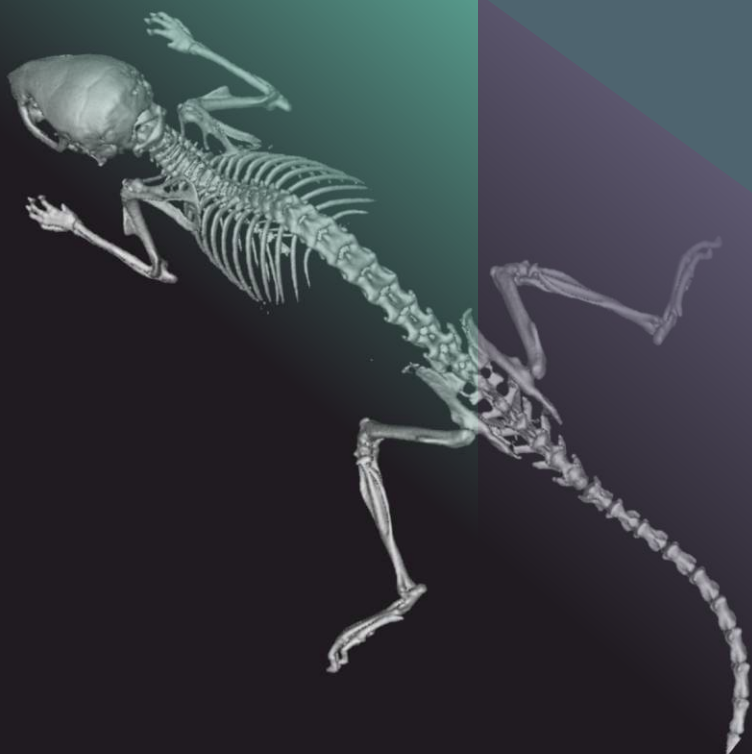


INSTITUTE OF MOLECULAR BIOMEDICINE
Faculty of Medicine, Comenius University, Bratislava

IMBIM

2017





SCIENTOMETRIC DATA

Number of publications - 21
of these with first/last authors from IMBM - 13
Cumulative IF - 53.904



Sex differences and sex hormones in anxiety-like behavior of aging rats



Emese Domonkos^a, Veronika Borbélyová^a, Melinda Csongová^a, Martin Bosý^a, Mária Kačmárová^a, Daniela Ostatníková^b, Július Hodosy^{a,b}, Peter Celec^{a,c,d,*}

^a Institute of Molecular Biomedicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia

^b Institute of Physiology, Faculty of Medicine, Comenius University, Bratislava, Slovakia

^c Institute of Pathophysiology, Faculty of Medicine, Comenius University, Bratislava, Slovakia

^d Department of Molecular Biology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia

Am J Physiol Gastrointest Liver Physiol 312: G457–G463, 2017.
First published February 16, 2017; doi:10.1152/ajpgi.00446.2016.

RESEARCH ARTICLE | *Liver and Biliary Tract Physiology/Pathophysiology*

Deoxyribonuclease partially ameliorates thioacetamide-induced
hepatorenal injury

Lenka Vokálová,¹ Lucia Lauková,² Jozef Čonka,² Veronika Melišková,² Veronika Borbélyová,²
Janka Bábčiková,² L'ubomíra Tóthová,² Július Hodosy,^{1,2} Barbora Vlková,² and Peter Celec^{2,3,4}

¹Institute of Physiology, Faculty of Medicine, Comenius University, Bratislava, Slovakia; ²Institute of Molecular Biomedicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia; ³Institute of Pathophysiology, Faculty of Medicine, Comenius University, Bratislava, Slovakia; and ⁴Department of Molecular Biology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia

Placenta 52 (2017) 100–105



Fetal DNA does not induce preeclampsia-like symptoms when
delivered in late pregnancy in the mouse



Jozef Čonka^a, Barbora Konečná^a, Lucia Lauková^a, Barbora Vlková^a, Peter Celec^{a,b,c,*}

^a Institute of Molecular Biomedicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia

^b Institute of Pathophysiology, Faculty of Medicine, Comenius University, Bratislava, Slovakia

^c Department of Molecular Biology, Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia

THE YEAR 2017 AT IMBM

The view of the head of the institute

A tough year... a very tough one. We have finally achieved our long term goals. Publishing in journals that are in the top quartile of the particular research area is everything but easy. Hormones & Behavior is such a target journal for everybody working in the field of neuroendocrinology. After years of rejections, we have finally got our manuscript about testosterone and anxiety accepted. Placenta is among the best journals in gynecology. And after 2017, we can say that it is indeed possible to publish in a specialized gynecological journal from Slovakia. Our paper about fetal DNA and preeclampsia did not include any up-to-date methods, but persuaded the reviewers with a good and interesting idea. We have published other experiments on the role of extracellular DNA in American Journal of Physiology and in Biomedicine & Pharmacotherapy. These crucial papers are templates for others to come, because we are conducting similar experiments and hope to publish the outcomes soon. In comparison to previous years, our list of publications is shorter, but we have focused on quality rather than quantity. The keep the balance in the future will be of utmost importance.

After years of starvation, we have received grants from grant agencies and financial support from the faculty. We are thankful and would like to use the money efficiently. Nearly an impossible task. In the current system of public tendering we are not even able to spend the money timely. What an irony that we had more time to do research before we received the grants to support the research. As researchers we cannot accept the situation but make clear that supporting staff should support science and not hinder it. We are doing it for the next generation of scientists, at last.

This year, three PhD students defended their theses at our institute. For the first time, all of them continue to work at the Faculty of Medicine. In 2018 four students will finalize their PhD study... New postdocs come and some of the old go. These changes may be the true source of development. Let us hope that it will be differentiation rather than apoptosis.



Peter Celec

RESEARCHERS

ASSOCIATE PROFESSORS



KATARÍNA ŠEBEKOVÁ, assoc. prof., MD, DrSc

CC/IF publications - 145, SCI citations - 1917,
h-index - 26

metabolic syndrome, diabetes mellitus, advanced
glycation end products, clinical biochemistry,
pathogenesis of renal diseases

kata.sebekova@gmail.com



PETER CELEC, assoc. prof., MD, Ing, MSc, DrSc, MPH

CC/IF publications - 195, SCI citations - 1709,
h-index - 23

testosterone, salivary markers, horizontal gene
transfer, chronobiology, biostatistics,
extracellular DNA

petercelec@gmail.com



PETER BOOR, assoc. prof., MD, PhD
(currently RWTH Aachen, Germany)

CC/IF publications - 113, SCI citations - 2212,
h-index - 27

nephropathology, renal fibrosis,
immunopathomechanisms, models of renal
diseases, imaging

boor.peter@gmail.com

POSTDOCTORANDS



VERONIKA BORBÉLYOVÁ, MSc, PhD

CC/IF publications - 11, SCI citations - 13,
h-index - 2

autism spectrum disorder, animal models
of autism spectrum disorder, effects of prenatal
testosterone on behavior during postnatal
development, metabolic syndrome

borbelyova.veronika88@gmail.com

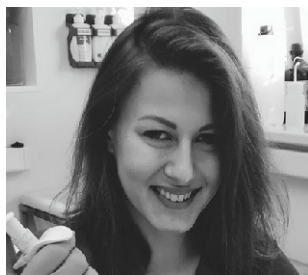


ROMAN GARDLÍK, MD, MSc, PhD

CC/IF publications - 32, SCI citations - 341,
h-index - 12

gene therapy, inflammatory bowel disease,
bacterial vectors, cell cultures, pluripotency

romangardlik@gmail.com



BARBORA KONEČNÁ, MSc, PhD

CC/IF publications - 12, SCI citations - 19,
h-index - 3

extracellular DNA, extracellular vesicles,
pregnancy complications,
quantitative real-time PCR

basa.konecna@gmail.com



MÁRIA SUCHOŇOVÁ, MSc, PhD

CC/IF publications - 3, SCI citations - 1,
h-index - 1

optics, optical spectroscopy, laser-induced
breakdown spectroscopy, biomedical physics,
imaging methods in medicine

mariasuchonova@gmail.com



BARBORA IZRAEL VLKOVÁ, MSc, PhD

CC/IF publications - 33, SCI citations - 235,
h-index - 8

extracellular DNA, non-invasive prenatal
diagnostics, preeclampsia, quantitative
real-time PCR, molecular pathology

barboravlk@gmail.com



JANKA BÁBÍČKOVÁ, MSc, PhD
(currently University of Bergen, Norway)

CC/IF publications - 23, SCI citations - 107,
h-index - 7

phage display, sex steroids, inflammatory
bowel disease, extracellular DNA,
experimental nephrology

jana.babickova@gmail.com



JÚLIUS HODOSY, MD, MSc, PhD, MPH
(currently University Hospital Bratislava, Slovakia)

