



Summer School in Physiology and Biophysics of **Water and Ion Channels**"

(**SPYWATCH**)

<http://www.uniba.it/didattica/corsi-universitari-di-formazione-finalizzata/summer-winter-school/summer-school/2017-2018/Spywatch>

Introduction

Water and Ion channels are integral proteins that regulate cellular homeostasis and the interaction between cells and the outside world through transport mechanisms at the level of the plasma membrane. The study of these mechanisms is fundamental to produce useful knowledge and basic fundamentals in cellular and molecular physiology as well as find diagnostic and therapeutic applications. Several pathologies derive from protein channel altered functioning, pathologies classified today as "Channelopathies", such as Nephrogenic Diabetes Insipidus, some forms of hereditary Cardiomyopathy, Idiopathic Epilepsy, Spinocerebellar Ataxia, Myasthenia Gravis, Lambert-Eaton Myasthenic Syndrome, acquired Neuromyotonia and Neuromyelitis Optica.

Objectives

The objective of the "Summer School in PhYsiology and Biophysics of WATer and Ion CHannels" (**SPYWATCH**) is to provide theoretical and practical knowledge on latest generation biophysics techniques, useful in the study of the molecular mechanisms underlying water and ion channel physiology and physiopathology. The project will be developed by the University of Bari "Aldo Moro" in partnership with the company MASMEC SpA at whose headquarters the participants will take part in a laboratory experience aimed at providing a practical vision of the activities proposed by SPYWATCH.

Training activities

The objectives of SPYWATCH will be achieved through numerous activities both in the classroom and the laboratory.

The theory lessons will be taught by leading experts in the physiological and physiopathological aspects of water and ion channels, at international level. They are professors from the University of Bari and elsewhere in Italy and abroad.

The practical activities will be lead by University of Bari professors and organized in order to train the participants in the use of various platforms, taking problems in basic and translational research as a starting point. A whole day will be spent at the headquarters of the company MASMEC SpA for the presentation of the company and its relevant products, as well as for demonstrations by product specialists. Platforms for the low/high-



throughput screening of lead compounds developed in the course of the productive project collaborations between UNIBA and MASMEC will be presented.

Training Period and Location

The course will be held in the period from 18-22 June 2018. The first four days (18-21 June 2018) will be at the Department of Biosciences, Biotechnologies and Biopharmaceutics, located at the Campus of the University of Bari *Aldo Moro*, and the last day (June 22, 2018) will take place in the laboratories of the project partner company, MASMEC S.p.A., in a city (Modugno) close to Bari.

Timetable

The mornings will be entirely dedicated to classroom lessons in the Aula Magna of the Department of Bioscience, Biotechnology and Biopharmaceutics. Lessons will be held from 8.30 AM to 1.30 PM with a 30 minute mid-morning break. After one hour of lunch break, practical activities will continue from 2.30 to 6.30 PM. In order to optimize the practical activities, students will be divided into 4 groups and each activity repeated for each group.

Social Events

There will be a social evening with dinner on Thursday from 8.00 PM. PhD students and Post-doc at the Department of Bioscience, Biotechnology and Biopharmaceutics will organize informal social events on Tuesday and Wednesday night after 7.00 PM.

Summer School Director

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Requirements for participation

SPYWATCH will be open to 30 students with scientific training including, graduates, PhD students and Post-docs interested in the biophysics of channel proteins. Selection will be based on motivation and background. Candidates will be required to send a CV and a brief text (500 words) outlining their interest in participating (“motivation statement”).

Course Fees

The course is free of charge. Coffee breaks, lunches and the social evening are included every day of the course. The University of Bari will pay a standard sum of Euro 300 per



person towards the travel and accommodation expenses of the 10 participants not resident in Italy.

Training Credits

Participants completing of the course will be awarded 4 CFU (university training credits)