STRAUB DAYS • 2019

BRC

BIOLOGICAL RESEARCH CENTRE SZEGED

Centre of Excellence of the European Union

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INVITATION

The research fellows of the Biological Research Centre of the Hungarian Academy of Sciences warmly invite you and your colleagues to participate in the annual

Straub Days Conference

of the Biological Research Centre

to be held in the big lecture hall of the Centre

Szeged, Temesvári krt. 62

between

May 30-31, 2019.

EXCELLENCE IS IN THE SPOTLIGHT

SCIENTIFIC SESSION

Chairman: Ferenc Nagy
Biological Research Centre of the HAS, Szeged

10:00 – 10:05

Ferenc Nagy
Biological Research Centre of the HAS, Szeged
Opening remarks

10:05 – 10:30

Gábor Juhász[1,2]
[1]Institute of Genetics, Biological Research Centre of the HAS, Szeged
[2]Deparment of Anatomy, Cell and Developmental Biology, Eötvös Loránd University, Budapest
Regulation of lysosomal degradation

10:30 – 10:55

Balázs Papp
Institute of Biochemistry, Biological Research Centre of the HAS, Szeged
Metabolomics meets phylogenetics

10:55 – 11:20

Gergely Röst
Bolyai Institute, University of Szeged, Szeged
Can mathematics help to control biological oscillations?

11:20 – 11:45

Éva Kondorosi
Institute of Plant Biology, Biological Research Centre of the HAS, Szeged
Rhizobium – legume symbiosis: at the forefront of chemical ecology

11:45 – 12:10 Break

12:10 – 12:40

Ferenc Nagy hands over the Straub Medal for the year of 2019

PRESENTATION OF THE STRAUB 2019 LAUREATE

12:40 – 13:10

László Vígh hands over the Tibor Farkas Medal for the year of 2019

PRESENTATION OF THE TIBOR FARKAS 2019 LAUREATE

13:10 – 15:00 Lunch Break

Chairman: Tamás Bíró
Hungarian Centre of Excellence of Molecular Medicine, Szeged

15:00 – 15:25

Lajos Kemény[1,2]
[1]Department of Dermatology and Allergology, University of Szeged, Szeged
[2]Hungarian Centre of Excellence of Molecular Medicine, Szeged
The role of keratinocytes in inflammatory skin diseases

15:25 – 15:50

Zoltán Varga[1,2]
[1]Department of Pharmacology and Pharmacotherapy, Semmelweis University, Budapest
[2]Hungarian Centre of Excellence of Molecular Medicine, Szeged
Inflammasome activation in chronic heart failure

15:50 – 16:15

Lajos Haracska[1,2]
[1]Institute of Genetics, Biological Research Centre of the HAS, Szeged
[2]Hungarian Centre of Excellence of Molecular Medicine, Szeged
The speed factor: engines of cancer and aging

16:15 – 16:30 Break

Chairman: **András Varró: Szeged Scientists Academy provides a new platform for promoting excellence**
Szeged Scientists Academy, University of Szeged, Szeged

16:30 – 16:40

Zoltán Rakonczay
Szeged Scientists Academy, University of Szeged, Szeged
The Szent-Györgyi Student program for university students

16:40 – 17:00

Réka Tóth
Szent-Györgyi Student, Szeged Scientists Academy, University of Szeged, Szeged
High extracellular glutamate concentration causes vasoconstriction via calcium-dependent potassium release from astrocytes

17:00 – 17:10

Sándor Bán
Miklós Radnóti Experimental Grammar School, Szeged
The Szent-Györgyi Pupil program for secondary school students

17:10 – 17:30

Gergő Bitay[1,2]
[1]Miklós Radnóti Experimental Grammar School, Szeged
[2]Szent-Györgyi Pupil, Szeged Scientists Academy, University of Szeged, Szeged
The role of the Na^+/Ca^{2+} exchanger in the sinus node pacemaker activity

17:30 – 17:45 Break

Chairman: László Buday
Institute of Enzymology, Research Centre for Natural Sciences of the HAS, Budapest

17:45 – 18:10

Balázs Győrffy
Institute of Enzymology, Research Centre for Natural Sciences of the HAS, Budapest
Next generation sequencing and immune-oncology

