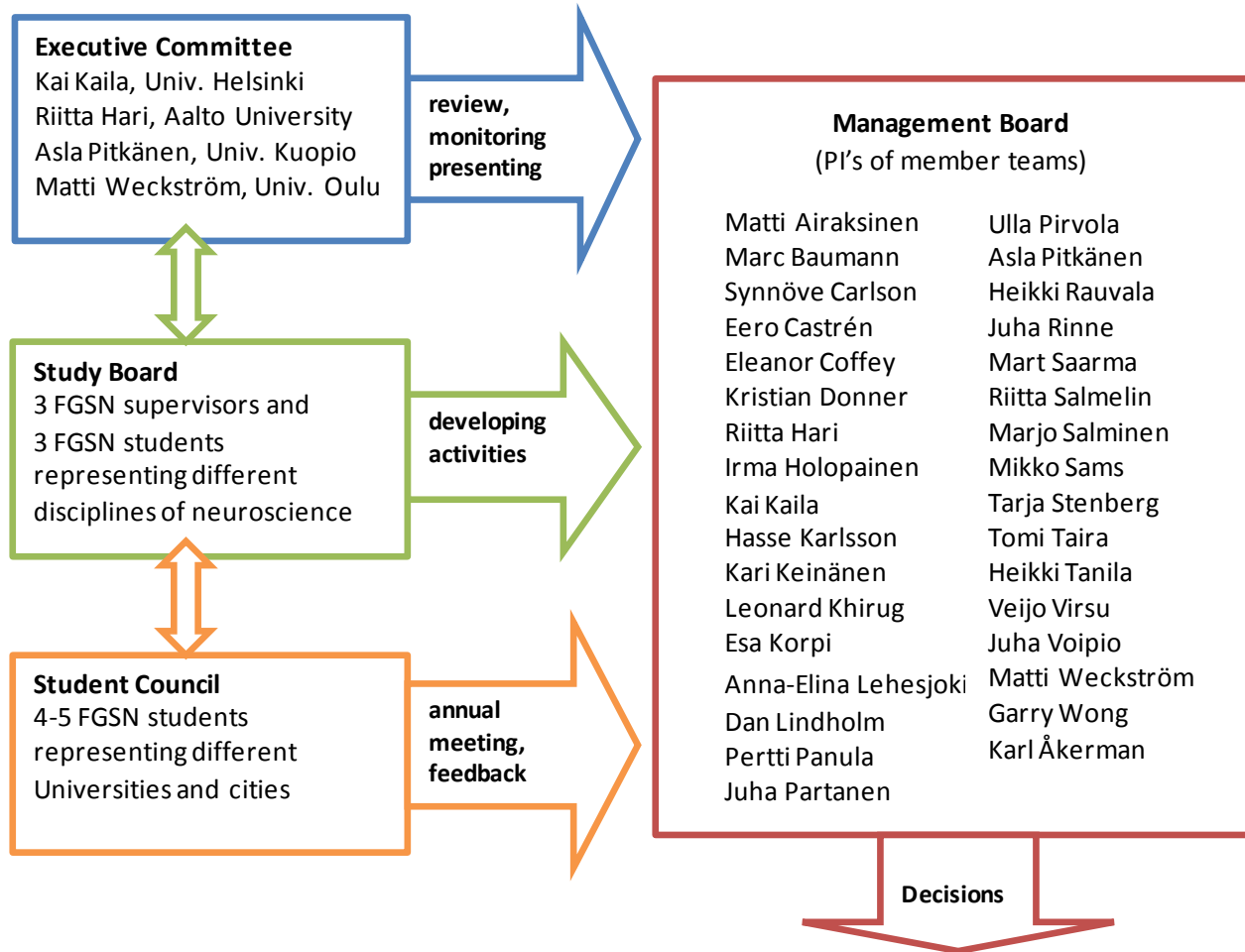
ORGANIZATION

Executive Committee (governing body)

Professor Kai Kaila, chairman	University of Helsinki
Professor Riitta Hari	Aalto University (Helsinki University of Technology)
Professor Asla Pitkänen	University of Eastern Finland (Kuopio)
Professor Matti Weckström	University of Oulu



