

## LABORATORY ACTIVITIES

ACTIVITIES	Monday 18 <sup>th</sup>	Tuesday 19 <sup>th</sup>	Wednesday 20 <sup>th</sup>	Thursday 21 <sup>st</sup>
1 and 2	A	B	C	D
3 and 4	B	C	D	A
5 and 6	C	D	A	B
7 and 8	D	A	B	C

### Activity 1 - Antonio Frigeri

*High resolution microscopy for the analysis of protein channel aggregation into the plasma membrane of cells and tissues*

### Activity 2 - Giuseppe Calamita

*Stopped-flow light scattering measurements of membrane osmotic and solute permeability*

### Activity 3 - Maria Grazia Mola

*Total Internal Reflection Microscopy (TIRFM) for water transport measurements across astrocyte plasma membrane*

### Activity 4 - Maria Grazia Mola

*Use of a semi-automatic platform for a medium throughput screening of compounds able to modulate protein channel function through fluorescence based assays*

### Activity 5 - Giovanna Valenti

*Fluorescence assay to monitor membrane fusion kinetics*

### Activity 6 - Marianna Ranieri

*Detecting cAMP with FRET-based sensors in single living cells*

### Activity 7 - Monica Carmosino

*Electrophysiological characterization of KCNH2 potassium voltage-gated channels*

### Activity 8 - Andrea Gerbino

*Fluorescence detection and imaging of cytosolic calcium oscillations in cardiomyocytes*

## Summer School Director



Grazia Paola Nicchia

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## SCIENTIFIC COMMITTEE

Giuseppe Calamita

Monica Carmosino

Antonio Frigeri

Grazia Paola Nicchia

Giuseppe Procino

Maria Svelto

Grazia Tamma

Giovanna Valenti

## ORGANIZING COMMITTEE

Patrizia Gena

Andrea Gerbino (Coordinator)

Maria Grazia Mola (Coordinator)

Francesco Pisani

Marianna Ranieri

Thanks to our sponsors for  
Coffee Breaks and Social Dinner



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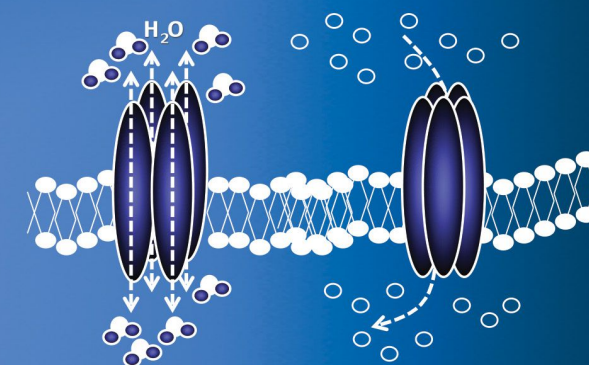
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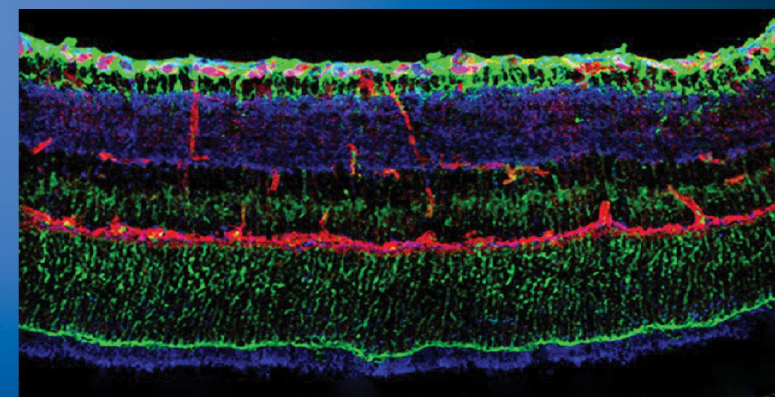


