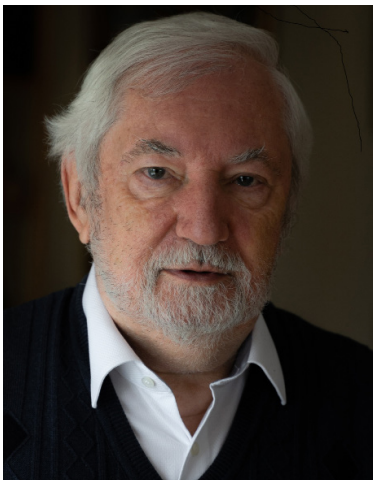
International Transmembrane Transporter Society

International Transmembrane Transporter Society

Newsletter

In This Issue

A Word from the President



Dear Colleagues,

This is my third letter as president of ITTS, and I certainly hope that we will personally meet at our 2022 ITTS Symposium "Catching Transport in Motion", in Copenhagen, Denmark, June 7-10. COVID-19 travel and meeting restrictions have now been lifted in most parts of the world, and the organization, the excellent program and the registration/hotel bookings are now in their final phases. The Maersk Tower at the University of Copenhagen will host our in person Symposium and should also provide an opportunity for the 2022 ITTS council meeting.

Fortunately, the COVID-19 pandemic has slowed down, although the highly transmissible Omicron variant, and some further variants, all with less severe clinical effects, are still present. Therefore, caution should be exercised, especially for those over 65 years and with underlying medical conditions, when joining a relatively large in person meeting. As it stands now, independent of the actual regulations, for those not properly vaccinated and/or potentially vulnerable, I suggest wearing facemasks and avoiding larger indoor gatherings at the Symposium.

The other horrible development of this year is the Russian aggression against the Ukraine: the unprovoked war with millions of refugees and thousands of dead and wounded prompted most of the nations to introduce heavy sanctions against Russia. Although ordinary, mostly misinformed Russian people have little chance to modify the actions of their leadership, the sanctions heavily affect their life. In my mind, while most of the national scientific societies suspended their partnerships with

the official Russian counterparts, we should not penalize individual scientists if they plan to attend our Symposium.

I look forward to the 2022 ITTS activities and to seeing many of you in person as soon possible. Please stay safe and healthy.

Balázs Sarkadi

ITTS president

ITTS 2022 Update

Our second ITTS Meeting, "***Catching Transport in Motion***," is less than a month away!

There are a few spots still open, so hurry now to register for ITTS 2022 in Copenhagen, Denmark. The registration deadline has been extended to **25 May 2022**.

The current programme for this meeting is on pages 4-7 of this newsletter.

To register, and to find the most up-to-date information about ITTS 2022, go to the conference website at https://www.conferencemanager.dk/itts2022/conference

We look forward to seeing everyone in Copenhagen!

Gordon Research Seminar & Conference 2022

A Gordon Research Seminar on ***Membrane Transport Proteins*** (11-12 June 2022) will be followed by a Gordon Research Conference on ***Biomedical Transporters: Physiology, Dysfunction, and Targets of Pharmacotherapy*** (12-17 June 2022).

Both events will be held at the Rey Don Jaime Grand Hotel in Spain.

2nd COMPPÅ Symposium

For more information, see https://www.comppaa.org.

This newsletter was assembled by ITTS Secretary Sonja Sucic and Associate Councilor Lee Gilman.

NCCR TransCure Final Conference

Celebrating 12 years of cutting-edge membrane transporters research

17 - 19 August 2022, Bern, Switzerland

Session Topics

Nutrient transporters: function, structure and impact on health and disease
Synthetic antibody fragments as tools in membrane protein research
Recent developments in ion channel research
Novel drug targets in neuropsychiatric disorders
Lipid transport between and within membranes
Chemical Biology and drugging SLCs

Invited speakers

Lennart Bunch, Univ.of Copenhagen
Kristiina Huttunen, Univ. of Eastern Finland
Thomas Jentsch, MDC Berlin
Frank Kirchhoff, Saarland University
Anthony Kossiakoff, Univ.of Chicago
Jin Li, CHUV Lausanne
Simon Newstead, Univ. of Oxford
Gaia Novarino, IST Austria
Sylvain Lengacher, GliaPharm, Geneva
Karin Reinisch, Yale School of Medicine
Markus Seeger, Univ. of Zürich
Stefano Vanni, Univ. of Fribourg
Paul Walton, Univ. of York
Nieng Yan, Princeton University

Info & registration: https://www.nccr-transcure.ch/events/final-conference

NCCR TransCure Excellence in Membrane Transport Research
Swiss National Science Foundation
With the support of
SOPHION leadXpro HiQScreen GliaPharm Microsynth THE SWISS DNA COMPANY

ITTS 2022 Programme

International Transmembrane Transporter Society

BCPT Focused Conference
Basic & Clinical Pharmacology & Toxicology

ITTS Symposium Copenhagen, June 7 - 10 2022

'Catching Transport in Motion'

Tuesday

09:00-10:15 Registration w/coffee

10:15-10:25 Opening v. Claus Loland

10:25-12:30 Session 1. ***New kids on the monoamine transporter block - Implications for treatment of psychiatric and substance use disorders***

