



# GeNeDis 2022

5<sup>th</sup> Worldwide conference on “Genetics, Geriatrics  
and Neurodegenerative Diseases Research”

Under the auspices of H.E the  
President of the Hellenic Republic  
Ms. Katerina Sakellaropoulou.

## The Conference

The **5<sup>th</sup> Worldwide Conference on Genetics, Geriatrics and Neurodegenerative Diseases Research (GeNeDis 2022)** will be held in **Zakynthos, Greece, from 20 to 23 of October 2022** ([www.genedis.eu](http://www.genedis.eu)).

For the fifth time three of the most modern and popular scientific areas are brought together in a conference, the **5<sup>th</sup> World Congress on Genetics, Geriatrics and Neurodegenerative Disease research** with the title: **“Digital Transformation in the field of Neurodegenerative Diseases”**. Leading scientists and researchers from all over the world will discuss the recent developments in the above disciplines, ranging from research progress to their future uses.

**GeNeDis 2022** will focus on a strong scientific program combined with live workshops and special sessions to inform scientists on the latest major challenges in scientific research, the new drug design, the development of novel biomarkers, the new imaging techniques and the innovative protocols for early diagnosis of neurodegenerative diseases, and several other scientific advances.

The goal of the **5<sup>th</sup> World Congress GeNeDis 2022** is to strengthen and broaden the international network by sharing the recent advancements in Genetics, Geriatrics and Neuroscience and by establishing good contacts with all relevant stakeholders – all pursuing the excellence in research, development, education and training with the aim of better and safe health aging.



The conference is organized by the Bioinformatics and Human Electrophysiology Laboratory, (**BiHELab**), Department of Informatics, Ionian University, Greece.

The Scientific committee comprises of experts from a number of countries who are up to date with the latest scientific discoveries as well as their clinical and pharmaceutical applications.

The transnational research for genetics, health aging and neurodegeneration enables multi-disciplinary collaboration and strengthens the research and innovation towards Horizon 2020. Novel approaches include:

- Discovery of biomarkers
- Stem cell therapy
- Protein misfolding
- Precision Medicine
- Systems biology
- Molecular biology
- Computational biology
- Bioinformatics
- Machine Learning & Artificial Intelligence approaches in Neuroscience

These advances will assist future preclinical and clinical studies on neurodegenerative diseases and related disorders, as well as improve the quality of rehabilitation and neuroeducation.

Advanced information technologies will be discussed concerning the various research, implementation, and health policies, as well as global issues in the funding of long-term care regarding elderly people.

The congress aims to inform as well as to promote discussions and networking among scientists and stakeholders from worldwide medical fields such as biology, medicine, bioinformatics, informatics, systems biology, immunology, genetics, neuroscience etc.

*The conference proceedings will be published by **Springer** in the well-known Series: **Advances in Experimental Medicine and Biology (AEMB)**, I.F.: 3.650.*

The **major goals** of the 5<sup>th</sup> World Congress on Genetics, Geriatrics and Neurodegenerative Disease Research, **GeNeDis 2022** are the following:

- To distribute novel advances to the scientific community through sharing and exchanging ideas, experiences and concepts regarding precision medicine, biomarkers discovery and digital advances in the field of neuroscience.
- To explore the beneficial impact of the scientific and technological achievements on neurological and neurodegenerative disorders.
- To foster collaboration among organizers and the research community, for dissemination of results and the enhancement of clinical research.
- To increase the awareness concerning the field of neuroscience and mental health.



## Expected outputs and results

**The fundamental aim of GeNeDis 2022** is to highlight different aspects of digital transformation in the field of neurodegenerative diseases. Thus, thanks to the contribution of scientific and technological developments offered and explained by our interdisciplinary panel of experts and keynote speakers, new horizons will be explored.

**GeNeDis 2022** intends not only to recognize previous successes and ongoing work in neurodegenerative diseases and related disorders, but also to point out new research directions and strategies on future preclinical and clinical studies in this area. Particularly, the expected outputs and results of the Congress could be summarized as follows:

- The latest major challenges in genomics, proteomics and neuroinformatics
- Novel biomarkers and new drug targets
- New effective strategies and interventions such as stem cell therapy, protein misfolding, immunotherapy
- Novel imaging techniques
- Innovative nanotechnological techniques and products
- Improving of quality services on hospitalization, rehabilitation and health education

**The President of the Scientific Program Committee**  
**Professor Panagiotis Vlamos**

**“The goal is to create an environment that fosters interdisciplinary collaboration which is aligned with our theme for Digital Transformation in the field of Neurodegenerative diseases.”**

## The Venue

The 5th World Congress on Genetics, Geriatrics and Neurodegenerative Disease Research will be held at the Technological Educational Institute of Ionian Islands, Ionian University. With all modern amenities including Wi-Fi internet, modern audiovisual equipment and automatic interpretation systems can meet any expectation of professional conference or event.

