

**1<sup>st</sup>**

# ESN-ISN Advanced School

# 2021

**BRFAA  
Athens  
Greece**



## REPORT

The First of the [ESN-ISN](#) Advanced School series took place in Athens, Greece, under the auspices and in the facilities of the Biomedical Research Foundation of the Academy of Athens (BRFAA) on September 19-25, 2021.

Entitled “From Neurodegeneration to Neural Carcinogenesis: Mechanisms and Common Biologies”, this ESN-ISN School brought together 26 young scientists (19 PhD students, 4 postdocs, and 1 Instructor, competitively chosen for their academic performance) from European countries (Greece, 8; Italy, 7; Portugal, 2; Slovakia, 2; and 1 each from France, Germany, Israel, Latvia, Russia, Serbia, and Spain) with distinguished faculty and the aim to explore the mechanisms of the common functional pathways in neurodegeneration and cancer, which apparently show an intriguing and intricate interrelation with both positive and inverse comorbidities. All but one student and two lecturers were not able to attend in person due to COVID 19 travel restrictions, yet they participated and delivered their lectures through zoom connections.

For this week, attendees, who received full support for travel and all incurred expenses during the School term, took part in Advanced Scientific Lectures (AL17) and Advanced Technical Lectures (ALT4) (Table 1) with time for discussion, worked in 13 different state-of-the-art, hands-on laboratory modules (Table 2), for which they had stated preference according to their own interests, and presented their posters. Due to the novel theme of the School, students were of mixed background with 17 of them stating neurochemistry/ neurosciences and 7 cancer biology as their primary fields of interest, respectively. All attendees (students, lectures, laboratory supervisors and instructors) had on file their green vaccination certificates; in addition, the school bag that were given at the Welcome Reception on Sunday, September 19, contained also a pack of masks and rapid tests.

More specifically for 5/6 days, attendees were transferred by bus from their Hotel Arethusa at Syntagma Square and had 4 lectures and discussions by 4 pm (2 coffee breaks and a lunch break were also observed) and then from 4-7 pm they worked in their assigned laboratories, under the instruction of the Laboratory Supervisors and their Assistants (Table 2).

Afterwards, students were bused to local restaurants and tavernas for dinner. One day, there was one lecture in the morning, a Special Lecture on Acropolis, and then students were bused to Acropolis and the Acropolis Museum, having afterwards the evening free (Table 3). In addition, information on ESN and ISN societies was presented in special sessions, with emphasis on the benefits of membership, as well as the upcoming meetings.

All posters (Table 4) were at display throughout the School time period and all attendees presented their work to their fellow schoolmates, the Organizing Committee, and BRFAA researchers and vivid discussions followed. All participants received a Certificate (examples in the end) and the Organizing Committee provided additional letters with details on the type of laboratories, when requested.

By all accounts, including the anonymous survey for evaluation of the School by the students, the First ESN-ISN School was a success and attendees state that they enjoyed the whole program, especially the laboratory modules. Finally, as the budget was drawn 2 years

ago and prices have gone up while the exchange ration of euros to dollars has fallen, the Organizing Committee has managed to stay within the budget, while covering all planned and unforeseen expenses.