18:10 – 18:35

Dávid Szüts
Institute of Enzymology, Research Centre for Natural Sciences of the HAS, Budapest
Genomic mutagenesis as a consequence of the replication of damaged DNA

18:35 – 19:30 Poster session

19:30 – Dinner, BRC Restaurant

Chairman: Miklós Erdélyi
Institute of Genetics, BRC HAS, Szeged

9:00 – 9:25

Roberta Fajka-Boja[1], Annamária Marton[2], Anna Tóth[1], Gábor J. Szebeni[3], László Puskás[3], Péter Blazsó[1], Vilmos Tubak[4], Balázs Bálint[5], István Nagy[5], Hunyadi-Gulyás Éva[6], Zoltán Hegedűs[7], Csaba Vizler[2] and Robert L. Katona[1]
[1]Institute of Genetics, BRC HAS, Szeged
[2]Institute of Biochemistry, BRC HAS, Szeged
[3]Laboratory of Functional Genomics, BRC HAS, Szeged
[4]Creative Laboratory Ltd., Szeged
[5]SeqOmics Biotechnology Ltd., Mórahalom
[6]Laboratory of Proteomics Research, BRC HAS, Szeged
[7]Laboratory of Bioinformatics, BRC HAS, Szeged

Faulty stem cells boost cancer

9:25 – 9:50

István Földi, Ede Migh, Szilárd Szikora, Rita Gombos, Krisztina Tóth, Péter Kaltenecker and József Mihály
Institute of Genetics, BRC HAS, Szeged

Regulation of microtubule cytoskeleton during neuronal development: non-canonical role of a formin protein

9:50 – 10:15

Ferenc Jankovics[1], Melinda Bence[1], Rita Sinka[2], Anita Faragó[3], László Bodai[3], Aladár Pettkó-Szandtner[4], Ibrahim Karam[1], Zsanett Takács[1], Brigitta Szarka-Kovács[1] and Miklós Erdélyi[1]
[1]Institute of Genetics, BRC HAS, Szeged
[2]Department of Genetics, University of Szeged, Szeged
[3]Department of Biochemistry and Molecular Biology, University of Szeged, Szeged
[4]Laboratory of Proteomics Research, BRC HAS, Szeged

Drosophila small ovary gene is required for transposon silencing and heterochromatin organization in the germline stem cell niche

10:15 – 10:30 Break

Chairman: Imre Vass
Institute of Plant Biology, BRC HAS, Szeged

10:30 – 10:55

Anita Hajdu[1], Orsolya Dobos[1,2], Mirela Domijan[3], Balázs Bálint[4], István Nagy[4,5], Ferenc Nagy[1,6] and **László Kozma-Bognár[1,7]**
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Doctoral School in Biology, Faculty of Science and Informatics, University of Szeged, Szeged
[3]Department of Mathematical Sciences, University of Liverpool, Liverpool, UK
[4]SeqOmics Biotechnology Ltd., Mórahalom
[5]Institute of Biochemistry, BRC HAS, Szeged
[6]Institute of Molecular Plant Sciences, University of Edinburgh, Edinburgh, UK
[7]Department of Genetics, Faculty of Sciences and Informatics, University of Szeged, Szeged

ELONGATED HYPOCOTYL 5 mediates blue light signalling to the Arabidopsis circadian clock

10:55 – 11:20

Valéria Nagy[1], Anna Podmaniczki[1], André Vidal-Meireles[1], Roland Tengölics[2], László Kovács[1], Gábor Rákhely[3,4], Alberto Scoma[5] and **Szilvia Zita Tóth[1]**
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Institute of Biochemistry, BRC HAS, Szeged
[3]Department of Biotechnology, University of Szeged, Szeged
[4]Institute of Biophysics, BRC HAS, Szeged, Szeged
[5]Center for Geomicrobiology, Aarhus University, Aarhus, Denmark

Water-splitting-based, sustainable and efficient H_2 production in green algae as achieved by substrate limitation of the Calvin-Benson-Bassham cycle