## Main Topics

- Geriatrics
- Cognition and memory
- Neurodegenerative Diseases
- Sleeping disorders
- Mental Health
- System Biology
- Brain Physiology
- Genome engineering
- Clinical Neurophysiology
- Computational biology
- Big data
- Genome medicine
- Diagnostic protocols and tests
- Nanotechnology
- Stem cell therapy
- Neuroimaging
- Clinical genetics
- Genomics
- Disease biomarkers
- Gene expression analysis
- Neuropharmacology
- Pharmacogenetics



## Organizer

### Bioinformatics and Human Electrophysiology

**Lab (BiHELab)**, Ionian University, research is

focused on recent advances in geriatrics and neurodegeneration, ranging from basic science to clinical and pharmaceutical developments.



The main objective of the laboratory is to record new and effective diagnostic protocols of various types of dementia and specifically neurological disorders through the identification, mapping, biological analysis as well as the mathematical modeling and simulation of all factors related to mitochondrial dysfunctions, so that soon the existing techniques for their treatment will be improved. This approach can also aid in the development of new targeted therapies in the future.

The modern biophysics seems to offer powerful tools that are not yet been applied in bioengineering and molecular biology. The future of neuroscience relies **on novel approaches and technological advancements** in order to develop new drug targets, and novel protocols for early diagnosis of neurodegenerative diseases.

BiHELab has a variety of research directions. The laboratory covers both educational and research issues related to:

1. Neurodegenerative Diseases: mainly, Alzheimer's disease and related disorders, but also Parkinson's Disease and Lateral Myatrophic Sclerosis
2. Biomarkers: biological, digital and computational
3. Mathematical models aimed at improving methods of prognosis, diagnosis and treatment
4. Large-scale statistical studies, machine learning studies, data mining and big data analytics



5. Proteomics: the examination of the interaction of RNA molecules with proteins, the prediction of the secondary structure of proteins, the examination of pathological factors of misfolded proteins

6. Mitochondria: the study of mitochondria and the observation of mitochondrial membranes and clarification of electrophysiological dysfunctions of the internal mitochondrial membrane, the investigation of basic mitochondrial functions and their correlation with the pathological causes of neurological disorders, pattern recognition techniques for mitochondrial imaging by nerve cells and Schwann cells

7. Systems biology approaches such as analyses of pathways, networks and interactions

8. The study of cellular functions such as apoptosis, cell division, merger and division of mitochondria

9. The association of neurological disorders with subcellular bioenergy measurements

10. The measurement of frequencies and electromagnetic analysis of signals

11. Processing of various biodata in a single information system

12. Knowledge Management System for distinct mathematical representations of RNA secondary structure





## Keynote & Invited Speakers

**Akassoglou Katerina**, PhD, Professor of Neurology, University of California, San Francisco

**Avramopoulos Dimitrios**, McKusick-Nathans Department of Genetic Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, USA

**Barnstaple Rebecca**, Department of Dance, York University, UK

**Chroussos George**, Professor of Pediatrics and Endocrinology and Neurobiology, Chairman of the First Department of Pediatrics at the National and Kapodistrian University of Athens School of Medicine, Athens, Greece. UNESCO Chair on Adolescent Health Care at the University of Athens

**Danso Sammuell**, University of Edinburgh Honorary staff, Deanery of Clinical Sciences, Centre for Clinical Brain Sciences

**Daskalakis Nikolaos**, Assistant Professor of Psychiatry, McLean Hospital, Harvard Medical School, Harvard University

**Demetzos Costas**, Professor of Pharmaceutical Nanotechnology, Director of the Laboratory of Pharm Technology, Faculty of Pharmacy, University of Athens, Greece

**Doukakis Spyridon**, Bioinformatics and Human Electrophysiology Laboratory, Department of Informatics, Ionian University