Chair: Lynette Daws, Univ. of Texas (US), co-chair: Sonja Sucic, Medical Univ. of Vienna (AT)

Prof. **Lynette Daws**, Univ. of Texas (US)
Title: Unfaithful transporters: Insights into mechanisms of action of therapeutic and abused drugs

Prof. **Harald H. Sitte**, Medical Univ. of Vienna (AT)
Title: Impact of plasma membrane constituents on transporters responsible for monoamine clearance

Asst. Prof. **T. Lee Gilman**, Kent State Univ (US)
Title: Pharmacologically unmasking the functional contribution of PMAT to monoamine uptake

Post doc. **Felix P. Mayer**, Florida Atlantic Univ. (US)
Title: Dopamine transporters out of control: Disrupted regulation of dopamine clearance and a potential remedy via manipulation of opioid signaling

Assoc. Prof. **Ali Salahpour**, Univ. of Toronto (CA)
Title: Structure activity relationship of DAT pharmacological chaperones

12:30-13:30 Lunch

13:30-14:15 Keynote Speaker: **Christine Ziegler**, Univ. of Regensburg, *Title TBD*

14:15-14:35 Coffee break

14:35-16:15 Session 2. ***Structural and functional dynamics of transporters***

Chair: Ute Hellmich, Friedrich Schiller University Jena (DE)

Assoc. Prof. **Oded Lewinson**, Technion (IL)
Title: Conformational dynamics and allostery of ABC transporters

Prof. **Enrica Bordignon**, University of Geneva (CH)
Title: Dynamics of ABC transporters in cellular membranes: a milestone achievable with EPR

Prof. **Dimitrios Stamou**, Univ. of Copenhagen (DK)
Title: Off-cycle single-molecule modes underlie the function and regulation of transport

Assoc. Prof. **Thomas Stockner**, Medical Univ. of Vienna (AT)
Title: Using MD simulations to investigate transporter dynamics at all atom resolution

16:15-16:35 Break

16:35-18:15 Session 3. ***Heteromeric amino acid transporters***
Chair: Manuel Palacín, Univ. de Barcelona (ES)
Prof. **Simon Newstead**, Univ. of Oxford (UK)
Title: Molecular basis for redox control by the human cystine/glutamate antiporter System xc
Prof. **Manuel Palacín**, Univ. de Barcelona (ES)
Title: Structural determinants of substrate affinity and selectivity in HATs
Prof. **Yoshikatsu Kanai**, Osaka Univ. (JP)
Title: Structural and cellular signaling bases of anti-cancer therapeutics targeting amino acid transporter LAT1/CD98hc
Prof. **Gaia Novarino**, Inst. of Science and Technology (AT)
Title: Stage- and cell type-specific susceptibility to deletion of the large neutral amino acids SLC7A5

18:15-? Welcome Reception

Wednesday

08:45-08:50 Welcome

08:50-10:30 Session 4. ***The neglected SLC6 transporters: Structure and function of the GABA transporter subfamily***
Chair: Petrine Wellendorph, Univ. of Copenhagen, co-chair: Stefanie Kickinger, Univ. of Copenhagen
Asst. Prof. **Azadeh Shahsavar**, Aarhus Univ. (DK)
Title: Structural insights into the mechanism of glycine transport and inhibition
Prof. **Klaus T. Wanner**, LMU Munich (DE)
Title: Identification of new GAT inhibitors by means of MS binding assays in combination with affinity selection mass spectrometry
Prof. **Claire Colas**, Univ of Vienna (AT)
Title: Structural determinants of binding of the creatine transporter (CreaT, SLC6A8) inform the functional annotation of the SLC6 transporters family
Prof. **Petrine Wellendorph**, Univ. of Copenhagen (DK)
Title: Molecular characterization of the extrasynaptic GABA transporters and their pharmacological potential in ischemic stroke

10:30-10:50 Coffee break

10:50-12:30 Session 5. ***Cancer metabolism – shaping metabolic flux through membrane transport***
Chair: Louise Fets, MRC London Inst. of Medical Sciences (UK)
Post doc **Ahmad Cluntun**, University of Utah (US)
Title: Metabolite transport and cellular decisions
Prof. **Daniel Tennant**, Univ. of Birmingham (UK)
Title: Why source matters – endogenous synthesis versus transport of exogenous proline in cancer cells
Group leader **Susumu Hirabayashi**, MRC London Inst. of Medical Sciences (UK)
Title: The role of transporters on host-tumour metabolic interactions
Post doc **Emily Barnes**, MRC London Inst. of Medical Sciences (UK)
Title: The role of lactate transport and metabolism in cancer and its therapeutic implications

12:30-14:15 Lunch & Poster Session 1

14:15-15:00 Keynote Speaker: **Robert H. Edwards**, UCSF School of Medicine "*The allosteric regulation of synaptic vesicle glutamate transport*"

15:00-15:20 Coffee break

International Transmembrane Transporter Society

BCPT Basic & Clinical Pharmacology & Toxicology Focused Conference

15:20-17:00 Session 6. **Slc38 transporters in neuronal signaling and brain diseases**
Chair: Farrukh A. Chaudhry, Univ. of Oslo (NO)
Prof. **Farrukh A. Chaudhry**, Univ. of Oslo (NO)
Title: Slc38 transporters in neurotransmission and their regulation
Assoc. Prof. **Brian Billups**, Australian National University (AU)
Title: Amino acid transport for maintaining neurotransmission at glutamatergic synapses
Prof. **Herman Wolosker**, Israel Institute of Technology (IL)
Title: Slc38a5 is a physiological serine transporter at the blood-brain barrier and is critical for neurodevelopment
Prof. **Kaspar Locher**, ETH Zürich (CH)
Title: What distinguishes a multidrug from a lipid transporter?