11:20 – 11:45

Prateek Shetty[1], Iulian Z. Boboescu[1], Bernadett Pap[1], Roland Wirth[2], Kornél L. Kovács[2], Tibor Bíró[3], Zoltán Futó[4], Richard A. White III[5] and **Gergely Maróti[1]**
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Department of Biotechnology, University of Szeged, Szeged
[3]Faculty of Water Sciences, National University of Public Service, Budapest
[4]Faculty of Agricultural and Economics Studies, Szent István University
[5]Department of Crop and Soil Sciences, College of Agricultural, Human, and Natural Resource Sciences, Washington State University, United States

Exploitation of algal-bacterial consortia in combined biohydrogen generation and wastewater treatment

11:45 – 13:30 Lunch break

Chairman: László Zimányi
Institute of Biophysics, BRC HAS, Szeged

13:30 – 13:55

Ágnes Duzs[1,2], Nikolett Miklovics[2], Tímea Balogh[2], Ildikó Dósa[2], Gábor Paragi[3], Gábor Rákhely[1,2] and András Tóth[1,2]
[1]Institute of Biophysics, BRC HAS, Szeged
[2]Department of Biotechnology, University of Szeged, Szeged
[3]Supramolecular and Nanostructured Materials Research Group, Department of Medical Chemistry, University of Szeged, Szeged

Unusual catalytic mechanism in a sulfide:quinone oxidoreductase

13:55 – 14:20

Krisztina Nagy[1], Trung Phan[2], Ágnes Ábrahám[1], Barbara Dukic[3], Péter Galajda[1] and Robert H. Austin[2]
[1]Institute of Biophysics, BRC HAS, Szeged
[2]Department of Physics, Princeton University, Princeton NJ, USA
[3]Institute of Biochemistry, BRC HAS, Szeged

Bacterial evolution of resistance against antibiotics and phages in structured environments

14:20 – 14:55

Fruzsina Walter[1,3], Trey E. Gilpin[1,2], Aisha Mergaert[1,2], Melinda Herbáth[1], Mária Deli[3], Matyas Sandor[1] and Zsuzsanna Fabry[1,2]
[1]Department of Pathology and Laboratory Medicine, School of Medicine and Public Health, University of Wisconsin-Madison, Madison, USA
[2]Cellular and Molecular Pathology Graduate Training Program, University

of Wisconsin-Madison, Madison, USA
[3]Institute of Biophysics, BRC HAS, Szeged

Mycobacterium-induced granuloma formation promotes cell migration at the blood-brain barrier in a novel in vitro model

14:55 – 15:10 Break

Chairman: Péter Horváth
Institute of Biochemistry, BRC HAS, Szeged

15:10 – 15:35

Viktória Lázár[1,2], Ana Martins[1], Réka Spohn[1], Lejla Daruka[1], Gábor Grézal[1], Gergely Fekete[1], Mónika Számel[1], Pramod K. Jangir[1], Bálint Kintses[1], Bálint Csörgő[1], Ákos Nyerges[1], Ádám Györkei[1], András Kincses[3], András Dér[3], Fruzsina R. Walter[4], Maria A. Deli[4], Edit Urbán[5], Zsófia Hegedüs[6], Gábor Olajos[6], Orsolya Méhi[1], Balázs Bálint[7], István Nagy[7,8], Tamás A. Martinek[6], Balázs Papp[1] and **Csaba Pál[1]**
[1]Institute of Biochemistry, BRC HAS, Szeged
[2]Faculty of Biology, Technion - Israel Institute of Technology, Haifa, Israel
[3]Institute of Biophysics, BRC HAS, Szeged
[4]Institute of Biophysics, BRC HAS, Szeged
[5]Institute of Clinical Microbiology, Albert Szent-Györgyi Medical and Pharmaceutical Center, Faculty of Medicine, University of Szeged, Szeged
[6]Institute of Pharmaceutical Analysis, University of Szeged, Szeged
[7]SeqOmics Biotechnology Ltd., Mórahalom
[8]Sequencing Platform, BRC HAS, Szeged

Antibiotic-resistant bacteria show widespread collateral sensitivity to antimicrobial peptides