**Exarchos Themis**, Assistant Professor, Department of Informatics, Ionian University, Greece

**Frasson Claude**, Professor in Computer Science, University of Montreal and Head of the HERON laboratory



**Giannakopoulos Panteleimon**, Medical Direction, University of Geneva Hospitals and Faculty of Medicine, University of Geneva

**Hadjinicolaou Maria**, Professor of Applied Mathematics, School of Science and Technology, Hellenic Open University

**Harney Michael**, MS Bioinformatics, Sr. Data Architect, Health Catalyst, Salt Lake City, Utah

**Itzhaki Ruth**, Visiting Professor, Institute of Population Ageing, University of Oxford, and Emeritus Professor, School of Biological Sciences, University of Manchester

**Kapogiannis Dimitrios**, M.D., Clinical Investigator, Human Neuroscience Section/Laboratory of Clinical Investigation

**Kasti Marianne**, Consultant Neurologist and Lead Clinician at East Sussex NHS Trust

**Kentros Clifford**, Professor, NTNU, Kavli Institute for Systems Neuroscience, Kentros Research Group, Norway

**Kotsireas Ilias**, Professor, Physics & Computer Science Wilfrid Laurier University, Department of Physics and Computer Science Waterloo, Ontario, Canada

**Lyketsos Constantine**, Elizabeth Plank Althouse of Professor Johns Hopkins University and Chair Department of Psychiatry and Behavioral Sciences at Johns Hopkins Bayview

**Lygerou Zoi**, Head, Department of General Biology, School of Medicine, University of Patras

**Machairaki Vasiliki**, Assistant professor of Genetic Medicine, Johns Hopkins, USA



**Mylonas Phivos**, Associate Professor, Department of Informatics, Ionian University, Greece

**Kyung-Min Noh**, Group Leader, Genome Biology Unit, European Molecular Biology Laboratory (EMBL), Heidelberg, Germany

**Ntziachristos Vassilis**, Professor and Chair of Biological Imaging (CBI) - Technical University Munich, Germany & Director, Institute of Biological and Medical Imaging (IBMI) – Helmholtz Zentrum München, Germany

**Palejev Dean**, Associate Professor, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria

**Paxinos George**, Professor, AO DSc FASSA FAA, NHMRC Australia Fellow, Neuroscience Research Australia, Barker St and Hospital Rd, Randwick, Sydney

**Plakiotis Christos**, Unit Head, Aged Persons Mental Health Service, Monash Health Adjunct Senior Lecturer, Department of Psychiatry, Monash University

**Provata Astero**, Research Director, Institute of Nanoscience & Nanotechnology, NCSR “Demokritos”, vice-chairman of the Complex Systems and Applications (COSA) Network

**Robakis Nikolaos**, Professor of Psychiatry, Neuroscience and experimental therapeutics First A.P. Slaner family Professor for Alzheimer disease research. Icahn School of Medicine at Mount Sinai

**Sotiropoulos Ioannis**, Researcher C– Group leader, Institute of Biosciences & Applications, NCSR Dimokritos, Athens

**Spathis Dimitrios**, Research scientist at Nokia Bell Labs, visiting researcher at the University of Cambridge

**Sugarman Jeremy**, MD, MPH, MA, Harvey M. Meyerhoff Professor of Bioethics and Medicine, Prof. of Medicine, Prof. of Health Policy and



Management, and deputy director for medicine of the Berman Institute of Bioethics at the Johns Hopkins University

**Taraviras Stavros**, Professor, Department of Physiology at the Medical School, University of Patras, Director Stem Cell Laboratory

**Tarnanas Ioannis**, Senior Atlantic Fellow for Equity in Brain Health with the Global Brain Health Institute (GBHI) at UCSF, San Francisco, CA, USA and Trinity College Dublin, Dublin, Ireland. Altoida Inc., La Jolla, CA, USA, Scripps Memorial Hospital, San Diego, CA, USA

**Tavernarakis Nektarios**, Chairman, Foundation for Research and Technology-Hellas (FORTH) Research Director, Institute of Molecular Biology and Biotechnology, FORTH, Professor, Medical School, University of Crete

**Tomita Taisuke**, Professor, Laboratory of Neuropathology and Neuroscience, The University of Tokyo

**Villringer Arno**, Max Planck Institute for Human Cognitive and Brain Sciences/CBS. Department of Neurology

**Vlachakis Dimitrios**, Assistant Professor at the Genetics Laboratory at the Biotechnology, Department of the Agricultural University of Athens, Greece

**Vrahatis Aristidis**, Bioinformatics and Human Electrophysiology Laboratory, Department of Informatics, Ionian University

**Yapijakis Christos**, Associate Professor of Genetics, School of Medicine, National and Kapodistrian University of Athens, Director of Cephalogenetics Center

**Zaretsky Adam**, Hub of Art Laboratories (HAL), of the Department of Audio & Visual Arts (AVArts), Ionian University, Corfu, Greece.