On behalf of the organizing Committee

Dimitra Mangoura, MD, PhD, Chair

**Table 1. Lectures and Lecturers**

	Lecture Title	Faculty	
AL1	COVID 19: genomic analysis of current strains	Thanos, Dimitris	Academician-Professor, Director, BRFAA
AL2	Gene regulation networks in neural stem cells: role of long non coding RNAs	Politis, Panos	Associate Professor, BRFAA
ATL1	Mouse models of Alzheimer's and Parkinson's disease	Georgopoulos, Spyridon & Vekrellis, Kostas	Associate Professors, BRFAA
ATL2	Not just a pretty picture: How to extract correct information from fluorescence microscopy images	Pagakis, Stamatis	Research Professor, BRFAA
AL3	Mitophagic and Autophagic pathways in ageing and neurodegeneration	Tavernarakis, Nektarios	Professor, U Crete Director, FORTH Inst, Crete
AL4	The role of peripheral inflammation in AD	Georgopoulos, Spyridon	Associate Professor, BRFAA
AL5	Drosophila Disease Models	Zervas, Christos	Associate Professor, BRFAA
ATL3	Proteomics: technologies and applications	Tsangaris, George	Research Professor, BRFAA
AL6	Hitching a ride to the next cell: exosomes	Vekrellis, Kostas	Associate Professor, BRFAA
AL7	Microtubules and tumor suppressors: an affair to remember in neurons and gliomas	Mangoura, Dimitra	Professor, BRFAA
AL8	Somatic mutations in Alzheimer's and cancer: mutated ADNP cytoskeletal impairments and repair	Gozes, Illana	Professor, Tel Aviv University, Israel
AL9	Taming the tumor suppressor PTEN in ND and Cancer	Leondaritis, George	Assistant Professor, U Ioannina
AL10	mRNA metabolism in regulating protein homeostasis, ageing and diseases	Syntichaki Popi	Assistant Professor, BRFAA
AL11	Mosaicism in the brain	Proukakis, Christos	Associate Professor, UCL, UK
AL12	Brain Energy Metabolism and neurological diseases	Hirrlinger, Johannes	Professor, U Leipzig, Germany
AL13	Transcription factors in the move	Zagoraiou, Laskaro	Assistant Professor, BRFAA
AL14	Notch at the crossroad of cancer and ND	Klinakis, Apostolos	Professor, BRFAA
AL15	Focusing on chromosome extremities: telomere biology	Gagos, Sarantis	Associate Professor, BRFAA
AL16	Decoding the molecular mechanisms of human cellular responses by combined genomics analyses	Agelopoulos, Marios	Assistant Professor, BRFAA
AL17	Excitatory neurotransmission in synucleopathies	Emmanouilidou Eva	Assistant Professor, U Athens
ATL4	Integrative use of proteomics for the identification of biomarkers and drug targets	Vlahou, Antonia	Research Professor, BRFAA
Special Lecture	Refinements of Visual Perceptions of the Parthenon	Manolis Korres	Academician, Emeritus Professor

**Table 2. Laboratory modules**

- 1. In vivo stereotactic Brain Injection.** Supervisor: Dr. Kostas Vekrellis; Laboratory Instructors: Drs. Katerina Melachroinou and Mantia Karabetsou
- 2. Embryo Electroporation (chick embryos).** Supervisor: Dr. Panos Politis; Assistant Supervisors: Matina Tsampoula, MSc, PhD student GY4 and Dr. Valeria Kaltezioti
- 3. Confocal Microscopy and Confocal Image Analysis.** Supervisor: Dr. Stamatis Pagakis; Assistant Supervisors: Dr. Eleni Rigana (Imaging) and Dr. Anastasios Delis (Image Analysis)
- 4. Lipid Rafts Preparation and Analysis.** Supervisor: Dr. D. Mangoura; Assistant Supervisor: Emmanouella Tsirimoniaki, MSc, PhD Student GY5
- 5. Mice Oocyte Isolation and Microinjection.** Supervisor: Dr. S. Georgopoulos; Assistant Supervisor: Nikoleta Kalovyrna, MSc.
- 6. Alternative Animal Disease Models - C. Elegans.** Supervisor: Dr. Popi Syntichaki; Assistant Supervisor, Dr. Fivos Borbolis.
- 7. Micro PET/CT imaging of cancer.** Supervisor: Dr. Anastasios Gaitanis, Assistant Supervisor: Alexander Vrahliotis, MSc, PhD Student GY3
- 8. In vivo Brain Microdialysis.** Supervisor: Dr. E. Emmanouilidou; Assistant Supervisors: Emmanouela Leandrou, PhD student GY5
- 9. Chick embryo Neuronal Cultures.** Supervisor: Dr. D. Mangoura; Assistant Supervisor: Charoula Peta, MSc, PhD Student
- 10. Proteomics.** Supervisor: Dr. G. Tsangaris; Assistant Supervisors: Stavros Proikakis, MSc and Euterpi Bouroutzika, MD, MSc
- 11. Xenograft Cancer Models in Drug Research.** Supervisor: Dr. Theodoros Rampias
- 12. Exosomes preparations (mouse brains).** Supervisor: Dr. K. Vekrellis
- 13. Alternative Animal Disease Models - Drosophila.** Supervisor: Dr. Christos Zervas; Assistant Supervisors: Katerina Vakaloglou, MSc and Athina Keramidioti, PhD student GY4.

