



*Academia
Europaea*

19

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THE ACADEMY OF EUROPE



New members

Elected in 2020



Class C: Life Sciences

Class Chair:

Éva Kondorosi

Biological Research Centre,
Hungarian Academy of Sciences, Hungary

Biochemistry and molecular biology



Section Chair:

Éva Kondorosi

**Biological Research Centre,
Hungarian Academy of Sciences, Hungary**



Edit Irén Buzás
Semmelweis University
Hungary

Extracellular vesicles

Exosomes

Apoptotic bodies

Immunology

Rheumatoid arthritis

T cells

Autoimmunity

Aggrecan



Ilaria Capua
One Health Center of Excellence
University of Florida
USA

Virology

Epizootic diseases



Ray Dixon
John Innes Centre
UK

Biological nitrogen fixation

Transcriptional regulation

Signal transduction in response to nitrogen and oxygen

Bacterial enhancer binding proteins

Synthetic biology



Kristina Djinovic Carugo
University of Vienna
Austria

Structure-function analysis metallo-enzymes involved in protection from chemical and oxidative damage

Structural biology of actin based cytoskeleton with focus on muscle Z-disk

X-ray induced radiation damage



Guillaume Duménil
Institut Pasteur
France

Infection biology

Vascular biology

Microbiology

Mechanobiology

Cell biology

Innate immunity

Biochemistry



Ralf Erdmann
Ruhr University Bochum
Germany

Molecular basis of peroxisomal diseases

Biogenesis and function of peroxisomes

Topogenesis of peroxisomal proteins

Characterization of glycosomes

Glycosome biogenesis inhibitors

New therapies against Sleeping sickness,
Leishmaniasis and Chagas Disease



George Fu Gao
Institute of Microbiology
China

Viral transmission and infection

Viral diseases

Virus glycoproteins

Antiviral therapy

Viral entry

Viral evolution

Protein-protein interactions

Host-pathogen interaction

Immune responses

Epidemiology



Fátima Gebauer
**Center for Genomic
Regulation**
Spain

mRNA translation

Post-transcriptional regulation

RNA binding proteins

Cancer

Drosophila development



Pascal Genschik
Centre national de la
recherche scientifique
France

Proteostasis (ubiquitin and autophagy)

Cell cycle

Phytohormones

RNAi

Plant biology, Arabidopsis



Katalin Karikó
BioNTech SE
Germany

Therapeutic use of mRNA

mRNA-based antibody therapeutics

mRNA-based protein replacement therapy

mRNA vaccines



Mikael Kubista
Institute of Biotechnology
Czech Republic

Teaching
Chemometry
Entrepreneurship
Bioinformatics
Education
Leadership
Physical chemistry
Fluorescence spectroscopy
Gene expression profiling
Biotechnology
Spectroscopy/optics
Molecular Diagnostics



Joachim Lingner
EPFL
Switzerland

Telomeres

Telomerase

Long noncoding RNA

DNA damage response

DNA repair

DNA replication

Genome stability

Oxidative stress

RNA



Peter Mergaert
Centre National de la
Recherche Scientifique
France

Symbiosis in plants (rhizobium-legume interaction) and insects (gut symbiosis)

Functional genomics, genomics, genetics, molecular biology, cell biology applied to symbiosis research

Antimicrobial peptides: mode of action and resistance in bacteria

Endoreduplication in plants



Olivier Neyrolles
Centre National de la
Recherche Scientifique
France

Mycobacteria

Infection biology

Host-pathogen interactions

Immunity to pathogens

Tuberculosis

Bacterial virulence



Valerie O'Donnell
Cardiff University
UK

Inflammation biology

Lipid biochemistry

Mass spectrometry

Blood clotting

Free radical biology

Platelets

Cardiovascular disease



Philip Poole
University of Oxford
UK

Nitrogen fixation

Physiology and biochemistry of legume
Rhizobium symbiosis

Rhizosphere microbiology



Zoran T. Popovski
Ss. Cyril and Methodius
University
North Macedonia

Protein chemistry

DNA polymerases

Molecular markers

DNA microsatellites

Molecular diagnostics

GMO detection

Recombinant proteins

Science in schools and gifted children for research



Sheena Radford
University of Leeds
UK

Mechanism(s) of protein folding and misfolding

Amyloid assembly mechanisms

Membrane protein folding mechanisms

Role of chaperones & BAM complex in membrane biogenesis

Stabilising proteins of therapeutic/ interest against aggregation

Method development and advanced biophysical techniques (native mass spectrometry, NMR, and single molecule methods)