15:35 – 16:00

Csilla Braskó[1], Kevin Smith[2,3], **Csaba Molnár[4]**, Nóra Faragó[1,4,5], Lili Hegedüs[4], Árpád Bálind[4], Tamás Balassa[4], Ábel Szkalisity[4], Farkas Sükösd[1], Katalin Kocsis[1], Balázs Bálint[6], Lassi Paavolainen[7], Márton Z. Enyedi[4], István Nagy[4,6], László G. Puskás[4,5], Lajos Haracska[4], Gábor Tamás[1] and Péter Horváth[4,7]
[1]University of Szeged, Szeged
[2]School of Computer Science and Communication, KTH Royal Institute of Technology, Stockholm, Sweden
[3]Science for Life Laboratory, Solna, Sweden
[4]Institute of Genetics, BRC HAS, Szeged
[5]Avidin Biotechnology Ltd., Szeged
[6]SeqOmics Biotechnology Ltd., Mórahalom
[7]Institute for Molecular Medicine Finland (FIMM), University of Helsinki, Helsinki, Finland

Intelligent image-based in situ single-cell isolation

16:00 – 16:25

Zsuzsánna Nagy[1], Andor Udvardy[1] and Zoltán Lipinszki[1]
[1]Institute of Biochemistry, BRC HAS, Szeged

Developing a novel protein-tagging, immunodetection and purification system

Potential new therapeutic targets in colorectal carcinoma linked to driver mutations

Otília Menyhárt[1,2], Tatsuhiko Kakisaka[3], Lőrinc Pongor[1,2], Ajay Goel[3], Balázs Győrffy[1,2]
[1]Semmelweis University, 2nd Department of Pediatrics, Budapest
[2]Institute of Enzymology, HAS, Budapest
[3]Baylor Scott&White Research Institute and Charles A. Sammons Cancer Center, Dallas, USA

The polo-like kinase 1 inhibitor volasertib significantly decreases cell viability in TP53 mutant cancer cells

Ágnes Ősz[1,2], Boglárka Aszódi[1,2], Réka Vajda[1,2], György Miklós Keserű[3], Balázs Győrffy[1,2]
[1]Institute of Enzymology, Research Centre for Natural Sciences, HAS, Budapest
[2]Semmelweis University, 2nd Department of Pediatrics, Budapest
[3]Institute of Organic Chemistry, Research Centre for Natural Sciences, HAS, Budapest

Evolution of cancer markers

Áron Bartha[1,2], Balázs Győrffy[1,2]
[1]Institute of Enzymology, Research Centre for Natural Sciences, HAS, Budapest
[2]Semmelweis University, 2nd Department of Pediatrics, Budapest

Tumor type specific prognostic power of cancer hallmarks

Ádám Nagy[1,2], Balázs Győrffy[1,2]
[1]Institute of Enzymology, Research Centre for Natural Sciences, HAS, Budapest
[2]Semmelweis University, 2nd Department of Pediatrics, Budapest

Off-target effects of drug treatments altering the expression of druggable kinases

Péter Herman[1,2], Otília Menyhárt[1,2], Gyöngyi Munkácsy[2], Balázs Győrffy[1,2]
[1]Institute of Enzymology, Research Centre for Natural Sciences, HAS, Budapest
[2]Semmelweis University, 2nd Department of Pediatrics, Budapest

Aurora kinase B - an upregulated kinase target in TP53 mutant solid tumors

Réka Vajda[1,2], Boglárka Aszódi[1,2], Ágnes Ősz[1,2], Balázs Győrffy[1,2]
[1]Institute of Enzymology, Research Centre for Natural Sciences, HAS, Budapest
[2]Semmelweis University, 2nd Department of Pediatrics, Budapest

A simple and fast method for transcriptional inactivation in Synechocystis PCC6803 using Crispr-interference

Prithwiraj Kirtania[1], Barbara Hódi[1], Ivy Mallick[1], István-Zoltan Vass[1], Tamás Fehér[2], Imre Vass[1], Peter B. Kós[1,3]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Institute of Biochemistry, BRC HAS, Szeged
[3]Department of Biotechnology, University of Szeged, Szeged

Application of protoplast technology for Symbiodinium sp. and other microalgae

Faiza Bashir[1], Ferhan Ayaydin[2], Ildikó Kelemen-Valkony[2], Györgyi Ferenc[1], Péter Kós[1], Milán Szabó[1], Imre Vass[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Cellular Imaging Laboratory, BRC HAS, Szeged