## CONFERENCE PROGRAM

THURSDAY AFTERNOON October 20, 2022

18:00-19:00	Opening Ceremony
Venue	Municipal Theatre of Zakynthos
18:00-18:40	Welcome Addresses
	Panel Discussion
	<b>Kyung-Min-Noh</b> , Group Leader-Epigenetic mechanism of neurodevelopment and diseases at EMBL Heidelberg
18:40-19:00	<b>Ioannis Sotiropoulos</b> , Researcher C– Group leader, Institute of Biosciences & Applications, NCSR Dimokritos, Athens
	<b>Panagiotis Vlamos</b> , Professor, Bioinformatics and Human Electrophysiology Laboratory, Ionian University, Greece



<b>19:00-20:00</b>	<b>Opening Lectures</b>
<b>Venue</b>	<b>Municipal Theatre of Zakynthos</b>
	<b>Chair: Panagiotis Vlamos</b>
<b>19:00-19:30</b>	<b>Keynote address</b>  <b>Jeremy Sugarman</b> MD, MPH, MA, Harvey M. Meyerhoff Professor of Bioethics and Medicine, Prof. of Medicine, Prof. of Health Policy and Management, and deputy director for medicine of the Berman Institute of Bioethics, Johns Hopkins University  <b>Title: “Ethical Considerations for Organoid Research and Clinical Translation”</b>
<b>19:30-20:00</b>	<b>Keynote address</b>  <b>Kyung-Min-Noh</b> Group Leader-Epigenetic mechanism of neurodevelopment and diseases at EMBL Heidelberg  <b>Title: “Molecular function of chromatin regulators in neurodevelopment and diseases”</b>
<b>20:00</b>	<b>Welcome Cocktail and Classical Music Live Concert</b>



## FRIDAY MORNING October 21, 2022

<b>09:00-11:00</b>	<b>Molecular &amp; Cellular mechanisms of neurological disorders</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Themis Exarchos</b>
	<b>Keynote address</b>
<b>09:00-09:30</b>	<p><b>Taisuke Tomita</b> Professor, Laboratory of Neuropathology and Neuroscience, The University of Tokyo</p> <p><b>Title: “Molecular mechanisms of microglial response in response to amyloid-<math>\beta</math> accumulation in Alzheimer disease”</b></p>
	<b>Keynote address</b>
<b>09:30-10:00</b>	<p><b>Clifford Kentros</b> Professor, NTNU, Kavli Institute for Systems Neuroscience, Kentros Research Group, Norway</p> <p><b>Title: “Alzheimer’s Disease as a Celltype-Specific Neurodegenerative Disorder”</b></p>
	<b>Keynote address</b>
<b>10:00-10:30</b>	<p><b>Aris Vrahatis</b> Bioinformatics and Human Electrophysiology Laboratory, Department of Informatics, Ionian University</p> <p><b>Title: “Single-Cell RNA Sequencing in Neurodegenerative Diseases: Current State and Future Challenges”</b></p>
	<b>Keynote address (Online)</b>
<b>10:30-11:00</b>	<p><b>Panteleimon Giannakopoulos</b> Medical Direction, University of Geneva Hospitals and Faculty of Medicine, University of Geneva</p> <p><b>Title: “Holistic biomarkers in the prediction of Alzheimer disease”</b></p>
<b>11:00-11:30</b>	<b>Coffee Break</b>