CC/IF publications - 84, SCI citations - 633,
h-index - 15

behavioral analysis, sex steroids,
oxidative stress, animal models of diseases,
sleep apnea syndrome

hodosy@gmail.com



ĽUBOMÍRA TÓTHOVÁ, MSc, PhD
(currently maternity leave)

CC/IF publications - 53, SCI citations - 239,
h-index - 11

salivary markers, oxidative stress, urinary tract
infections, bacteriophages, microbiology

tothova.lubomira@gmail.com

PHD STUDENTS

Melinda Csongová, MSc

Jozef Čonka, MSc

Emese Domonkos, MSc

Marianna Gyurászová, MSc

Alexandra Gaál Kovalčíková, MSc

Júlia Illéssová, MD

Ľubica Janovičová, MSc

Lucia Lauková, MSc

Katarína Kmeťová, MSc

Martin Marônek, MSc

PHD STUDENTS WHO SUCCESSFULLY DEFENDED THEIR THESES

Veronika Borbélyová, MSc, PhD

Katarína Janšáková, MSc, PhD

Barbora Konečná, MSc, PhD

MASTER STUDENTS

Alžbetka Adamčíková, Bc

Barbora Čechová, Bc

Marianna Hladová, Bc

Alžbeta Holá, Bc

Daniela Klimová, Bc

Róbert Lipták

Darina Lysková

Simona Molnárová, Bc

Kristína Ploth, Bc

Kristína Tomová

BACHELOR STUDENTS

Diana Drobná

Barbora Gromová

Radka Slabejová

Magdaléna Zelinková

STUDENTS WHO SUCCESSFULLY DEFENDED THEIR THESES

Barbora Čechová, Bc

Marianna Hladová, Bc

Alžbeta Holá, Bc

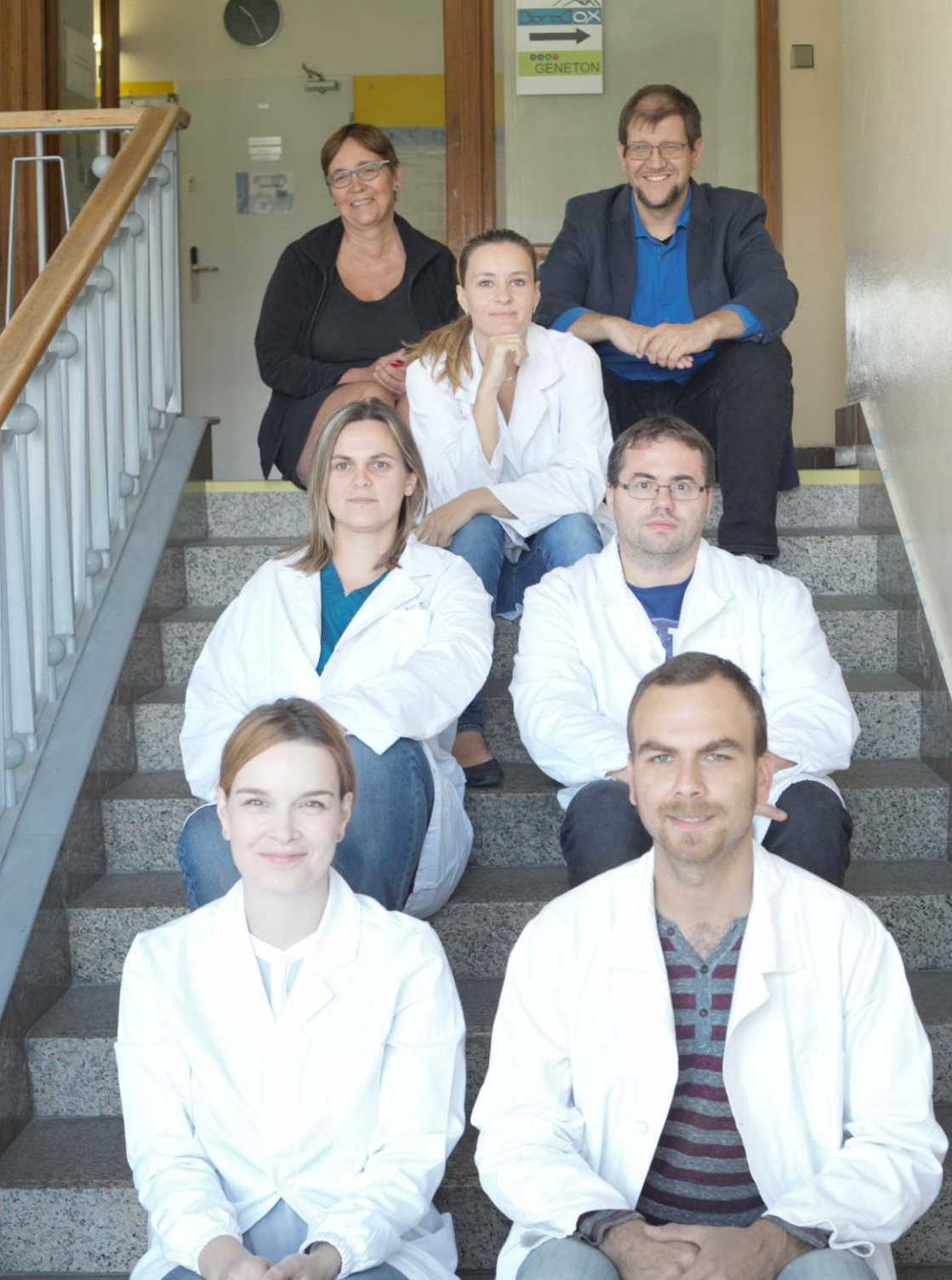
Jordanka Homolová, MSc

Ľubica Janovičová, MSc

Róbert Lipták

OTHER COLLEAGUES

Lenka Libáková, Ingrid Simonová, Mária Turoňová, Ľudmila Kašíková, Kristína Margitfalviová



RESEARCH

IMBM is not a standard research institute focusing on one molecule in one pathomechanism. As the research background of people in our labs is so divergent, it is clear that our research must be interdisciplinary as well. In the last years the focus has, nevertheless, shifted towards extracellular DNA, its biology and role in various diseases. We can quantify and partially characterize extracellular DNA in plasma. In addition, we