Thursday

08:45-08:50 Welcome
08:50-10:30 Session 7. ***Lipid gymnastics - Highlights on lipids translocation mechanisms***
Chair: Chrisitine Ziegler, Univ. of Regensburg (DE)
Asst. Prof. **Ahmad Reza Mehdipour**, Ghent University (BE)
Title: Molecular dynamics of substrate recognition and transport in lipid transporters
Prof. **Camilo Perez**, Univ. of Basel (CH)
Title: Defend the wall: Structure and mechanism of a pH sensing flippase
Prof. **Cristina Paulino**, Univ. of Groningen (NL)
Title: The flips and flops of a scramblase story: conformational plasticity of TMEM16 scramblases under activating conditions
Group leader **Chloé Martens**, Univ. Libre de Bruxelles (BE)
Title: Structure of a multidrug transporter reveals molecular basis of polyspecific recognition
10:30-10:50 Coffee break
10:50-12:00 Young Scientists Session
12:00-13:45 Lunch & Poster Session 2
13:45-14:30 Keynote Speaker: **Raimund Dutzler**, Univ. of Zurich "*The TMEM16 family of calcium activated lipid scramblases and ion channels*"
14:30-14:50 Coffee break
14:50-16:30 Session 8. ***Human ASCT2 - from structure to anticancer therapy***
Chair: Dirk Slotboom, Univ. of Groningen (NL)
Assoc Prof. **Avner Schlessinger**, Mount Sinai School of Medicine (US)
Title: Rational design of ASCT2 ligands
Prof. **Renae Ryan**, Univ. of Sidney (AU)
Title: The split personality of SLC1A transporters: a chloride channel and a transporter
Prof. **Christof Grewer**, Univ. of Binghamton (US)
Title: Exploring glutamine transporter ASCT2 function: From molecular mechanism to inhibitor development
Assoc Prof. **Albert Guskov**, Univ. of Groningen (NL)
Title: A structural view onto disease-linked mutations in the human neutral amino acid exchanger ASCT1

International Transmembrane Transporter Society

BCPT Focused Conference
Basic & Clinical Pharmacology & Toxicology

Friday

09:00-10:40 Session 9. ***SLC4- and SLC9 family acid-base transport proteins - from structure to human disease***
Chair: Stine F. Pedersen, Univ. of Copenhagen (DK)
Prof. **Joe R. Casey**, Univ. of Alberta (CA)
Title: Conformational changes in Band 3 (SLC4A1/ AE1) and possible significance for Erythrocyte Senescence Signaling
Prof. **David Drew**, Stockholm Univ. (SE)
Title: Elevating the molecular basis for sodium/proton exchange
Prof. **Ebbe Bødtkjer**, Aarhus Univ. (DK)
Title: Bicarbonate transporters and sensors in breast carcinogenesis
Prof. **Stine F. Pedersen**, Univ. of Copenhagen (DK)
Title: Structural and functional insights into NHE1 regulation

10:40-11:00 Coffee break

11:00-12:40 Session 10. ***Molecular mechanisms of Na^+-coupled neurotransmitter transport***
Chair: Baruch Kanner, Hebrew Univ. Medical School (IL)
Prof. **Gary Rudnick**, Yale Univ. (US)
Title: New developments in Neurotransmitter Transport Mechanisms
Senior Investigator **Lucy R. Forrest**, Natl. Inst. on Neurological Disorders and Stroke - NIH (US)
Title: Insights into neurotransmitter transport from modeling and simulation
Group leader **Nicolas Reyes**, Université de Bordeaux/CNRS (FR)
Title: Ion coupling mechanism in excitatory amino acid transporters
Prof. **Christoph Fahlke**, Forschungszentrum Jülich (DE)
Title: Mechanisms of K^+-coupled glutamate transport

12:40-13:45 Lunch

13:45-14:30 Keynote Speaker: **Randy Blakely**, Florida Atlantic Univ. "*Fundamental and pathophysiological regulation of serotonin transporters*"

14:30-14:50 Coffee break

14:50-16:55 Session 11. ***Emerging roles for transporters in dopamine dysfunction in CNS disorders***
Chair: Nikhil Urs, Univ. of Florida (US), co-chair: Ulrik Gether, Univ. of Copenhagen (DK)
Asst. Prof. **Freja Herborg**, Univ. of Copenhagen (DK)
Title: Disease-associated mutations in the dopamine transporter – modelling neuropsychiatric comorbidity in parkinsonism
Prof. **Habibeh Khoshbouei**, Univ. of Florida (US)
Title: iPSc-derived human-like dopamine neurons reveal a potential therapeutic target for Parkinson's disease
Asst. Prof. **Thomas Steinkellner**, Medical Univ. of Vienna (AT)
Title: Role for VGLUT2 in dopamine neuron vulnerability and Parkinson's disease
Asst. Prof. **Nikhil Urs**, Univ. of Florida (US)
Title: Role of PFC catecholamine transporters in regulating striatal dopamine neurotransmission in health and disease
Prof. **Aurelio Galli**, Univ. of Alabama at Birmingham (US)
Title: The dopamine transporter-syntaxin interactions regulates courting behaviors and dopamine homeostasis

18:00-? Canal Tour & Farewell Dinner

Member News

Grant to Dr. Louise Fets

We are excited to share the news that Dr. Louise Fets, head of the Drug Transport and Tumour Metabolism research group at the MRC London Institute of Medical Sciences (LMS), has received a Career Establishment Award from Cancer Research UK (CRUK). The award of £1 million over six years will be used to further her work into drug transport.