# SPYWATCH

Summer School

Physiology and Biophysics of Water and Channels

BARI June 18-22, 2018



Dept. of Bioscience, Biotechnology and Biopharmaceutics  
University of Bari Aldo Moro  
Via Orabona 4 - 70125 Bari, ITALY



# SUMMER SCHOOL PROGRAM

## MONDAY 18

08.30 am  Registration

09.30 am Opening Remarks

**Antonio Felice Uricchio** - Rector of the University of Bari

**Sebastiano Leo** - Assessor for Education and Employment policy "Regione Puglia"

**Maria Svelto** - Head of the Department of Bioscience, Biotechnology and Biopharmaceutics

**Grazia Paola Nicchia** – Summer School Director


10.00 am **Grazia Paola Nicchia** - *Water and Ion Channel Proteins: an indissoluble friendship*

10.30 am **David C. Spray** - *What holds the brain together: Adhesive and communicating junctions in the nervous system and their regulation*

11.30 am **Antonio Frigeri** - *Super resolution microscopy for the imaging of membrane protein clustering: from Total Internal Reflection (TIRF) to Stimulated Emission Depletion and Photoactivated Localization Microscopy (PALM)*

12.30 pm **Eliana Scemes** - *Purinergic signaling in the nervous system: Properties of Pannexins and P2 receptors*

01.30 pm 

02.30 pm – 06.30 pm 

## TUESDAY 19

08.30 am **Maria Grazia Mola** - *Analysis of cell volume regulation in astrocytes: Fluorescence-based biophysical approaches*

09.00 am **David C. Spray** - *Glial, neuronal and glia-neuronal gap junctions: What they are, how they work and how dysfunction causes disease*


10.30 am 

11.00 am **Eliana Scemes** - *Purinergic signaling in the nervous system: Role of Pannexins and P2 receptors in physiology and pathology*

12.30 pm **Giuseppe Calamita** - *Biophysical assessment of the water and anaelectrolytes permeability of biological and artificial membranes by stopped-flow light scattering*

01.30 pm 

02.30 pm – 06.30 pm 

07.00 pm **A walk in the old city** 

## WEDNESDAY 20


08.30 am **Grazia Tamma** - *FRET visualization of second messengers in epithelial cells*

09.15 am **Aldebaran Hofer** - *Fundamentals of second messenger signaling*

10.30 am 

11.30 am **Konstantinos Lefkimmatis** - *Phosphodiesterases and Phosphatases in shaping cAMP signalling: positive roles for negative regulators*

12.45 pm **Andrea Gerbino** - *Targeting of organic biosensors to organelles: strategies and available sensors*

01.30 pm 

02.30 pm **Pietro Cirigliano** - *Nikon Solutions for High End Applications*

02.45 pm - 06.45 pm 

## THURSDAY 21

08.30 am **Monica Carmosino** - *Electrophysiology of cardiac channelopathies*


09.15 am **Aldebaran Hofer** - *Cyclic AMP signals in subcellular compartments*

10.30 am 

11.00 am **Valentina Benfenati** - *Glial interface: materials and device to study and modulate astroglial physiology and biophysics*

12.00 am **Giovanna Valenti** - *Fluorescence dequenching to monitor membrane merging and interactions of signaling proteins*

01.00 pm **Konstantinos Lefkimmatis** - *Die another way, new forms of non-apoptotic programmed cell death*

01.30 pm 

02.30 pm – 06.30 pm 

07.00 pm **Social Dinner** 

## FRIDAY 22

08:00 am Bus transfer to MASMEC

08.30 am Presentation of MASMEC SpA

09.30 am *Introduction to automation in molecular diagnostic laboratories*

10.30 am 

11.00 am *Automatic extraction of nucleic acids from different biological samples*

01.30 pm 

02.30 pm *Laboratory experience on high-throughput platforms*

05.00 pm - 06.00 pm **Final Test** 

The theoretical-applicative activities will involve:

**Pietro Larizza** (Research and Development Manager)

**Maria Teresa Mancini**

**Vincenzo Costantino**

**Sabrina Calamita**

**Claudia Lionetti**

all from MASMEC SpA