also measure the activity of the enzyme that cleaves this DNA - deoxyribonuclease (DNase). We and others have shown that exogenous application of this enzyme might be protective in sepsis, liver and kidney injury. But we have also shown that the endogenous variability is enormous and this might also be of importance for the disease risk. Virtually any inflammation leads to an increase of extracellular DNA. This DNA is able to activate the immune system. This bidirectional causative relation seems to be of importance not only in autoimmune diseases. We try to uncover the details of its role in sepsis, colitis and periodontitis in both, animal experiments and clinical studies.

At IMBM we also investigate the causes of the metabolic syndrome including the prenatal nutrition. However, obesity is linked to higher cell-free DNA and might lead to microinflammation that is crucial in the metabolic complications of obesity. We try to study the consequences of gut microbiome transplantation, but at least some of the effects might be due to the recognition of bacterial DNA and other antigens by the immune system. The inflammation during early neurodevelopment could be the key to understanding of autism and other behavioral pathologies. The DNA outside of the cells can also be found in the oral cavity. Saliva as a potential diagnostic fluid is under scrutiny of our research since decades. Currently, especially due to the presence of biomarkers of renal functions in saliva. Last but not least, sex differences in the prevalence of autism, but also rheumatoid arthritis could be potentially explained by the sex differences in DNase activity. This shows that although many different topics are covered by our experiments, they are all linked and we benefit from the interactions. Research is similar to biology. Variability and selection are the keys to evolution.