Louise's lab is interested in the role transporters play in drug uptake, how their expression patterns may influence intracellular drug concentrations, and the impact this has on drug efficacy.

Transporters are heterogeneously expressed in cancer, and Louise plans to use the funding from her CRUK award to investigate the dependency of a wide range of cancer drugs on transporters for uptake. Identifying which transporters are most influential for uptake at the level of the tumour cell could help to explain patient-to-patient variability in drug response, and potentially provide biomarkers to predict drug efficacy.

Commenting on her receipt of this award, Louise said: "I am thrilled to have received a Career Establishment Award. Our previous work has demonstrated transporter-dependent drug uptake has significant implications for target engagement and efficacy, and the support from CRUK will allow us to build upon this knowledge, enhancing our understanding of what governs cellular uptake of a wide range of cancer treatments.

"By collaborating with clinician scientists within the excellent CRUK and Imperial College networks, we will be validating our basic biological findings in patient samples. The long-term goal is for our insights to aid in improving predictions of which drug a patient is most likely to respond positively to, based upon the unique make-up of their tumour. This will be an important step towards being able to provide a much more personalised therapeutic approach."

The CRUK's Career Establishment Award aims to support new group leaders who already hold a salaried position establish their own independent research group. Successful awardees need to demonstrate a range of skills and experience CRUK considers pivotal to 'establishing independence' in their career.

This CRUK award will enable Louise to expand her research group by two, and she will be hiring a computational biologist later in the year. You can read more about Louise and her lab's work at the MRC LMS here.

Publications from Nanion Technologies

Bazzone A, Körner A, Meincke M, Bhatt M, Dondapati S, Barthmes M, Kubick S, Fertig N. **SSM-based electrophysiology, a label-free real-time method reveals sugar binding & transport events in SGLT1**. ***Biosens Bioelectron*** (2022) 197:113763

Bazzone A, Tesmer L, Kurt D, Kaback HR, Fendler K, Madej MG. **Investigation of sugar binding kinetics of the E. coli sugar/H+ symporter XylE using solid-supported membrane-based electrophysiology.** ***J Biol Chem*** (2022) 298(2):101505

Member News

Publication from Thomas Steinkellner

Steinkellner T, Conrad WS, Kovacs I, Rissman RA, Lee EB, Trojanowski JQ, Freyberg Z, Roy S, Luk KC, Lee VM, Hnasko TS. **Dopamine neurons exhibit emergent glutamatergic identity in Parkinson's disease.** ***Brain*** (2022) 145(3):879-886

Our work provides the first evidence that expression of the vesicular glutamate transporter VGLUT2 in dopamine (DA) neurons is regulated by alpha-synuclein pathology and altered in human Parkinson's disease (PD). Together with our previous work, it suggests that VGLUT2 is repressed in adult substantia nigra DA neurons, but re-emerges as part of a neuro-compensatory response. By linking alterations in VGLUT2 to bonafidePD and to alpha-synuclein mechanisms, our current study will catalyze additional work on VGLUT2 and glutamate co-release from DA neurons in PD, and possibly as a new target for therapeutic development.

Publication from Thomas Stockner

Gradisch R, Szöllősi D, Niello M, Lazzarin E, Sitte HH, Stockner T. **Occlusion of the human serotonin transporter is mediated by serotonin-induced conformational changes in the bundle domain.** ***J Biol Chem*** (2022) 298(3):101613.

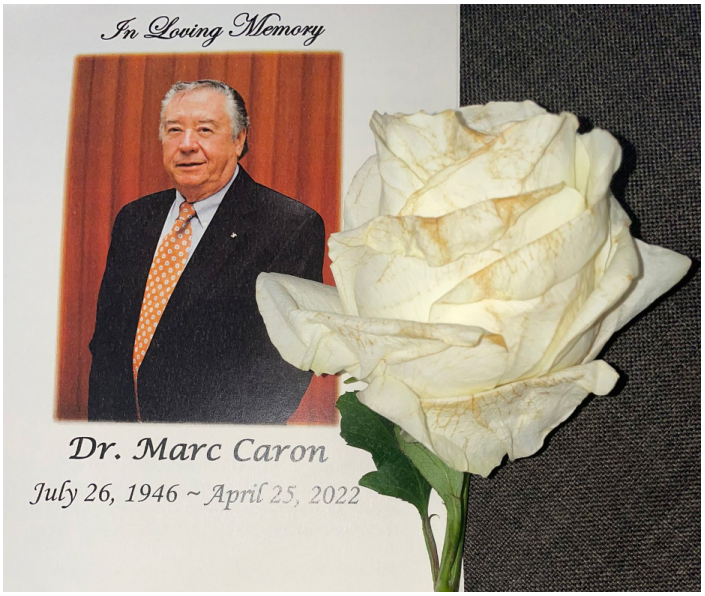
NEXT BUSINESS MEETING:

At the Copenhagen ITTS Symposium

Friday, June 10th

@ Lunchtime

Marc Caron Obituary



By Ali Salahpour and Amy Ramsey, Department of Pharmacology and Toxicology
University of Toronto

It is with great sadness that we mourn the loss of Dr. Marc Caron, PhD., who passed away unexpectedly on Monday, April 25, 2022.