ORGANIZATION

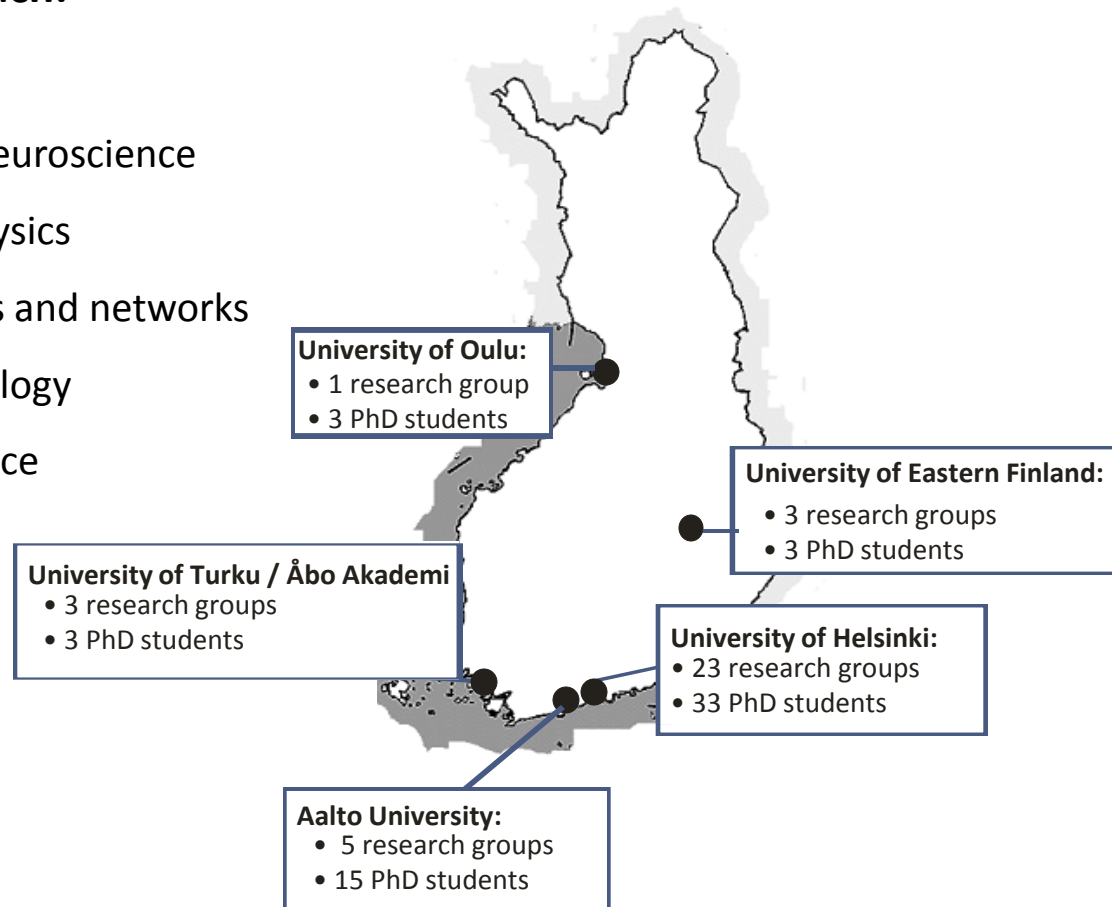




RESEARCH AND TRAINING

Multidisciplinary approach:

- Cellular and molecular neuroscience
- Membrane electrophysiology
- Electrophysiology of cells and networks
- Developmental neurobiology
- Systems level neuroscience
- Neuronal modelling
- Brain imaging
- Neuropsychology
- Brain diseases