Marina Rodnina
Max Planck Institute for
Biophysical Chemistry
Germany

Protein synthesis by and function on the ribosome

Gene expression

Protein synthesis

Translation

Ribosome

Molecular machines

Time-resolved fluorescence



A. Francis Stewart
Technische Universität
Dresden
Germany

Chromatin

Epigenetics

Histone post-translational modifications

Trithorax-Group

Mammalian development

Stem cell biology

Haematopoiesis

Genetic engineering

Site specific and homologous
recombination

Gene switches



Gian Gaetano Tartaglia
University of Rome Sapienza
Italy

Molecular biology with focus on RNA interactions in the cell

Biochemistry of phase separation

Amyloids

Bioinformatics

Systems biology



Jörn Walter
Saarland University
Germany

Epigenetics

DNA methylation

Epigenetic reprogramming

Genomic Imprinting

Epigenomics

Computational Epigenomics

Functional Genomics



Yun-Gui Yang
Beijing Institute of Genomics
China

RNA methylation

Chemical biology

Cancer biology

DNA repair

Epitranscriptomics

Cell and developmental biology



Section Chair:

Crisanto Gutierrez

**Centro de Biología Molecular Severo Ochoa,
Spain**



Philippe Bousso
Institut Pasteur
France

Immunology

Cancer

Infection

Inflammation

Immunotherapy

Imaging



Yosef Gruenbaum
Hebrew University of
Jerusalem
Israel

Nuclear organization

Nuclear envelope

Nuclear lamina

Progeria

LEM domain proteins

SUN domain proteins

Nuclear mechanics

Lamins

C. elegans



Crisanto Gutierrez
Centro de Biologia Molecular
Severo Ochoa
Spain

Plant
Endoreplication
Epigenetics
Arabidopsis
Chromatin
Root growth
DNA replication
Cell cycle



Dirk Inzé
Center for Plant Systems
Biology
Belgium

"Lab-to field-to lab" concept

Plant phenotyping

Plants and climate emergency

Plant organ growth regulation

Plant yield improvement

Drought tolerance



Lars Nitschke
**University of Erlangen-
Nuernberg**
Germany

B cell immunology

B cell inhibitory receptors

Autoimmunity mouse models

Genetic mouse models

B cell signaling

Siglec receptors



Arturas Petronis
Vilnius University Life Sciences
Center
Lithuania

Complex disease

Schizophrenia

Bipolar disorder

Brain

Etiopathogenesis

Epigenetics/epigenomics

DNA modification

Time

Circadian

Chronobiology



Mauro Piacentini
University of Rome 'Tor Vergata'
Italy

Physiology and molecular mechanisms of cell death

The role of cell death in pathophysiology of various disorders

The role of cell death in response of tumors to chemotherapy

Mechanisms of infectious diseases with particular regard to HIV

Transglutaminase type 2 and its function in physiology and disease

Cell biology and biochemistry of apoptosis and autophagy



Antonius J. Rabelink
Leiden University Medical
Center
Netherlands

Endothelial cell biology and the role of glycocalyx and glyco-landscapes of endothelial cell signaling

Human induced pluripotent stem cells

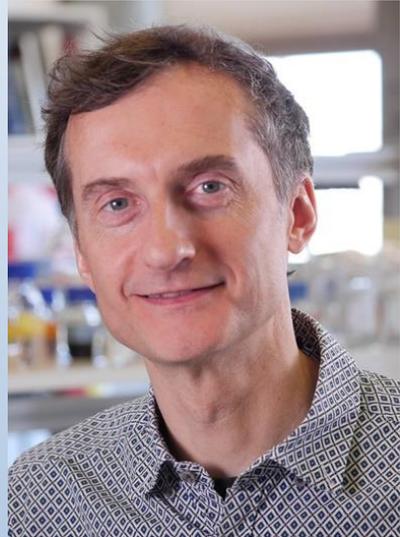
Impact of cardiovascular risk factors on integrity of the vasculature