Assessment of intracellular singlet oxygen by GFP fluorescence in *Synechocystis* PCC 6803

Gábor Patyi, Barbara Hódi, István Zoltán Vass, Péter Kós, Imre Vass
Institute of Plant Biology, BRC HAS, Szeged

Chloramphenicol enhances Photosystem II photodamage via superoxide production

Sandeesha Kodru[1], Ateeq Ur Rehman[1,2], Imre Vass[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Mount Allison University, Sackville, New Brunswick, Canada

Comparative characterization and transcriptomic analysis of two eukaryotic green algae strains under axenic and bacterium associated conditions

Margaret Gitau, Prateek Shetty, Attila Farkas, Bernadett Pap and Gergely Maróti
Institute of Plant Biology, BRC HAS, Szeged

Cyanobacterial cell division studied by protein derivatives

Izabella Leitner[1,2], Sára Eszter Surguta[1], Sai Divya Kanna[1,2], Ildikó Domonkos[1], Mihály Kis[1], Annamária Kócsó[1], László Szilák[3], Bettina Ughy[1,4]
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[2]Doctoral School of Biology, University of Szeged
[3]Szilak Laboratories Ltd., Szeged
[4]Department of Biotechnology, University of Szeged, Szeged

Development of microfluidic chambers for investigation of green algae

Eszter Széles[1,2], Ágnes Ábrahám[3], Sándor Kovács[1], Imre Vass[1], Anna Podmaniczki[1], László Kovács[1], Péter Galajda[3], Szilvia Zita Tóth[1]
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[3]Institute of Biophysics, BRC HAS, Szeged

Effect of salt treatments on biotechnologically important microalgal strains

Sai Divya Kanna[1,2], Izabella Leitner[1,2], Tímea Ottilia Kóbori[3], Ágnes Dergez[3], Ildikó Domonkos[1],Ottó Zsíros[1], Renáta Ünnep[4], Gergely Nagy[1,4,5], Kinga Böde[1,4], Győző Garab[1], Bettina Ughy[1]
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[3]Division for Biotechnology, Bay Zoltán Nonprofit Ltd. for Applied Research, Szeged
[4]Wigner Research Centre for Physics of HAS, Budapest
[5]European Spallation Source ERIC, Lund, Sweden

E2FA and E2FB transcription factors coordinate cell proliferation with seed maturation

Eszter Molnár[1], Tünde Leviczky[1], Csaba Papdi [2], Erika Őszi[1], Gábor V. Horváth[1], Csaba Vizler[3], Viktór Nagy[1], János Pauk[4], László Bögre[2], Zoltán Magyar[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Royal Holloway University of London, School of Biological Sciences, Centre for Systems and Synthetic Biology, Egham, UK
[3]Institute of Biochemistry, BRC HAS, Szeged
[4]Department of Biotechnology, Cereal Research Non-Profit Ltd. Co., Szeged

E2FB functions both as cell cycle activator and repressor during Arabidopsis leaf development

Erika Őszi[1,2], Csaba Papdi[3], Binish Mohammed[3], Aladár Pettkó-Szandtner[1,4], Tünde Leviczky[1], Eszter Molnár[1], Beatrix Horváth[3], László Bögre[3], Zoltán Magyar[1]
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[3]Royal Holloway University of London, School of Biological Sciences, Centre for Systems and Synthetic Biology, Egham, UK
[4]Institute of Biochemistry, BRC HAS, Szeged

Establishment of a simple screening system for photosynthetic traits of microalgae and cyanobacteria

Priyanka Patil, Sandeesha Kodru, László Sass, Imre Vass, Milán Szabó
Institute of Plant Biology, BRC HAS, Szeged

Increased adaptation of an energy willow cultivar to soil salinity by duplication of its genome size

András Cseri[1], Péter Borbély[2], Péter Poór[2], Attila Fehér[1,2], László Sass[1], Mihály Jancsó[3], András Penczi[3], Csaba Gyuricza[3], Tamás Digruber[1], Dénes Dudits[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Department of Plant Biology, University of Szeged, Szeged
[3]National Agricultural Research and Innovation Centre,Szarvas

