



UNIVERSITÀ DEGLI STUDI DI TORINO

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TIC02\_DIP\_BIO

## ***Teaching for International Courses– Visiting Professors Academic year 2017/2018***

<b>2nd term</b>
<b>COURSE TITLE</b> Advances in Neural Circuit Development and Disease
<b>Scientific area</b> Comparative anatomy and cytology
<b>Department of Life Sciences and Systems Biology</b>
<b>English-taught degree course</b> Master in Cellular and Molecular Biology
<b>Language used to teach</b> English
<b>Teaching Commitment: 22</b>
<b>Course summary</b> The teaching will be integrated in the Course “Developmental Neurobiology” and will be focussed on the molecular mechanisms involved in the development and disease of neuronal connections. The role of non-coding RNAs and axon guidance proteins in neural development and disease will be discussed in depth with a translational approach. In particular, disease mechanisms responsible for changes in or loss of neuronal connectivity during epilepsy and motor neuron disorders (ALS, SMA) will be treated from an interdisciplinary perspective, including both basic research and preclinical examples. A special focus will be dedicated to discuss advanced techniques including: i) novel mouse genetic tools and microscopic approaches for studying neuronal subset connectivity; ii) the use and generation of induced pluripotent stem cell (iPSC)-generated cells and organoid models for unravelling brain disease mechanisms.
<b>Learning objectives</b> The goal of this module is to teach and train master students in the latest developments in the field of neural circuit development, plasticity and disease through direct and active interaction with an internationally recognised expert in the field. Students will learn from an experienced expert in the field how to address problems, formulate research questions and design experiments. Through the analysis of the most recent literature and active discussion, the students will develop critical thinking and knowledge on the cellular/molecular mechanisms underlying normal development, function and dysfunction of the nervous system.
<b>Lab activities</b> 12 hours will be dedicated to education in small groups supervised by the teacher to foster a deep understanding of the topics presented during the course. Students will be required to present focused scientific papers on the subject, discuss them and to write a small research projects on specific aspects. These activities will be designed in order to promote the active participation of each student.
<b>Other activities besides the course: i.e. seminars and conferences addressed to PhD students and research fellows, dissemination conferences</b> The Visiting Professor will be invited to give a Lecture in the cycle organized by the PhD School in Neuroscience (open to a wide audience of PhD students and fellows) and to meet the PhD students interested in discussing their projects.

**Visiting Professor Profile**

The Visiting Professor should be an internationally recognized specialist in the field of neural development, with a long lasting and documented track-record in the molecular control of neuronal circuit development, plasticity and disease. He should have proven experience in teaching, in particular in the relevant area of neural development at the level of advanced master and early PhD students. Furthermore, the candidate should have experience with organizing master courses or Summerschools, masterclasses and workshops, especially those related to technical topics (e.g. innovative techniques used to address neuroscientific questions). We seek someone with over 15 years experience in teaching and a clear profile in neuroscientific topics relevant for our population of master students.

**Contact person at the Department**

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