Dysfunction of the (micro)vasculature in end-stage organ disease

Developing alternatives for renal replacement therapy

Curing diabetes through islet cell transplantation

Developing clinical guidelines for lupus, vasculitis and glomerulonephritis patients



Alexander Schier
Biozentrum, University of
Basel
Switzerland

Developmental genetics

Embryogenesis

Morphogen

Non-coding RNAs

Zebrafish

Behavior

Developmental lineages and trajectories



Physiology and neuroscience

Section Chair:

Balázs Gulyás
Karolinska Institute, Sweden



Stuart Allan
University of Manchester
UK

Neuroimmunology

Neuroscience

Inflammation

Immunology

Stroke

Cerebrovascular disease

Neurovascular

Preclinical models

Brain haemorrhage



**Francesco Paolo
Battaglia**
Radboud Universiteit
Nijmegen
Netherlands

Computational neuroscience

Systems neuroscience

Learning and memory

Hippocampus

Neurophysiology

Data analysis



Fabio Benfenati
Istituto Italiano di Tecnologia
Italy

Central nervous system

Synaptic transmission

Synapsins

SNARE proteins and fusion machine

Synaptic plasticity

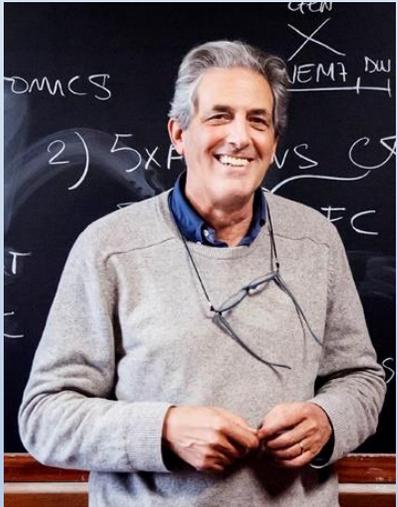
Synaptic genes and synaptopathies

Neural interfaces with smart materials

Optogenetics

Neuronal photostimulation

Retinal prosthetics



Antonino Cattaneo
Scuola Normale Superiore
Italy

Neurodegeneration

Nerve Growth Factor and neurotrophins

Molecular and cellular neurobiology

Neurosciences

Alzheimer's disease

Recombinant antibodies

Intrabodies



David DiGregorio
Institut Pasteur
France

Synaptic physiology

Dendritic integration

Neural circuit computations

Optical imaging (in vitro and in vivo)

Neurotransmitter uncaging

Mathematical modeling

Calcium dynamics

Voltage imaging



George Gegelashvili
University of Copenhagen
Denmark

Neuroactive amino acid carriers

Glutamate sensing, transport and signaling

Excitatory neurotransmission

Neurodegeneration

Neuron-glia interaction

Neuropathic pain

Neural cell adhesion



Mathias Hoehn
Jülich Research Centre
Germany

Experimental stroke research

Cerebral regeneration and plasticity

Stem cell mediated brain regeneration

Structural and functional neuronal networks
and their alterations under cerebral disease
or brain lesion

Brain aging characterization: structural and
functional changes

Magnetic resonance imaging development
for brain imaging

Molecular imaging modalities (MRI, PET,
bioluminescence and fluorescence imaging)



Anthony Holtmaat
University of Geneva
Switzerland

Circuits neuroscience

Molecular neuroscience

Sensory systems

Cerebral cortex / thalamus

Synaptic function/plasticity

Optical imaging of brain structure and function

Neuronal ultrastructure

Transgenesis and viral vector technology in rodents



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Siegfried Kasper
Center for Brain Research,
Medical University of Vienna
Austria

Circadian rhythms
Neuropsychopharmacology
Psychopathology
Bipolar disorder
Neurobiology
Depression
Brain imaging
Anxiety disorders
Schizophrenia
Methodology in psychiatry



Barbara Kofler
Paracelsus Medical University
Austria

Neuroendocrinology

Neuroinflammation

Neuropeptides

Pharmacology

G-protein coupled receptors

Mitochondrial energy metabolism and genetics

Tumor metabolism

Ketogenic diet

In vivo animal models (inflammation, obesity, regeneration, behavior, cancer)