Dr. Caron was the James B. Duke Professor of Cell Biology, Professor of Neurobiology and Professor of Medicine at Duke University Medical Center. He was also a member of the Duke Cancer Institute and Duke Institute for Brain Sciences. Dr. Caron authored more than 650 publications and served as editor or editorial board member for several leading journals including, most recently, the Journal of Clinical Investigation.

Among his many honors, Dr. Caron was an investigator of the Howard Hughes Medical Institute from 1992 to 2004, a member of the American Academy of Arts & Sciences and a fellow of the American Association for the Advancement of Science. In 2005, he received the Julius Axelrod Award from the American Society for Pharmacology and Experimental Therapeutics.

Dr. Caron received his BSc in Chemistry from

Marc Caron Obituary

Laval University and his PhD from the University of Miami. He completed a postdoctoral fellowship at Duke University. He joined the faculty of Laval University School of Medicine (Quebec, Canada) as an assistant professor in 1975, and then returned to join Duke's faculty in 1977 where he was an active faculty member for 45 years.

His main areas of research were neurotransmitter receptors and transporters. In close collaboration with longtime colleague, Dr. Robert Lefkowitz, he pioneered the biochemical techniques that allowed the pharmacological characterization and purification of G-protein coupled receptors (GPCRs). These studies, which began in the mid 1970s, ultimately led to the cloning of the Beta2-Adrenergic receptor in 1986 (Dixon et al. Nature, 1986). He was also involved in the cloning of several other GPCRs including the dopamine D1 receptor. In the GPCR field, Dr. Caron was also a leader in the identification and characterization of G-protein Receptor Kinases (GRKs) and Beta-arrestins (Barrestin). Studies from his lab further showed that Barrestins were not only involved in mediating endocytosis of GPCRs but also mediated additional forms of intracellular signaling following receptor activation.

In parallel to his major contributions to the field of GPCRs, Dr. Caron also made major contributions to the field of transporters, notably by generating genetically modified mouse models lacking or overexpressing neurotransmitter transporters. Among the seminal studies is the paper by Giros et al, (Nature; 1996) describing the initial characterization of animals lacking the dopamine transporter. This was followed by publications on mouse models lacking other key transporters or signaling molecules including NET, VMAT2, GRK2, GRK6, Barrestin-2 and others.

More recently, groundbreaking studies from his team identified a novel mode of signaling for dopamine D2 receptors and much effort was focused on trying to identify better antipsychotics with reduced adverse effects by selectively targeting the Barrestin pathway of the D2 dopamine receptor.

In sum, Dr. Caron contributed to the characterization and cloning of GPCRs, the discovery of GPCR regulation by kinases and arrestins, and the identification of molecular signals for receptor endocytosis and recycling. His genetic gain- and loss-of-function animal models showed the importance of transporter and GPCR regulation through kinases and arrestins and provided one of the first in vivo examples of G protein- versus arrestin-mediated GPCR signaling.

Dr. Caron mentored many trainees and followed them through their own careers with encouragement and advice. We extend our sincerest condolences to Dr. Caron's family, friends and colleagues.

Brain in Flux 2022 CANCELLED

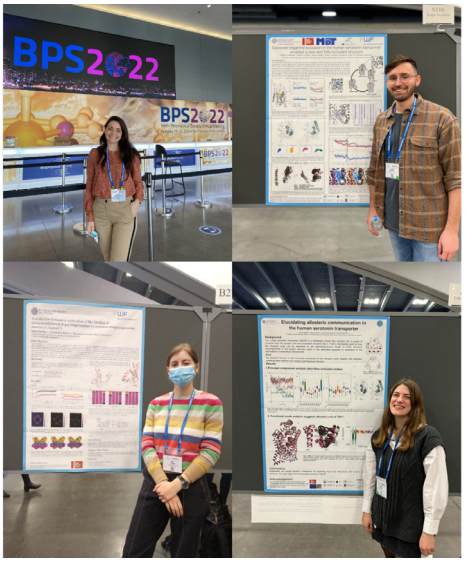
We regret to share the news that the Brain in Flux meeting, originally scheduled for 24-27 August 2022, has been cancelled.

Student Perspective

Stockner Lab heads to San Francisco!
By Amy Clarke

On the 17th February 2022, the five members of the Stockner lab at the Medical University of Vienna flew to San Francisco for the 66th Annual Biophysical Society Meeting. For those of us who started our PhDs after the outbreak of Covid-19, this represented our first conference abroad. Despite some early starts and considerable jet lag, we were pleased to land 14 hours later in San Francisco and experience sunny California for the first time.