## FRIDAY AFTERNOON October 21, 2022

<b>11:30-13:30</b>	<b>Machine Learning Applications in Neuroscience</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Aris Vrahatis</b>
<b>11:30-12:00</b>	<p><b>Keynote address (Online)</b></p> <p><b>Dean Palejev</b> Associate Professor, Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, Sofia, Bulgaria</p> <p><b>Title: “Machine Learning approach for identification of preclinical dementia according to ATN classification”</b></p>
<b>12:00-12:30</b>	<p><b>Keynote address (Online)</b></p> <p><b>Dimitrios Spathis</b> Research scientist at Nokia Bell Labs, visiting researcher at the University of Cambridge, UK</p> <p><b>Title: “The promise of self-supervised machine learning in intelligent health”</b></p>
<b>12:30-13:00</b>	<p><b>Keynote address</b></p> <p><b>Themis Exarchos</b> Assistant Professor, Department of Informatics, Ionian University, Greece</p> <p><b>Title: “Integrating wearable sensors and machine learning for the detection of critical events in industry workers”</b></p>
<b>13:00-13:30</b>	<p><b>Keynote address</b></p> <p><b>Phivos Mylonas</b> Department of Informatics, Ionian University, Greece</p> <p><b>Title: “Medical data mining in the era of Machine Learning”</b></p>
<b>13:30-15:00</b>	<b>Lunch Break</b>

## FRIDAY EVENING October 21, 2022

<b>15:00-17:00</b>	<b>Mathematical advances in Neuroscience</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Phivos Mylonas</b>
<b>15:00-15:30</b>	<b>Keynote address</b>  <b>Michael Harney</b> MS Bioinformatics, Sr. Data Architect, Health Catalyst, Salt Lake City, Utah  <b>Title: “The Prediction of Tumorigenesis Onset Using Parameters from Chaotic Attractor Models”</b>
<b>15:30-16:00</b>	<b>Keynote address</b>  <b>Astero Provata</b> Research Director, Institute of Nanoscience & Nanotechnology, NCSR “Demokritos”, vice-chairman of the Complex Systems and Applications (COSA) Network  <b>Title: “The effects of damaged connectivity in networks of Leaky Integrate-and-Fire neurons”</b>
<b>16:00-16:30</b>	<b>Keynote address</b>  <b>Maria Hadjinicolaou</b> Professor of Applied Mathematics, School of Science and Technology, Hellenic Open University, Greece  <b>Title: “Mathematical study of perturbation of magnetic fields caused by erythrocytes”</b>
<b>16:30-17:00</b>	<b>Keynote address (Online)</b>  <b>Ilias Kotsireas</b> Professor, Physics & Computer Science Wilfrid Laurier University, Department of Physics and Computer Science Waterloo, Ontario, Canada  <b>Title: “Introduction to Constraint Satisfaction Problems”</b>
<b>17:00-17:30</b>	<b>Networking</b>

## FRIDAY EVENING October 21, 2022

17:30-19:30	Precision Medicine & Neurological Disorders
Venue	Amphitheater, Department of Environment, Ionian University
	<b>Chair: Spyros Doukakis</b>
<b>17:30-18:00</b>	<p><b>Keynote address (Online)</b></p> <p><b>Nikolaos Robakis</b> Professor of Psychiatry, Neuroscience and experimental therapeutics First A.P. Slaner family Professor for Alzheimer disease research. Icahn School of Medicine at Mount Sinai</p> <p><b>Title: “The Alzheimer’s disease neuropathology and the debacle of therapeutic efforts”</b></p>
<b>18:00-18:30</b>	<p><b>Keynote address</b></p> <p><b>Dimitrios Kapogiannis</b> M.D., Clinical Investigator, Human Neuroscience Section/Laboratory of Clinical Investigation</p> <p><b>Title: “Neuronal-origin extracellular vesicles in the circulation as a source of biomarkers for brain diseases”</b></p>
<b>18:30-19:00</b>	<p><b>Keynote address (Online)</b></p> <p><b>Vasiliki Machairaki</b> Assistant Professor of Genetic Medicine, Johns Hopkins, USA</p> <p><b>Title: “Human Induced Pluripotent Stem Cells in vitro models of Alzheimer’s disease: a precision medicine approach”</b></p>
<b>19:00-19:30</b>	<p><b>Keynote address (Online)</b></p> <p><b>Constantine Lyketsos</b> Elizabeth Plank Althouse of Professor Johns Hopkins University and Chair Department of Psychiatry and Behavioral Sciences at Johns Hopkins Bayview</p> <p><b>Title: “Targeting Mild Behavioral Impairment to Delay or Prevent Dementia: A Precision Medicine Approach”</b></p>