Nitrosative stress in nickel-exposed Arabidopsis and Brassica

Zsuzsanna Kolbert, Dóra Oláh, Árpád Molnár, Gábor Feigl
Department of Plant Biology, University of Szeged, Szeged

Possible biological role of the *Neosartorya* (*Aspergillus*) *fischeri* antifungal protein (NFAP) in the native producer

Mohamad Anas Al Bouni[1,2], Liliána Tóth[1], László Galgóczy[1,2]
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[2]Department of Biotechnology, Faculty of Science and Informatics, University of Szeged, Szeged

Red-light and cold stress-induced changes in the composition of membrane lipids

Terézia Kovács[1], Mohamed Ahres[2,3], Tomas Zakar[1], Gábor Galiba[2,3], Zoltán Gombos[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Agricultural Institute, Centre for Agricultural Research, HAS, Martonvásár
[3]Festetics Doctoral School, Georgikon Faculty, University of Pannonia, Keszthely

Response of plant circadian clock to drought stress in *Brachypodium distachyon*

Magdolna Gombos[1], Zoltán Zombori[1], Nóra Hapek[2], Edina Kiss[1], János Györgyey[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Department of Plant Biology, University of Szeged, Szeged

Singlet oxygen specific gene expression in Synechocystis PCC6803

Barbara Hódi, Zoltán István Vass, Gábor Patyi , Ivy Mallick , Péter Kós, Imre Vass
Institute of Plant Biology, BRC HAS, Szeged

Targeted mutagenesis in maize somatic cells by injection of synthetic oligonucleotides into the apical meristem region of seedlings

Feríz Rádi[1,2], Bettina Nagy[1], Györgyi Ferenc[1], Katalin Török[1], István Nagy[3,4], Zoltán Zombori[1], Dénes Dudits[1],·Ferhan Ayaydin[1,5]
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[2]Kiskun Research Center Ltd., Kiskunhalas
[3]Institute of Biochemistry, BRC HAS, Szeged
[4]ATGandCo Biotechnology Ltd., Mórahalom
[5]Laboratory of Cellular Imaging, BRC HAS, Szeged

The lifetimes of the oxygen-evolving complex subunits PSBO and PSBP in *C. reinhardtii*

André Vidal-Meireles[1], Dávid Tóth[1], Anna Podmaniczki[1], László Kovács[1], Juliane Neupert[2], Ralph Bock[2], Szilvia Zita Tóth[1]
[1]Institute of Plant Biology, BRC HAS, Szeged
[2]Max Planck Institut für Molekulare Pflanzenphysiologie, Potsdam-Golm, Germany

Unmatched level of molecular convergence among deeply divergent complex multicellular fungi

Zsolt Merényi[1], Arun N. Prasanna[1], Zheng Wang[2], Károly Kovács[1], Botond Hegedüs[1], Balázs Bálint[1], Balázs Papp[1], Jeffrey P. Townsend[2,3,4], László G. Nagy[1]
[1]Synthetic and Systems Biology Unit, Institute of Biochemistry, BRC HAS, Szeged
[2]Department of Biostatistics, Yale University, New Haven, CT, USA.
[3]Department of Ecology and Evolutionary Biology, Yale University, New Haven, CT, USA.
[4]Program in Computational Biology and Bioinformatics, Yale University, New Haven, CT, USA.

A simple *E. coli* system for studying sequence-specific DNA binding of proteins

Nikolett Zsibrita[1,2], Sarolta Szentes[1], Mihály Koncz[1,2], Eszter Zsigmond[1,2], Pál Salamon[1], Antal Kiss[1]
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[2]Doctoral School of Biology, University of Szeged, Szeged

Acquired cellular stress resistance in the absence of heat shock protein induction

Ádám Tiszlavicz, Imre Gombos, Begüm Peksel, Barbara Dukic, Mária Péter, Gábor Balogh, Ibolya Horváth, László Vígh, Zsolt Török
Institute of Biochemistry, BRC HAS, Szeged

Mild heat stress-induced early cellular events in mammalian cells

Barbara Dukic, Ádám Tiszlavicz, Imre Gombos, Begüm Peksel, Mária Péter, Gábor Balogh, Ibolya Horváth, László Vígh, Zsolt Török
Institute of Biochemistry, BRC HAS, Szeged