The conference began on Saturday and had a very varied programme, with excellent speakers, including the 2018 Nobel Prize winner for Chemistry, Frances Arnold. She spoke about using directed evolution to re-engineer proteins with new functions, but also took the time to provide some inspiring words for new scientists. The Platforms were well organised, with talks ranging from protein-lipid interactions to advances in theory and computation. For our group, whose work focuses on using molecular dynamics to understand the mechanism of action of membrane proteins, the opportunity to see recent advances in both methodology and also scientific understanding of membrane proteins was extremely valuable. I particularly enjoyed a talk about how the physical properties of membranes, such as thickness and fluidity, could help drive protein sorting in subcellular compartments.



We also appreciated the opportunity to share our own work with the Biophysical community. One member of our group, Leticia Alves da Silva, was selected for an oral presentation, during which she spoke about how Markov State models can be applied to simulations of the serotonin transporter in order to better understand its mechanism of occlusion. The rest of our group gave poster presentations, which was a good chance to speak with other researchers one-on-one and receive their feedback and questions. Ralph Gradisch and Erika Lazzarin presented posters on their recently published paper, focusing on the mechanism of occlusion of the serotonin transporter, work which Leticia built on in her oral presentation. I used the opportunity to present my work relating to lipid interactions with TRP channels.

For all of us, it was a welcome break after the last couple of years of Covid-19 to visit a new country, see some beautiful sights and of course, experience true American-diner portion sizes. Our next conference will be in Copenhagen, at the ITTS 2022, and we are looking forward to visiting the city and meeting some new scientists!

Open Positions

Postdoc Position in Erdő Lab

A 3-year postdoctoral position will open from mid-April - early May at the Laboratory of Microdialysis and Pharmacological Techniques of the Pázmány Péter Catholic University, Faculty of Information Technology and Bionics, Budapest, Hungary. The laboratory focuses on a multidisciplinary approach to physiological barriers and drug absorption studies. In addition to the research tasks, the management and supervision of students also belong to the work. The position is open to young researchers with a PhD in life sciences (medical doctor, pharmacist, biologist, bioengineer, medical biotechnologist, etc.) with in vivo and/or in vitro hands on experience as well as good oral and written English. Previous laboratory experience in pharmacology, pharmacokinetics, biochemistry is an advantage. Apply with a detailed CV including photo, list of publications, motivation letter, area of interest, professional experience at erdo.franciska@itk.ppke.hu.

Application Scientist Position at Nanion Technologies

Nanion Technologies is a rapidly-growing instrumentation company offering automated ion channel screening workstations serving both industry and academic research institutions. Nanion has several product families consisting of instruments, software and consumables for automated electrophysiology, bilayer recording technology and cell monitoring.

This position is located in Shanghai, China.

Due to our continued growth Nanion Technologies China is seeking an Application Scientist to support our electrophysiological-instruments customers. These instruments are used within research, drug discovery and safety pharmacology. As a member of our Chinese team, you will work with technical and application support on Nanion's automated patch clamp platforms. You will also contribute in sales and marketing activities including product demonstrations, installations, training and trade show participation.

For more information, see the Nanion Technologies' Careers webpage.

Field Application Scientist Position at Nanion Technologies

Nanion Technologies is a rapidly growing instrumentation company offering automated ion channel screening workstations serving industry and academic research institutions. To support the increasing demand of Nanion's products, and to provide premium customer service, Nanion is expanding the team in the US.

This position is located in Livingston, New Jersey, USA.

For more information, see the Nanion Technologies' Careers webpage.