Table 3

ESN-ISN Advanced School PROGRAM AT A GLANCE, BRFAA, September 19-25, 2021								
"From Neurodegeneration to Neural Carcinogenesis: Mechanisms and Common Biologies"								
	Sun 19	Mon 20	Tues 21	Wed 22	Thu 23	Fri 24	Sat 25	Sun 26
9:00-10:00	Arrivals	AL1 Dimitis Thanos	AL3 Nektarios Tavernarakis	AL6 Kostas Vekrellis	AL7 Mimika Mangoura	AL11 Chris Proukakis	AL15 Apostolis Klinakis	breakfast
10:00-10:30		Discussion	Discussion	Discussion	Discussion	Discussion	Discussion	departures
10:30-11:00		coffee break	coffee break	coffee break - poster viewing	coffee break	coffee break	coffee break	
11:00-12:00		AL2 Panos Politis	AL4 Spiros Georgopoulos		AL8 Illana Gozes	AL12 Johan Hirrlinger	AL16 Sarantis Gagos	
12:00-12:30		Discussion	Discussion	SPECIAL LECTURE Manolis Korres	Discussion	Discussion	Discussion	
12:30-13:30		lunch	lunch	Acropolis and Acropolis Museum Visits	lunch	lunch	lunch	
13:30-14:30		ATL1 Vekrellis/ Georgopoulos	AL5 Christos Zervas		AL9 George Leondaritis	AL13 Laskaro Zagoraïou	AL17 Marios Agelopoulos	
14:30-15:30		ATL2 Stamatis Pagakis	ALT3 George Tsangaris		AL10 Popi Syntichaki	Poster Presentations	AL18 Eva Emmanouilidou ATL4 Tonia Vlahou	
15:30-16:00	Registration ESN/ISN Remarks, Reception	coffee break	coffee break		coffee break	coffee break	coffee break	
16:00-17:00		Labs	Labs		Labs	Labs	Poster Presentations and free discussions	
17:00-18:00								
18:00-19:00								
19:30-		Dinner	Dinner	Free evening	Dinner	Dinner	Farewell dinner	