A Novel CRISPR/Cas mediated recombineering approach to engineer bacterial strains for production of bio-active compounds

Ranti Dev Shukla, Ákos Avramucz, Ákos Nyerges, Tamás Fehér
Institute of Biochemistry, BRC HAS, Szeged

Potential of underground metabolism for the bioproduction of value-added compounds

Szabolcs Cselgő Kovács, Balázs Szappanos, Balázs Papp
Institute of Biochemistry, BRC HAS, Szeged

Accelerated metabolome evolution in yeast

Balázs Szappanos[1], Roland Tengölics[1], Dorottya Kalapis[1], Stefánia Erdei[1], Gábor Grézal[1], Enrica Calvani[2], Marcus Ralser[2], Michael Mülleder[2], Balázs Papp[1]
[1]Institute of Biochemistry, BRC HAS, Szeged
[2]Department of Biochemistry, University of Cambridge, The Francis Crick Institute, London, UK

Genome-wide screen unravels determinants influencing in vivo protein aggregation

Ádám Györkei, Balázs Szappanos, Lejla Daruka, Bálint Kintses, Péter Horváth, Balázs Papp
Institute of Biochemistry, BRC HAS, Szeged

Triacylglycerol-deficient mutants exhibit altered surface membrane properties in fission yeast

Péter Gudmann, Mária Péter, Imre Gombos, Ibolya Horváth, László Vígh, Gábor Balogh, Attila Glatz
Institute of Biochemistry, BRC HAS, Szeged

Identification of novel substrates and regulators of the PP5 phosphatase in Drosophila

Edit Ábrahám, Zsófia Kókai, Zoltán Lipinszki
Institute of Biochemistry, BRC HAS, Szeged

Exploring novel roles of the PP4 phosphatase in the regulation of spindle assembly checkpoint

Zoltán Kármán, Zoltán Lipinszki
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The beneficial effect of regular exercise on obesity and metabolic syndrome. A transgenic mouse study

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Evolutionary conservation of the mammalian metabolome

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Investigation of the CRISPR/Cas9-modified H4r Gene

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Compensatory Mutations Drive Morphological Evolution

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Widespread regulatory rewiring upon antibiotic resistance mutations shapes collateral sensitivity

Gábor Grézal, Anett Dunai, Gábor Draskovits, Kálmán Horváth, Pramod Kumar Jangir, Viktória Lázár, Réka Spohn, Balázs Bálint, István Nagy, Csaba Pál, Balázs Papp
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Predicting bacterial antibiotic resistance by accelerated mutagenesis

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Investigation of lipid metabolism microheterogenity in tumors - increasing fine resolution

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Haploinsufficiency mechanisms and evolution

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Új támadáspontok azonosítása és új hatóanyagok tesztelése vemurafenibbel szemben rezisztenssé váló melanoma sejteken.

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The effect of substituting Drosophila BigH1 with dH1 on chromatin structure

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Ubiquitin pool dynamics revealed by quantifying ubiquitin forms in Drosophila UPS mutants

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Mutational analysis of a gene coding for a deubiquitinating enzyme in Drosophila melanogaster

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Interaction of prion-family proteins prion and shadoo with calnexin in membrane microdomains

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FRAP analysis of the nuclear import of the cytoskeletal Moesin protein

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Testing the biological significance of the nuclear localization of actin

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Headcase is a regulator of hemocyte differentiation in Drosophila melanogaster

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Investigation of sorting nexin functions in Drosophila tissues

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Individual immunity of a social insect, the honey bee (*Apis mellifera*)

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An old player in a new role: HLTF tumour suppressor fighting shoulder to shoulder with FANCJ against replication stress

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The regulatory function of BRCA1 and ZBTB1 in the DNA damage tolerance pathways

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Multiple Green Tea Epigallocatechin Gallate Analogs Inhibit Uba1 and Ubiquitination by Distinct Structure-Related Mechanisms

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FAN1 interacts with PCNA via its PIP domain to bypass ICL lesions at stalled replication forks

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Investigation the role in mRNA export of the actin binding protein, Moesin

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Mass cytometry: a multidimensional analysis of the proteome at single cell resolution

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The role of autophagy in the death and engulfment of axons