PhD Student Position in Sitte Lab

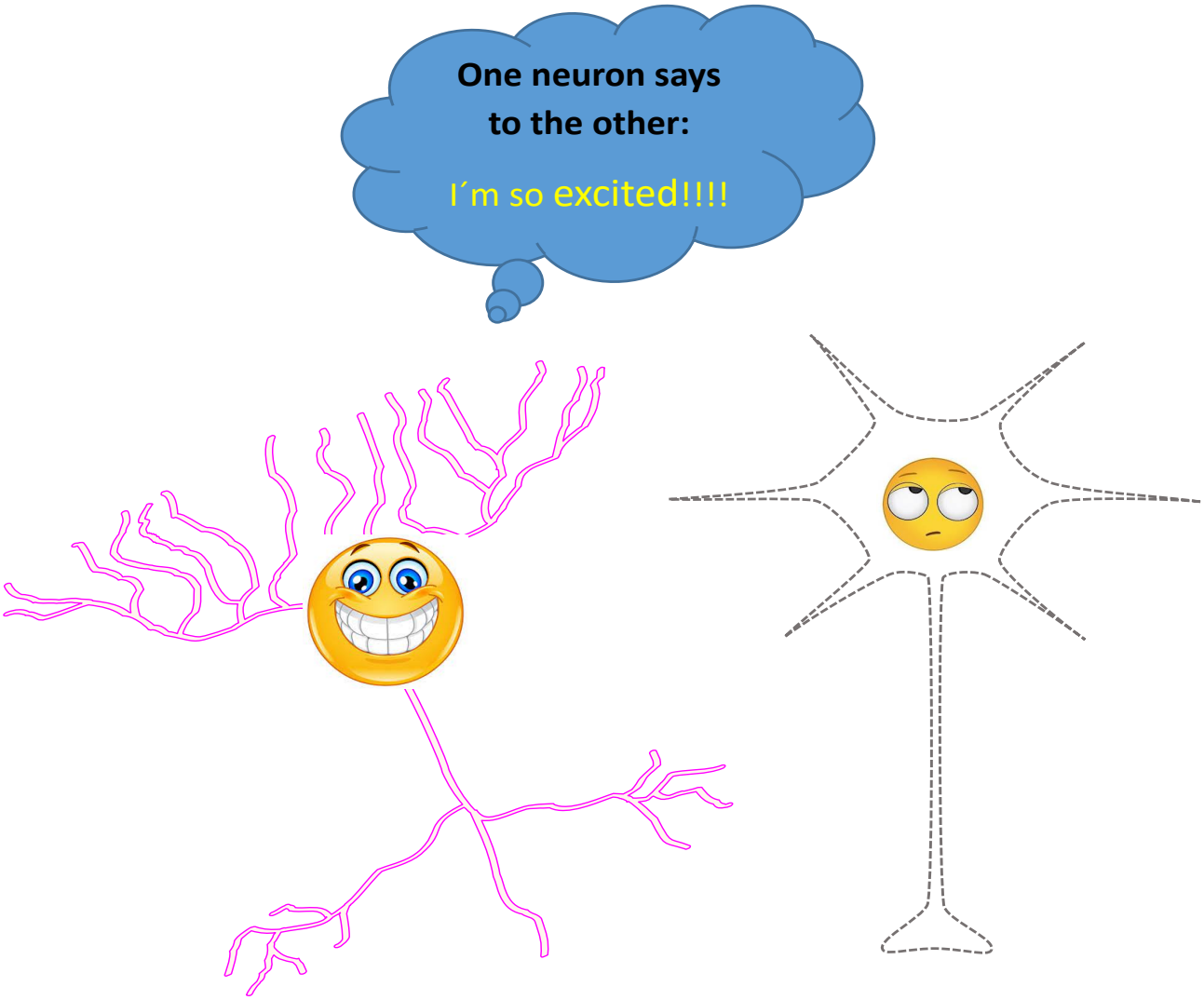
In October-November 2022, the next PhD open call will occur at the Medical University of Vienna.

The Sitte lab is recruiting PhD students - more information can be found on this page and scrolling down to "Transporter-mediated efflux as therapeutic strategy"

Open Positions & Job Announcements

The ***Jobs Corner*** on our ***News*** page of the ITTS website serves as a convenient platform for group leaders to announce open positions in their labs and institutions, for researchers at various stages of their career (PhD, Postdoc and beyond). Should you like to post a job opening, please send an email to Dr. Sonja Sucic (sonja.sucic@meduniwien.ac.at).
http://www.ittsociety.org/new-page

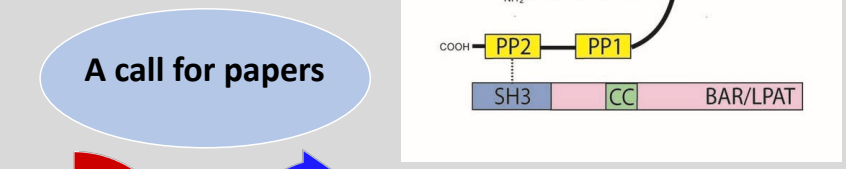
Transporter Fun Corner



Contribute to Special Issues

Current Research in Physiology (Gold Star open access journal)
Companion to *Current Opinion in Physiology*

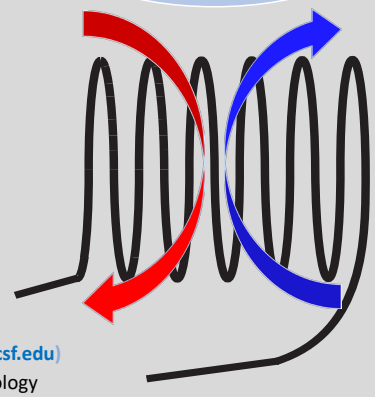
Special Issue on Neurotransmitter Transporters



A call for papers

Topics include but not limited to:

- Physiological roles
- Mechanisms of regulation
- Structure-function relationships
- Novel transport or channel modes
- Neurological or psychiatric disorders
- Drugs of abuse
- Development



Original Articles
Short Communications
Graphical Abstracts
Reviews

Deadline: August 2022

Contacts:
Rebecca P. Seal, Ph.D. (rpseal@pitt.edu)
Susan M. Voglmaier, MD, PhD (Susan.Voglmaier@ucsf.edu)
https://www.journals.elsevier.com/current-research-in-physiology

Papers are published at the time of acceptance and curated into the Special Issue.

All publishing fees are waived.

Student and Post-Doctoral ITTS Chapters Welcome

ITTS welcomes applications for local Chapters of ITTS, comprised of students and post-doctoral fellows. To form a Chapter, have your mentor nominate you as leader of that Chapter, and provide assurance of your rank, good academic standing, and commitment to the ITTS. Please also provide a name for your Chapter. Annual dues for Chapter members is only $10, and paid by your mentor (with their blessing, of course). Chapter members will receive a member card, and have this as a valuable addition to their curriculum vitae. ITTS Chapters will be evaluated annually for their contributions to the society. The role of Chapters is to encourage active involvement with the ITTS through local outreach events, and attracting new members. Inactive Chapters, as deemed by the ITTS Executive Committee and Council, will be disbanded.