**Table 4. Titles of Posters**

1. **Role of KLK6 mediated proteolysis in SOD1-Amyotrophic Lateral Sclerosis (ALS)** *Georgios Angelis, Georgia Sotiropoulou, Kostas Vekrellis, Georgios Pampalakis*
2. **Deciphering oncometabolism and tumor-derived exosomes toward in silico, in vitro and in vivo drug repurposing in glioblastoma multiforme** *Vivi Bafiti, Minos Timotheos Matsoukas, Vasiliki Zolota, Dimitrios Kardamakis, Theodora Katsila*
3. **New insight into the involvement of PM and metabolic alterations in the onset of neuronal degeneration in GCase related pathologies** *Emma Veronica Carsana, Giulia Lunghi, Matteo Audano, Laura Cioccarelli, Maura Samarani, Emanuele Frattini, Nicoletta Loberto, Alessio Di Fonzo, Nico Mitro Massimo Aureli*
4. **Alternative Translation Initiation as a novel strategy to block toxicity of the mutant Androgen Receptor in SBMA** *Chierichetti M., Cristofani R., Rusmini P., Crippa V., Tedesco B., Ferrari V., Cozzi M. Casarotto E., Mina F., Galbiati M., Piccolella M., Poletti A.*
5. **The role of PTN and its receptors in lung adenocarcinoma in vitro** *Maqdalini Christopoulou, Despoina Ntenekou, Eleni Mourkogianni, Papadimitriou Evangelia*
6. **The effects of aging in spinocerebellar ataxia type 2 pathology** *André Conceição, Rebekah Koppenol, Joana Silva, Adriana Marcelo, Inês Afonso, Ricardo Reis, José Codesso, Sandra Tomé, Sara Carmo-Silva, Marco Ferreira, Carlos A. Matos, Luís Pereira de Almeida, Clévio Nóbrega*
7. **Investigation of the role of the centriolar satellite protein, OFD1, in the generation of primary cilia, in the development of the human cerebral cortex, as well as in its malformations, using animal models and in vitro models of the human brain** *Eleni Damianidou, Stavros Taraviras, Silvia Cappello, Christina Kyrousi*
8. **GM1-oligosaccharide protective effect in a glutamate-induced toxicity experimental model of Amyotrophic Lateral Sclerosis** *Fazzari Maria, Henriques Alexandre, Lunghi Giulia, Di Biase Erika, Mauri Laura, Ciampa Maria Grazia, Tedeschi Gabriella, Mitro Nico, Sonnino Sandro, Spedding Michael, and Chiricozzi Elena*
9. **The Actin-autophagy connection: new insight from Sephin1** *Giulia Frapporti<sup>1</sup>, Eleonora Colombo<sup>2</sup>, Giulia Assoni<sup>1, 2</sup>, Caterina Montani<sup>3</sup>, Maria Dolores Perez Carrion<sup>4</sup>, Christian Johannes Gloeckner<sup>5,6</sup>, Diego L Medina<sup>7</sup>, Pierfausto Seneci<sup>2</sup>, Giovanni Piccoli<sup>1</sup>*
10. **Autism-related activity-dependent neuroprotective protein (ADNP) syndrome mutations and cellular function** *M Ganaiem, Ivashko-Pachima, G. Karmon, and I Gozes*
11. **The expression of pyruvate carboxylase in human brain tumors and cancer cell lines** *Eduard Gondáš, Alžbeta Kráľová Trančíková, Dušan Dobrota, Radovan Murín*
12. **Role of Noradrenaline and CX3CL1/CX3CR1 pathway in Alzheimer's Disease** *Irene L. Gutiérrez, Marta González-Prieto, Juan C Leza and José LM Madrigal*
13. **The role of mTORC2 signaling in neurotoxicity induced by 1-methyl 4-phenyl 1,2,3,6-tetrahydropyridium and 6-hydroxydopamine** *Marija Jeremic, Maja Jovanovic-Tucovic, Danijela Stevanovic, Vladimir Trajkovic, Ivanka Markovic*
14. **Microcephaly causing mutations in the asparagine synthetase gene: pathophysiological mechanisms and physiological consequences** *Tabea Junge, Dorit John, Ulrike Winkler, Johannes Hirrlinger*