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Analyzing the importance of ubiquitin-dependent selective autophagy in Drosophila

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Unconventional functions of *Drosophila melanogaster* Atg8 genes

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Structural, functional and transcriptome analysis of a novel cell type in innate immunity, the multinucleated giant hemocyte

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Immunoisolation of autophagic membranes from *Drosophila melanogaster*
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Role of Rad54 domains in regulation of mutagenesis
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RYBP is essential for the maturation of cardiomyocytes *in vitro*
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Connecting RYBP to the retinoic acid signalling pathway during neural differentiation
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Germ cells unleashed: The role of Ring1 and YY1 binding protein in regulating germ cell determinants
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Plagl1: a downstream effector of the RYBP mediated cardiomyogenesis
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Ref(2)P, a selective autophagy receptor in Drosophila, plays an important role in antioxidant response and mitophagy
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Deciphering the role of the small GTPase Rab27 in Drosophila autophagy
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Links between DNA repair genes and autophagy regulation
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Investigation of potential cancer driver mutations by using a well-balanced bidirectional promoter

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A microfluidic bacterial baby machine

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Effects of resveratrol, epicatechin, gallic acid and a grape seed proanthocyanidin-rich extract on primary rat brain endothelial cells: expression of leptin receptors and protection against cytokine-induced damage

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Advanced protein crystallization under deuterated conditions for NMX calibration

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Automated DIY microscope for field experiments

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Rho-Kinase Inhibition Ameliorates Dasatinib-Induced Endothelial Dysfunction and Pulmonary Hypertension

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Inflammation induced nanomechanical properties of brain endothelial cells

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Establishment and characterization of a bronchial epithelial culture model to study cystic fibrosis

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Regional heterogeneity of the blood-brain barrier

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Insight into high resolution nanomechanics of pericytes

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The cardiocytoprotective effect of kynurenic acid: the role of apoptosis

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Morphological changes of the neurovascular unit during brain metastasis formation of breast cancer cells

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Inflammasome activation in brain endothelial cells and pericytes

Mihály Kozma, Ádám Nyúl-Tóth, Péter Nagyőszi, Ádám Mészáros, Krisztina Nagy, Péter Galajda, Csilla Fazakas, Kinga Molnár, János Haskó, Fanni Győri, Attila E. Farkas, Imola Wilhelm, István A. Krizbai
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Effects of N-(2-N,N-dimethylaminoethyl)-4-oxo-1H-quinoline-2-carboxamide (SZR-72) in the Rat Learned Helplessness Paradigm

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Tomato plant waste as a new substrate for biogas production

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What can be seen below 200 nanometers in cells of the neurovascular unit?

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Nanovesicles targeted with two different ligands of brain endothelial transporters increase cargo penetration across the blood-brain barrier

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Experimental motor neuron disease induced in mice with long-term injections of serum from ALS patients

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Role of a conserved glutamic acid in the catalytic mechanism of type VI sulfide:quinone oxidoreductases

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Downregulation of plasma miR-802-5p as an early biomarker for breast cancer brain metastases – possible involvement in the regulation of MEF2C

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Effect of Hofmeister-active salts on the conformation of the NAD+ and NADH cofactors: a simulation study

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Computational investigation of Hofmeister-active salts effect on the interfacial properties of the NAD+ and NADH cofactors

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NLRP3 activation in motor neurons after acute nerve injury

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Ultrastructural changes in motor neurons after acute blood serum inoculation of ALS patients with different genetic mutations

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Lidocaine turns the surface charge of biological membranes more positive and changes the permeability of blood-brain barrier culture models

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Phytotoxicity of remediated soils previously contaminated with ULOs

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Behind the anisotropy imaging using RCM

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Utilization of rumen content waste for methane production

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Isolation of wood industrial waste degrading fungi

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Microfluidic mixing: on chip synthesis of concentration arrays for cell culturing

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Comparison of a rat primary cell-based BBB model with epithelial and brain endothelial cell lines: gene expression and drug transport

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Quantitative and qualitative analysis of soil contaminant lubricating oils

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Don’t be a fool, use a microtool: Biophotonic toolbox for single cell studies

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The ecological theatre on a chip: spatial dynamics of bacterial communities

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