**SATURDAY MORNING October 22, 2020**

09:00-11:00	Epigenetics, imaging & stem cell research
Venue	Amphitheater, Department of Environment, Ionian University
	<b>Chair: Phivos Mylonas</b>
	<b>Keynote address</b>
<b>09:00-09:30</b>	<b>Christos Yapijakis</b> Associate Professor of Genetics, School of Medicine, National and Kapodistrian University of Athens, Director of Cephalogenetics Center  <b>Title: “Lessons learned from genetics and epigenetics of            ectodermal dysplasias”</b>
	<b>Keynote address</b>
<b>09:30-10:00</b>	<b>Zoi Lygerou</b> Head, Department of General Biology, School of Medicine, University of Patras  <b>Title: “Genome integrity: from basic science to precision            oncology”</b>
	<b>Keynote address</b>
<b>10:00-10:30</b>	<b>Vasillis Ntziachristos</b> Professor and Chair of Biological Imaging (CBI) - Technical University Munich, Germany Director, Institute of Biological and Medical Imaging (IBMI) – Helmholtz Zentrum München, Germany  <b>Title: “Illuminating medical readings with optoacoustic            imaging”</b>
	<b>Keynote address</b>
<b>10:30-11:00</b>	<b>Stavros Taraviras</b> Professor, Department of Physiology at the Medical School, University of Patras, Director Stem Cell Laboratory  <b>Title: “Fate choice decisions of Neural Stem Cells,            lessons for human disease”</b>
<b>11:00-11:30</b>	<b>Coffee Break</b>



## SATURDAY AFTERNOON October 22, 2020

<b>11:30-13:30</b>	<b>AI in Neuroscience Research</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Spyros Doukakis</b>
<b>11:30-12:00</b>	<b>Keynote address</b>  <b>Sammuel Danso</b> University of Edinburgh Honorary staff, Deanery of Clinical Sciences, Centre for Clinical Brain Sciences  <b>Title: “Explainable AI for brain health and dementia research: an opportunity to explore novel interactions between risk factors”</b>
<b>12:00-12:30</b>	<b>Keynote address</b>  <b>Ioannis Tarnanas</b> Senior Member Swiss National Dementia Task Force; Chief Scientific Officer at Altoida Inc., TMC Texas Medical Center Houston, TX, USA  <b>Title: “Digitally-enhanced personalized medicine: accurate selection of cognitive decline and measuring progression of mild cognitive impairment”</b>
<b>12:30-13:00</b>	<b>Keynote address</b>  <b>Dimitrios Vlachakis</b> Genetics Laboratory at the Biotechnology, Department of the Agricultural University of Athens, Greece  <b>Title: “Artificial intelligence paves the way towards precision Drug Design in Neurosciences”</b>
<b>13:00-13:30</b>	<b>Keynote address</b>  <b>Costas Demetzos</b> Pharmaceutical Nanotechnology, Director of the Laboratory of Pharm Technology, Faculty of Pharmacy, University of Athens, Greece  <b>Title: “New Health Technologies: Research, Innovation and Education”</b>
<b>13:30-15:00</b>	<b>Lunch Break</b>



**SATURDAY EVENING October 22, 2020**

<b>15:00-17:00</b>	<b>Stress as a factor in disease progression</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Themis Exarchos</b>
<b>15:00-15:30</b>	<b>Keynote address</b>  <b>Ioannis Sotiropoulos</b> Researcher C– Group leader, Institute of Biosciences & Applications, NCSR Dimokritos, Athens  <b>Title: “Chronic Stress and exosomes as essential players in Alzheimer’s disease progression and diagnosis”</b>
<b>15:30-16:00</b>	<b>Keynote address (Online)</b>  <b>Nikolaos Daskalakis</b> Assistant Professor of Psychiatry, McLean Hospital, Harvard Medical School, Harvard University  <b>Title: “Molecular and cellular underpinnings of stress related neuropsychiatric disorders”</b>
<b>16:00-16:30</b>	<b>Keynote address</b>  <b>George Chroussos</b> Professor of Pediatrics and Endocrinology and Neurobiology, Chairman of the First Department of Pediatrics at the National and Kapodistrian University of Athens School of Medicine, Athens, Greece. UNESCO Chair on Adolescent Health Care at the University of Athens  <b>Title: “The Effects of Stress and Inflammation on Wakefulness and Sleep”</b>
<b>16:30-17:00</b>	<b>Keynote address (PR)</b>  <b>Christos Plakiotis</b> Unit Head, Aged Persons Mental Health Service, Monash Health Adjunct Senior Lecturer, Department of Psychiatry, Monash University  <b>Title: “Factors contributing to stress and wellbeing among trainee psychiatrists in Victoria, Australia”</b>
<b>17:00-17:30</b>	<b>Networking</b>