15. **Mirk/Dyrk1B minibrain kinase alters the lateral motor column of motor neurons in the embryonic chick spinal cord** *Kokkorakis N., Politis PK., Stathourou M., Matsas R., Gaitanou M.*
16. **Mapping the domains of G3BP1 towards mitigation of the pathological phenotype in different mice models of polyglutamine diseases** *Rebekah Koppel, André Conceição, Diogo Teixeira, Adriana Marcelo, Ricardo Reis, Sandra Tomé, Sara Carmo-Silva, Carlos A. Matos, Luís Pereira de Almeida, Clévio Nóbrega*
17. **Non-opioid sigma receptor agonists as potential agents for the development of novel targeted treatments for pancreatic cancer.** *E. Sereti, F. Koutsouqianni, C. Tsimplouli, M. Pešić, J. Dinić, A. Divac Rankov, E. Armutak, A. Uvez, K. Papaparaskeva, C. Dervenis, N. Sakellaridis, K. Dimas*
18. **GM1 oligosaccharide role in preventing  $\alpha$ -synuclein aggregation** *Lunghi Giulia, Di Biase Erika, Fazzari Maria, Ciampa Maria Grazia, Fato Pamela, Mauri Laura, Zaccagnini Ludovica, Bartels Tim, Sonnino Sandro and Chiricozzi Elena*
19. **Synergistic effect of inhibitors on Temozolomide-treated brain tumor cell lines** *Zuzana Majerčíková, Katarína Dibdiaková, Dušan Dobrota and Jozef Hatok*
20. **Isolation of partially reprogrammed somatic cells with neuronal progenitors characteristics.** *Violetta Maltabe, Nikos Thomopoulos, Panos Kouklis*
21. **Characterization of CD271+ Schwann Cell as in vitro model of schwannomatosis.** *Valentina Melfi, Veronica Bonalume, Tasnim Mohamed, Marco Montini, Elisabetta Basso, Stefano Ferraresi, Eva Trevisson, Laura Papi, Valerio Magnaghi, Alessandra Colciago*
22. **Mechanistic insight into the capacity of natural polar phenolic compounds to abolish Alzheimer's disease-associated pathogenic effects of apoE4 forms** *Christina Mountaki, Ioannis Dafnis, Eirini A. Panagopoulou, Paraskevi B. Vasilakopoulou, Michalis Karvelas, Antonia Chiou, Vaios T. Karathanos, Angeliki Chroni*
23. **A multimodal nanopipette-based imaging platform for exploring brain communication** *Martina Papa, François Treussart, Jean-Pierre Mothet, Aleix Güell*
24. **Maternal hyperhomocysteinemia causes region-specific changes in the offspring brain** *Shcherbitskaia A.D., Vasilev D.S., Milyutina Yu.P., Tumanova N.L., Arutjunyan A.V.*
25. **Metabolic changes and reduced depression-like behaviour in Sigma-1 receptor knockout mice** *Svalbe Baiba, Vavers, Edijs, Gundega Stelfa, Zvejniece Liga, Dambrova Maija*
26. **Lipoprotein's characterization in Alzheimer's Disease** *Marta Turri, Elisa Conti, Lucio Tremolizz, Chiara Pavanello, Laura Calabresi*

Examples of Certificates

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 **ESN**  
EUROPEAN SOCIETY FOR  
NEUROCHEMISTRY

 **ISN**  
International Society  
for Neurochemistry

 **BRFAA**  
BIOMEDICAL RESEARCH FOUNDATION  
ACADEMY OF ATHENS



## Certificate of Participation

This certificate is awarded to

*Maria Fazzari*

for active participation in the ESN-ISN Advanced School  
"From Neurodegeneration to Neural Carcinogenesis:  
Mechanisms and Common Biologies"  
at the Biomedical Research Foundation of the Academy  
of Athens, Athens, Greece, September 19-26, 2021

Dimitra Mangoura, MD, PhD  
Chair, Organizing Committee

Johannes Hirrlinger, PhD  
ESN President





Kostas Vekrellis, PhD  
Co-Chair



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## Certificate of Appreciation

This certificate is presented to

*Dr. Christos Proukakis*

In appreciation for delivering an Invited Lecture  
in the ESN-ISN Advanced School  
"From Neurodegeneration to Neural Carcinogenesis:  
Mechanisms and Common Biologies"  
at the Biomedical Research Foundation  
of the Academy of Athens, Athens, Greece  
September 19-26, 2021

Dimitra Mangoura, MD, PhD  
Chair, Organizing Committee

Johannes Hirrlinger, PhD  
ESN President





Kostas Vekrellis, PhD  
Co-Chair