Jean-Pierre Mothet
Université Paris-Saclay
France

Synapse physiology and plasticity

Neuropharmacology

Development of advanced analytical and optical tools for D-amino acids

Physiopathology of NMDA receptors and co-agonists

Role of D-Amino acids in physiology and pathology

Cell biology and Biophysics of gliotransmission



Sandip Patel
University College London
UK

Ca²⁺ signalling

NAADP

Lysosomes

Acidic Ca²⁺ stores

Two-pore channels

Ca²⁺-H⁺ exchangers

Membrane contact sites

ADP-ribosyl cyclases

Membrane traffic



Marcela Pekna
Sahlgrenska Academy
University of Gothenburg
Sweden

Neuroimmunology

Neuroscience

Immunology

Translational medicine

Neurology

Development of novel strategies for brain repair



Botond Roska
Institute of Molecular and Clinical
Ophthalmology Basel
Switzerland

Neuroscience

Genetics

Gene therapy

Eye

Retina

Brain

Neuronal circuit



Annette Schenck
Radboud University Medical
Center
Netherlands

Genetics

Neuroscience

Molecular biology

Developmental biology

Disease models

Drosophila melanogaster

Neurodevelopmental disorders

Intellectual disability

Autism spectrum disorders

Neuropsychiatric disorders



Yufang Shi
University of Rome Tor
Vergata
Italy

Mesenchymal stromal/stem cells (MSCs)
and immune regulation

Clinical standardization and application of
Mesenchymal stromal/stem cells in
inflammatory diseases

MSCs and tumor microenvironment

Activation-induced cell death (AICD) in T
cells and Neuro-immune regulation

Stress-and opioid-induced
immunosuppression



Gerhard Thiel
TU Darmstadt
Germany

Cellular biophysics

Ion channel structure function analysis

Viral ion channels

Exo- endocytosis in plant cells

Protein engineering



Irene Tracey
University of Oxford
UK

Clinical neuroscience

Pain research: basic and clinical

Neuroimaging of pain, analgesia and anaesthesia



István Ulbert
Research Centre for Natural
Sciences
Hungary

Neuroscience

Brain oscillations

Human sleep and epilepsy

Human and animal cognition

Human and animal optical imaging

Human and animal electrophysiology

MEMS development

Neurobionics

Neuroengineering



Baziel van Engelen
Radboud University Medical
Centre
Netherlands

Neuromuscular diseases, especially
Myotonic dystrophy, Facioscapulohumeral
dystrophy

N-of-1 trial design

Muscle physiology



Anna Wedell
Karolinska Institutet
Sweden

Inborn errors of metabolism

Clinical whole genome sequencing

Neurometabolism

Mitochondrial disorders

Personalised medicine

Organismic and evolutionary biology



Section Chair:

Christophe Thébaud
Université Paul Sabatier (Toulouse III), France

Organismic & evolutionary biology



Zoltán Barta
University of Debrecen
Hungary

Behavioural ecology
Evolutionary biology
Evolution of social behaviour
Social foraging
Evolution of parental care
Evolution of cooperation
Life history theory

Organismic & evolutionary biology



Michael Bruford
Cardiff University
UK

Conservation biology
Conservation genetics
Molecular ecology
Evolutionary biology
Population genetics

Organismic & evolutionary biology



Austin Burt
Imperial College London
UK

Evolutionary genetics

Gene drive

Genetic control of pests

Evolutionary modeling

Population genetics



Pedro Jordano
Consejo Superior de
Investigaciones Científicas
Spain

Coevolution of plant-animal interactions

Complex networks of ecological interactions

Molecular ecology of pollination and seed dispersal by animals

Natural history and conservation biology of plant-animal mutualisms

Mutualism Tropical ecology seed dispersal and plant demography



Le Kang
Chinese Academy of
Sciences
China

Ecological genomics

Phenotypic plasticity

Epigenetics

Molecular evolution

Ecology

Entomology



Purificacion Lopez-Garcia
Centre National de la Recherche
Scientifique
France

Microbial diversity (archaea, bacteria, protists)

Microbial evolution

Metagenomics & single cell 'omics'