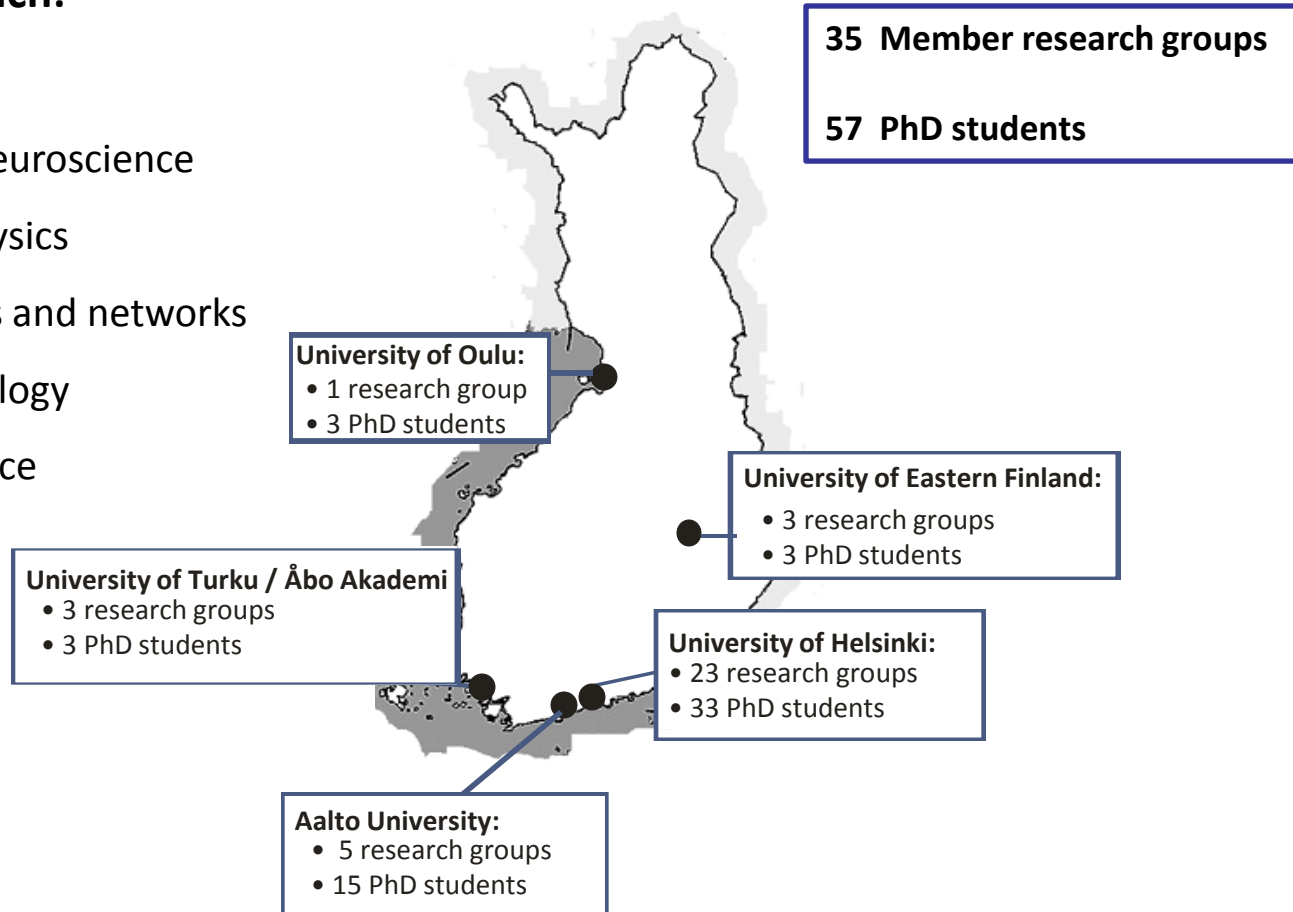




RESEARCH AND TRAINING

Multidisciplinary approach:

- Cellular and molecular neuroscience
- Membrane electrophysiology
- Electrophysiology of cells and networks
- Developmental neurobiology
- Systems level neuroscience
- Neuronal modelling
- Brain imaging
- Neuropsychology
- Brain diseases





RESEARCH GROUPS

To join the FGSN as a member group:

- 1) A group leader in the FGSN should hold a **docentship** and have **experience in supervising doctoral students**.
- 2) The group should have its **own, adequate funding** to secure the working conditions of the doctoral students.
- 3) The group should be **independent**, have its **own research profile** in the field of neuroscience and show a solid history of previous research activity.
- 4) The **teaching activity** of each group is taken into account when allocating the doctoral positions funded by the Ministry of Education.
- 6) The group leader (or his/her representative) is obliged to attend the FGSN board meetings.