Please send applications to ITTS secretary, Dr. Sonja Sucic at sonja.sucic@meduniwien.ac.at

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Neurotransmitter Transporters in Health and Disease

Guest Editors:

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Deadline for manuscript submissions:
31 October 2022

Message from the Guest Editors

Dear Colleagues,

Neurotransmitter transporters (NTTs) belong to the superfamily of solute carrier (SLC) membrane transporters. These versatile proteins play a central role in controlling neurotransmission, by mediating the rapid reuptake of neurotransmitters from the synaptic cleft into neuronal and glial cells. Over the last decade, ample reports in the literature have directly linked genetic mutations in NTTs to diseases including Parkinson´s/dystonia, ataxia, epilepsy, mental and intellectual disability, and disorders of the auditory, visual, and muscular systems. Some of these NTT disease variants trigger folding and trafficking defects, whereas others alter transporter structure, impairing the binding, and/or translocation of endogenous substrates. In this Special Issue, we place particular emphasis on the molecular basis of NTTs in disease, from the atomic level to studies in animal models, and recent discoveries shedding light on novel targets that may incite the development of effective therapeutic strategies.

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Special Issue

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Overcoming Biological Barriers: Importance of Membrane Transporters in Homeostasis, Disease, and Disease Treatment

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1 July 2022

Message from the Guest Editor

The flux of substances across the plasma membrane is important for cellular life. Many different substances (signal molecules, nutrients, metabolites, xenobiotics, drugs) use transport proteins (transporters) to overcome this biological barrier. Therefore, transport systems play an important role in maintaining homeostasis and in the handling of drugs. Changes in the function of transporter systems can impair homeostasis, cause disease or modify the efficacy of disease treatment with drugs. This Special Issue aims to collect the newest information on transporters, with a special focus on their function and regulation, their pathological roles and their importance for drug effects and unwanted side effects.

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Special Issue

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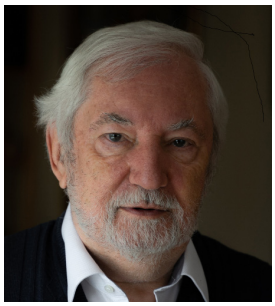

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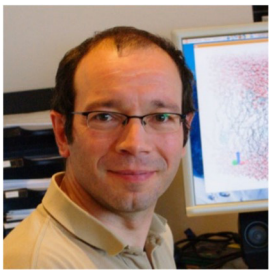

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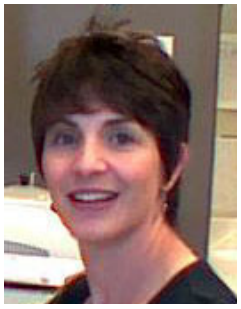

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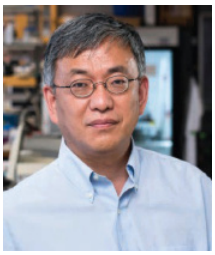

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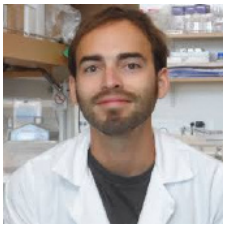

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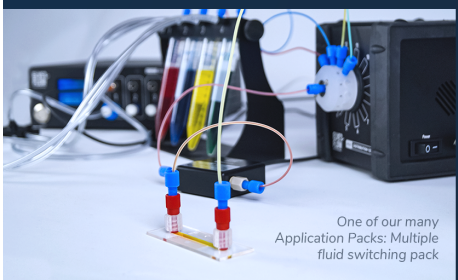

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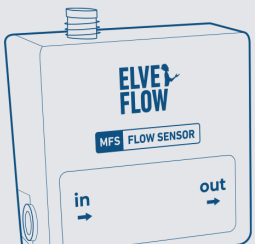

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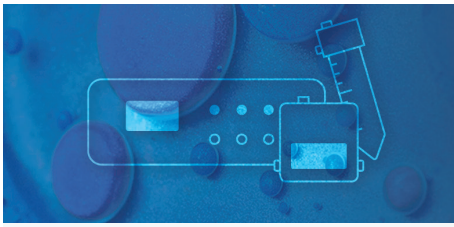

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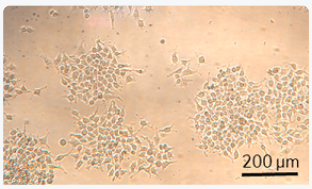

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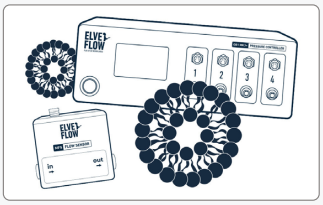

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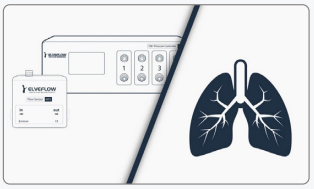

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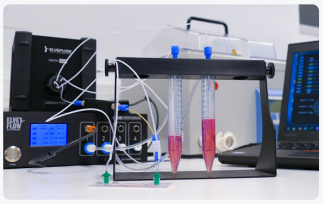

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