Extreme environments

Early evolution

Origin of life

Geobiology

Organismic & evolutionary biology



Jane Memmott
University of Bristol
UK

Community ecology

Pollination biology

Invasion ecology

Urban ecology

Agro-ecology

Food web ecology

Conservation biology

Organismic & evolutionary biology



Ben Sheldon
University of Oxford
UK

Animal behaviour
Behavioural ecology
Ecology
Evolution
Ornithology



Kostas Triantis
National and Kapodistrian
University of Athens
Greece

Ecology
Biogeography
Conservation biology
Biodiversity
Islands
Extinction
Invertebrates
Mediterranean
Aegean Sea



David Albert Wardle
Nanyang Technological
University
Singapore

Community ecology

Ecosystem ecology

Plant-soil interactions

Biological invasions

Vegetation science

Aboveground-belowground linkages

Forest ecology



Clinical and veterinary science

Section Chair:

Stephen Holgate
Southampton University, UK



Peter Aaby
Statens Serum Institut
Denmark

Social anthropology

Epidemiology

Infectious diseases

Sex-differential effects of interventions

Vaccinology

Non-specific effects of vaccines: Immune training effects



Arturo Anadón
Complutense University
Madrid
Spain

Molecular toxicity mechanisms of drugs and pesticides, pharmacokinetics, metabolism, P450 isoforms, gene expression profiling

Signal pathways of oxidative stress, apoptosis, inflammation, and DNA methylation and drug therapeutic effect.

Pharmacokinetics/toxicokinetics

Pharmacological and toxicological in vivo and in vitro studies with drugs, pesticides, and chemicals and their interpretation.

Food safety

Risk assessments evaluation to animals, humans and environment



Christine Stabell Benn
University of Southern Denmark
Denmark

Medicine
Epidemiology
Global health
Public health
Vaccinology
Vitamin A supplementation
Nutrition
Sex-differences
Immunology



Thierry Calandra
Lausanne University Hospital
Switzerland

Innate immunity

Cytokines (macrophage migration inhibitory factor)

Sepsis

Infections in critically ill patients

Infections immunocompromised hosts, including neutropenic cancer patients

Fungal infections in the intensive care unit



Timothy Cox
University of Cambridge
UK

Human biochemical genetics

Enzyme targeting, gene transfer

Clinical pioneer of successful substrate
reduction therapy in sphingolipid diseases