## SATURDAY EVENING October 22, 2020

17:30 -19:30	Therapeutic Techniques
Venue	Amphitheater, Department of Environment, Ionian University
	<b>Chair: Aris Vrahatis</b>
	<b>Keynote address</b>
<b>17:30-18:00</b>	<b>Claude Frasson</b> Professor in Computer Science, University of Montreal and Head of the HERON laboratory  <b>Title: "Recovering Memory using Subliminal Approach            for Alzheimer"</b>
	<b>Keynote address (Online)</b>
<b>18:00-18:30</b>	<b>Dimitris Avramopoulos</b> McKusick-Nathans Department of Genetic Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, USA  <b>Title: "How we use and plan to use genetics in the            context of precision medicine for AD"</b>
	<b>Keynote address (Online)</b>
<b>18:30-19:00</b>	<b>Katerina Akassoglou</b> PhD, Professor of Neurology, University of California, San Francisco  <b>Title: "Neurovascular Interactions: mechanisms,            imaging, therapeutics"</b>
	<b>Keynote address (Online)</b>
<b>19:00-19:30</b>	<b>Nektarios Tavernarakis</b> Chairman, Foundation for Research and Technology-Hellas (FORTH), Research Director, Institute of Molecular Biology and Biotechnology, FORTH, Professor, Medical School, University of Crete  <b>Title: "Long term neuron survival and cellular            homeostasis during ageing"</b>
<b>21:00</b>	<b>Gala Dinner</b>

## SUNDAY MORNING October 23, 2020

09:00-11:00	<b>Neuroscientific Advances I</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Phivos Mylonas</b>
	<b>Keynote address</b>
<b>09:00-09:30</b>	<p><b>Ruth Itzhaki</b> Visiting Professor, Institute of Population Ageing, University of Oxford, and Emeritus Professor, School of Biological Sciences, University of Manchester</p> <p><b>Title: “Herpes simplex virus type 1 in brain plays a pivotal and ominous role in response to damage”</b></p>
	<b>Keynote address</b>
<b>09:30-10:00</b>	<p><b>Marianne Kasti</b> Consultant Neurologist, Medical Advisor, BiHELab, Department of Bioinformatics, Ionian University</p> <p><b>Title: “Modern pillars of the neurological sciences”</b></p>
	<b>Keynote address</b>
<b>10:00-10:30</b>	<p><b>Spyros Doukakis</b> Bioinformatics and Human Electrophysiology Laboratory, Department of Informatics, Ionian University</p> <p><b>Title: “A Theoretical Framework for Educators’ Awareness concerning Educational Neuroscience”</b></p>
	<b>Keynote address</b>
<b>10:30-11:00</b>	<p><b>Rebecca Barnstaple</b> Department of Dance, York University, UK</p> <p><b>Title: “Dance in the Broad Sense – Techniques supporting adaptive plasticity in health and disease”</b></p>
<b>11:00-11:30</b>	<b>Coffee Break</b>

## SUNDAY AFTERNOON October 23, 2020

<b>11:30-12:30</b>	<b>Neuroscientific Advances II</b>
<b>Venue</b>	<b>Amphitheater, Department of Environment, Ionian University</b>
	<b>Chair: Phivos Mylonas</b>
<b>11:30-12:00</b>	<p><b>Keynote address</b></p> <p><b>Adam Zaretsky</b> Hub of Art Laboratories (HAL), of the Department of Audio &amp; Visual Arts (AVArts), Ionian University, Greece.</p> <p><b>Title: "Towards a Public Understanding of Neurodegenerative Disease Research through BioArt, Data-Art, Hands-on BioMedia Workshops, Immersive Environments and Artists in Labs"</b></p>
<b>12:00-12:30</b>	<p><b>Keynote address (Online)</b></p> <p><b>Arno Villringer</b> Max Planck Institute for Human Cognitive and Brain Sciences/CBS. Department of Neurology</p> <p><b>Title: "Reciprocal influence of cardiac function and cognition"</b></p>