DOCTORAL STUDENTS

- 50-60 doctoral students in 6 Universities around Finland
- → PhD in Biology / Technology / Medicine / Psychology / Cognitive sciences
- Employment contract with home University / supervisor
- Salary from the FGSN (Ministry of Education)
- or
- Salary / stipend from other sources; “Matching Funds Students”





DOCTORAL STUDENTS

Doctoral positions funded by the FGSN (Ministry of Education):

- application rounds annually
- open call, but supervisor agreement from one of the FGSN group leaders is mandatory

Evaluation criteria:

- level and feasibility of the provided research plan
- accomplishments of the applicant in relation to his/her age
- teaching activity of the research group in the Graduate School
- placing of the students in different campuses/universities/cities
- multidisciplinary nature of the FGSN

Matching funds positions:

- continuous call for doctoral students within the FGSN research groups
- applications evaluated by the Executive Committee
- level and feasibility of the provided research plan
- accomplishments of the applicant in relation to his/her age



1. **MSc or equivalent degree**
2. **Recruitment/agreement of supervision by FGSN research group**
3. **Applying to FGSN and registration to University**
 - Application: research and study track, research plan, motivation for PhD studies, supervisor's agreement and recommendation letter
 - Interview
4. **Follow-up**
 - Annual Follow-Up Group (FUG) meeting
 - FUG memo and progress report to FGSN
 - Research & study plan update
5. **FGSN book exam** (within 1st year of doctoral studies)
6. **Courses, seminars, congresses, book exams, laboratory visits** (≥60 ECTS)
7. **Research work → publications**
8. **Writing of the doctoral thesis**
9. **Thesis pre-examination** → feedback
 - right for dissertation by the home Faculty
10. **Public examination**





POSTGRADUATE TRAINING

- multidisciplinary training in neuroscience
- basic courses in different universities / disciplines
- FGSN student symposium annually
- FGSN international symposium annually / biennially
- lecture courses
- methodological courses
- book exams
- laboratory rotation
- complementary training / soft skills



POSTGRADUATE TRAINING

Lecture courses

- Information Processing in the Brain (5 cr)
- Developmental neuroscience (3 cr)
- Growth factors and their receptors (3 cr)
- Synaptic signalling and plasticity (3 cr)
- Histological phenotyping of mouse brain (3 cr)
- Introduction to neurobiology (5 cr)
- C. Elegans as a model organism (1,5 cr)
- Phenotypic analysis of transgenic animals (3 cr)
- Systems biology of neurodegenerative diseases (1,5 cr)
- Introduction to molecular and cellular neuroscience (6 cr)
- Neurobiophysics (5 cr)
- Channels and transporters (3 cr)
- Introduction to perception, attention and memory (5 cr)
- Visual system physiology and biophysics (1 cr)
- Basic mechanisms of nervous system disorders (6 cr)
- Neuropharmacology and behavioural animal models (3 cr)
- Functional neuroanatomy (3 cr)





POSTGRADUATE TRAINING

Practical / method courses

- C. Elegans practical course (1 cr)
- Electrophysiological techniques (5 cr)
- Electrophysiological applications in neurophysiology (5 cr)
- MEG courses (1 cr)
- PET course (1 cr)
- Hands-on course on in vivo microdialysis (1 cr)
- Functional magnetic resonance imaging school (1 cr)
- ABC of animal experiments (6 cr)
- Proteomics and protein chemistry (2 cr)
- Basic methods in neural cell culture (3 cr)



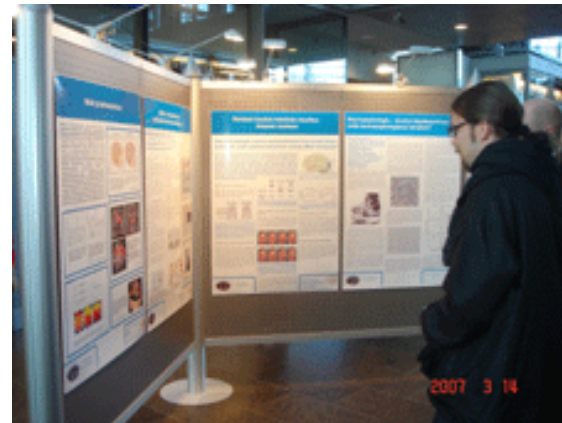
POSTGRADUATE TRAINING

Seminars, symposia, science fairs

- Helsinki Life Science Network Science Fair (1,5 cr)
- FinBioNet National PhD symposium (1-2 cr)
- Symposium on Brain development and plasticity in health and disease
- Symposium on Early development of brain functions: basic, clinical and translational studies (1 cr)
- FGSN Student and Alumni meeting (1-2)
- FGSN International Symposia (e.g. Brain Oscillations 1998, Brain Development 2000-2001, Brain imaging 2003), Epilepsy 2004)