Inger Ekman
University of Gothenburg
Sweden

Symptoms

Chronic illness

Evaluation of person-centred care
interventions using controlled designs

Complex interventions

Ethics



Lora Elderkin Fleming
European Centre for
Environment and Human
Health
UK

Environmental and occupational health and epidemiology

Oceans and human health/wellbeing

Big data, environment and health/wellbeing

Environmental and health inequalities



Dawn Sylvia Freshwater
University of Leeds
UK

Nursing research

Mental health

Research methodology

Prisoner health

Suicide and self harm

Psychological therapies

Nursing leadership

Interdisciplinary collaboration

Reflexivity

Evidence based practice



Henk-Jan Guchelaar
Leiden University Medical
Center
Netherlands

Pharmacogenetics

Personalised therapeutics

Clinical pharmacology

Clinical pharmacy

Drug discovery and development



Tracy Hussell
University of Manchester
UK

Lung infection

Lung inflammation

Chronic disease

Mucosal immunology

Multi-morbidity

Respiratory virus

Bacterial pneumonia

Airway macrophage



Alan David Irvine
Trinity College Dublin
Ireland

Medicine

Dermatology

Genetic medicine

Inherited skin disease

Keratinizing disorders

Atopic dermatitis

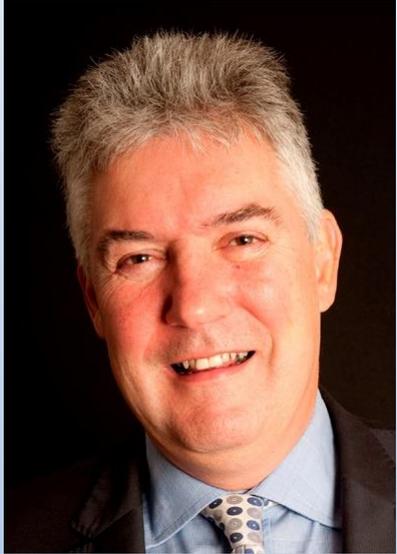
Allergy

Allergic asthma

Paediatrics

Molecular biology

Clinical and veterinary science



Frank Kelly
Imperial College London
UK

Air Pollution - ozone, PM2.5, NO2

Pollutant toxicity

Respiratory disease



Gian-Luigi Lenzi
Università di Roma - Sapienza
Italy

Nuclear medicine

Qualitative and quantitative measurements of CBF and CMRO₂ in man

Cerebrovascular disease

Description of a 4-hour therapeutic window in acute ischaemic stroke in man

Cerebrovascular disease

First therapeutic trials in the hyper-acute phase of ischaemic stroke in man

Clinical aspects of dementia

Role of the amygdala in human empathy explored with fMRI



Karina Lovell
University of Manchester
UK

Low intensity psychological interventions for common mental health conditions (Depression and anxiety) in Primary Mental Health Services

Remote delivery of interventions (telephone, computerised therapies) with Chronic Widespread Pain

Involvement of service users and families in care planning in secondary care mental health services

Randomised controlled trials

Public and patient involvement



Miriam Fleur Moffatt
Imperial College London
UK

Medicine

Dermatology

Genetic medicine

Inherited skin disease

Keratinizing disorders

Atopic dermatitis

Allergy

Allergic asthma

Paediatrics

Molecular biology



Iris Nagtegaal
Radboud University Medical
Center
Netherlands

Gastrointestinal pathology
Structured reporting
Cancer staging and classification



Anne Marie Rafferty
King's College London
UK

Health services research

Nursing research

Workforce policy and planning

Human resource management

History of medicine and nursing

Healthcare humanities

Arts & health

Research methodology

Pedagogical research



**Roberto
Rodriguez-Roisin**
Universitat de Barcelona
Spain

Asbestos Exposure: Lung Function -
Pathology - Small Airways Dysfunction

Asthma Outbreaks by Soybean Dust
Inhalation: Diagnosis - Pathogenesis -
Prevention

Bronchial Challenge Tests: AMP -
Histamine - Mannitol - Methacholine -
Platelet Activating Factor

Chronic Obstructive Pulmonary Disease
(COPD): Guidelines - Exacerbations -
Physical Activity - Gas Exchange -
Pulmonary Vascular Changes

Hepatopulmonary Syndrome (HPS):
Definition - Diagnosis - Management -
Pathophysiology



Zoltan Szekanecz
University of Debrecen
Hungary

Synovial inflammation

Cell adhesion, chemokines and angiogenesis

Genetics of rheumatic diseases

Targets for targeted (biological) therapies

Cardiovascular comorbidity in rheumatic diseases

Secondary cancer in rheumatic diseases

Secondary bone loss in rheumatic diseases

Crossroads in atherosclerosis and osteoporosis



Marianne van Hage
Karolinska Institutet
Sweden

Severe respiratory and food allergy

Molecular allergology

Molecular allergy diagnostics

Respiratory allergy

Food allergy

New therapies



László Vécsei
University of Szeged
Hungary

Experimental behavioral pharmacology

Experimental models of neurological disorders (migraine, Parkinson's disease, Huntington's disease, multiple sclerosis)

Neurochemical investigations in models of neurological disorders (excitotoxins, peptides, kynurenines)

Investigation of newly developed kynurenine-amino-transferase (KAT) knock-out animals

Investigation of newly synthesized kynurenic acid analogues in different animal models of neurological disorders

Molecular biomarkers of multiple sclerosis (catecholamines, kynurenines, neurofilament etc.)

Molecular biomarkers of migraine (CGRP, PACAP, kynurenines etc.)

Clinical pharmacological studies in the field of neurological disorders

Translation of biomarker and neuropharmacological data from basics to clinic



Maria Yazdanbakhsh
Leiden University Medical
Center
Netherlands

Human Immunology

Parasitology & neglected and poverty related tropical diseases (helminths and malaria)

Immune modulation and the link between communicable and non-communicable diseases

Immuno-epidemiology

Human infection models

Mass cytometry and analysis of high dimensional data



Welcome
to the
Academia Europaea