<b>13:00-14:00</b>	<b>Closing Ceremony</b>
<b>Venue</b>	<b>Municipal Theatre of Zakynthos</b>
	<b>Chair: Aris Vrahatis</b>
<b>13:00-13:30</b>	<b>Keynote address</b>  <b>George Paxinos</b> Professor, AO DSc FASSA FAA, NHMRC Australia Fellow, Neuroscience Research Australia, Barker St and Hospital Rd, Randwick, Sydney  <b>Title: “Is the brain in the Goldilocks zone?”</b>
<b>13:30-14:00</b>	<b>Panagiotis Vlamos</b> Professor, Bioinformatics and Human Electrophysiology Laboratory, Ionian University  <b>Closing</b>
<b>14:00-14:30</b>	<b>Farewell Cocktail and Traditional Music Live Entertainment</b>
<b>14:30</b>	<b>Zakynthos Tour</b>

## Our Workshops

	<b><u>FRIDAY AFTERNOON October 21, 2022</u></b>
<b>11:30-13:30</b>	<b>Workshop Session</b>
	<b>Workshop #1: Molecular targets in age-related diseases: Structural and computational analysis.</b>
	<b><u>SATURDAY AFTERNOON October 22, 2022</u></b>
<b>11:30-13:30</b>	<b>Hands-on session</b>
	<b>Machine Learning and Network-based processes for Neurodegenerative diseases using Python/Matlab/Octave</b>
	<b><u>SATURDAY EVENING October 22, 2022</u></b>
<b>15:00-16:00</b>	<b>Workshop Session</b>
	<b>Workshop #2: Genomic Factors and their association with diseases</b>

### **Workshop #1: Molecular targets in age-related diseases: Structural and computational analysis.**

Talk 1. **Protein Structure and Functional Analysis.**

Talk 2. **Biomarkers of oxidative stress in inflammatory and neurodegenerative disease models.**

Talk 3. **AFM force spectroscopy and protein folding.**

### **HANDS-ON SESSION: Machine Learning and Network-based processes for Neurodegenerative diseases using Python/Matlab/Octave.**

Presentation 1. **EEG signal analysis using EEGLAB.**

Presentation 2. **Graph Topologies and Approaches in Neurodegenerative Diseases (Matlab/Octave).**

Presentation 3. **Classification of Alzheimer's Disease Using Convolutional Neural Networks (Python).**

### **Workshop #2: Genomic Factors and their association with diseases**

Talk 1. **Semantic and population analysis of the genetic targets related to COVID-19 and its association with genes and diseases.**

Talk 2. **ADRA2B and HTR1A: An updated study of the biogenic amine receptors.**

Talk 3. **A genomic study focusing on the glucocorticoid receptor interactome highlights distinct genetic characteristics associated with stress response.**



## Our Parallel sessions

### FRIDAY October 21, 2022

Venue	Room D2, Department of Environment, Ionian University	On demand
09:00-10:00	Computational Neuroscience	Digital advances in Neuroscience
10:00-11:00	Poster Flash	
11:00-11:30	Coffee Break	Break
11:30-13:30	Workshop Session	Caregivers & quality of life
	Workshop #1: Molecular targets in age-related diseases: Structural and computational analysis.	
13:30-15:00	Lunch Break	Break
15:00-16:00	Stress-related Mathematical Models	Mathematical modeling for diseases
16:00-17:00	Poster Flash	
17:00-17:30	Networking	Break
17:30-18:10	Public's perception of diseases	COVID-19 Era
18:10-19:30	Poster Flash	

### Saturday October 21, 2022

Venue	Room D2, Department of Environment, Ionian University	On demand
09:00-10:00	Proteomics and Computational Biology	Cellular, Molecular & Biological advances
10:00-11:00	Poster Flash	
11:00-11:30	Coffee Break	Break
11:30-13:30	Hands-on Session	Mental Health
	Machine Learning and Network-based processes for Neurodegenerative diseases using Python/Matlab/Octave	
13:30-15:00	Lunch Break	Break
15:00-16:00	Workshop Session	Workshop Session
	Workshop #2: Genomic Factors and their association with diseases	Workshop #3: Machine Learning Approaches for identifying Alzheimer's Disease Biomarkers
16:00-17:00	Poster Flash	Stress & Anxiety Disorders
17:00-17:30	Networking	Break
17:30-18:10	Neuro-related advances	Omics approaches
18:10-19:30	Poster Flash	



## Conference chair

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# GeNeDis 2022

Digital Transformation in the field of Neurodegenerative Diseases