Transferable skills' courses

- Science and media (0,5 cr)
- Scientific writing – Academic English (2 cr)
- Ethics and social responsibility in research (3 cr)
- Principles in business (4 cr)
- Statistical thinking (2 cr)
- Philosophy of biological sciences (3 cr)





COLLABORATION

National collaboration

FinBioNet (*Finnish Graduate School Network in Life Sciences*)

Helsinki Life Science Network of Graduate Schools

- Helsinki Graduate School in Biotechnology and Molecular Biology (GSBM)
- Helsinki Biomedical Graduate School (HBGS)
- Viikki Graduate School in Biosciences (VGSB)
- National Graduate School of Clinical Investigation (CLIGS)

- Graduate School of Molecular Medicine, Kuopio
- TuBS: Turku Graduate School of Biomedical Sciences
- DDGS: Drug Discovery Graduate School
- ISB: National Graduate School in Informational and Structural Biology
- Biocenter Oulu Graduate School
- Graduate School in Psychiatry
- Graduate School in Psychology



COLLABORATION

International collaboration

Cortex Training Network (*Cooperation in Research and Training for European Excellence in the Neurosciences*): Marie Curie EST funding from EU during 2006–2009.

Berlin (Prof. Dirnagl), Bochum (Prof. Manahan-Vaughan), Helsinki (Prof. Kaila), London (Prof. Edwards), Oslo (Prof. Ottersen), Prague (Prof. Sykova), Stockholm (Prof. Grillner), and Zürich (Prof. Schwab)

Postgraduate Training Network in Biotechnology of Neurosciences (BioN) 2010-2013

Nordic-Russian Cooperation in Research and Training 2009

Umeå University, Sweden & University of St. Petersburg

International Graduate Program Medical Neurosciences, Charité - Universitätsmedizin Berlin

The Göttingen Graduate School for Neurosciences and Molecular Biosciences

Member of the *Network of European Neuroscience Schools* (NENS)



FOLLOW-UP

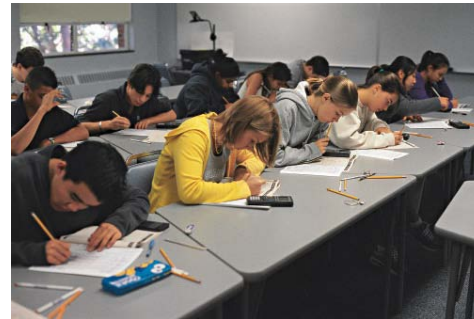
FGSN Student Handbook

FGSN book exam

Obligatory during the first year of doctoral training.

General text book on neuroscience (Purves et al.).

Follow-up group



Follow-up group: Composition and responsibilities

1. **Follow-up group (FUG): supervisor + 2 senior researchers** from outside research group
2. FUG meets **once a year**.
3. FUG offers constructive, critical **feedback on the progress** of postgraduate studies and research work, but is not responsible for dissertation supervision.
4. In case of disagreements between the student and supervisor, the FUG can be called to have an ad-hoc meeting.
5. The thesis can be submitted for official evaluation after the members of the steering group have agreed that the work has reached the status required.



BioN

European Commission
TEMPUS

**Postgraduate Training Network in
Biotechnology of Neurosciences (BioN)**

www.neurobiotech.ru

Finnish Graduate School of Neuroscience (FGSN)

www.helsinki.fi/fgsn



Finnish Graduate School of Neuroscience (FGSN)



Finnish Graduate School of Neuroscience (FGSN)

Department of Biosciences

P.O.BOX 65 (Viikinkaari 1),

00014 University of Helsinki, Finland

<http://www.helsinki.fi/fgsn>

Professor Kai Kaila, Chairman

Kai.kaila@helsinki.fi

Dr. Katri Wegelius, Coordinator

Katri.wegelius@helsinki.fi