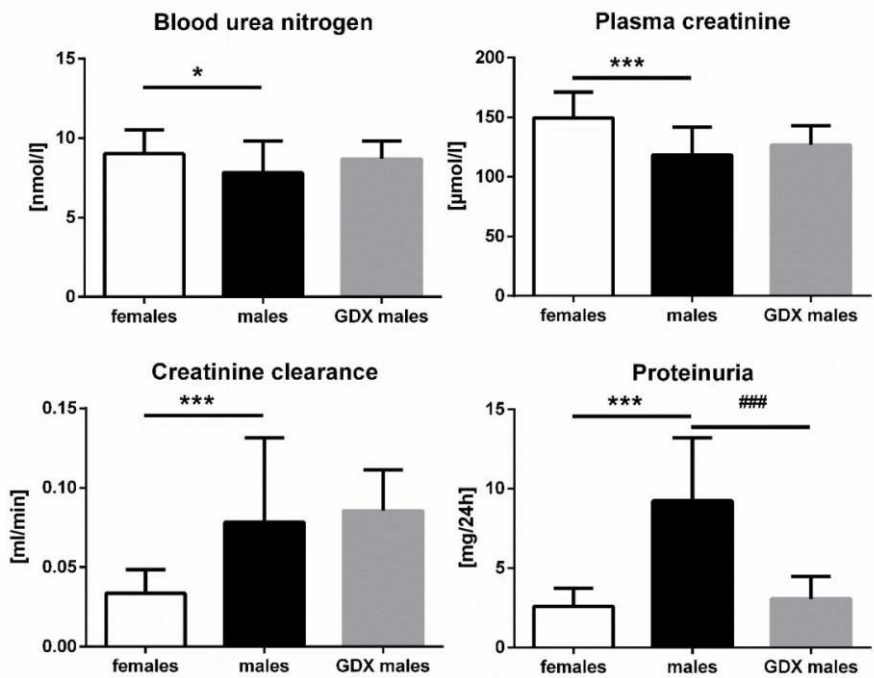
SEX DIFFERENCES IN PROTEINURIA

What is known?

Numerous studies and experiments in mice and rats have shown that male rodents have higher proteinuria than females. The reasons are unclear.

What is new?

Sex differences in proteinuria, but not in other renal functions are probably caused by male sex hormones, such as testosterone, since castration in male rats led to a considerable decrease in proteinuria.



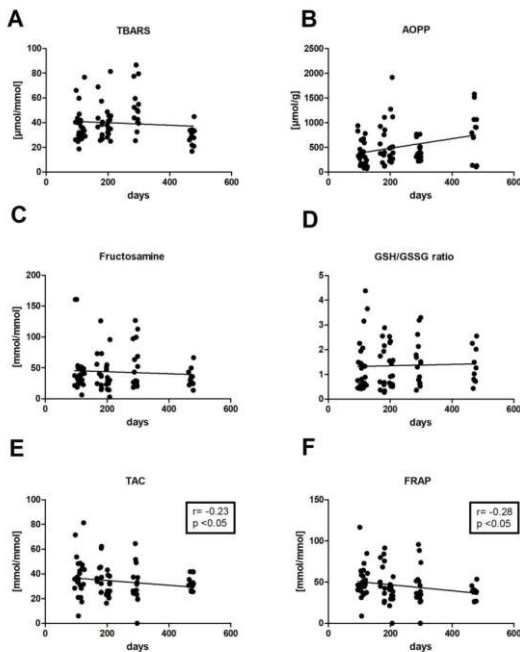
URINARY OXIDATIVE STRESS MARKERS AND AGE

What is known?

Studies showed that oxidative stress markers measured in plasma correlated positively, and antioxidant status correlated negatively with age in laboratory rodents. These markers can be measured also in other biofluids such as urine.

What is new?

Oxidative stress markers measured in the urine do not correlate with the age of mice. However, the antioxidant status markers measured in urine correlate negatively with age.



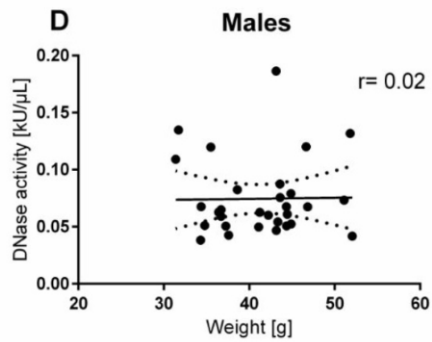
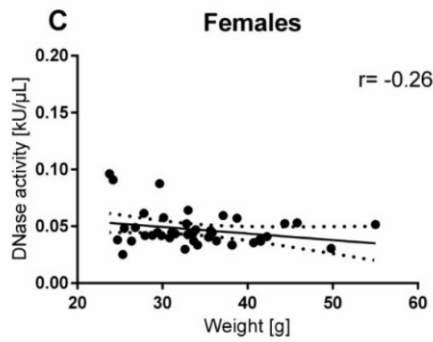
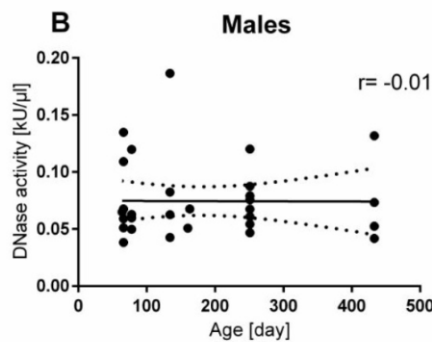
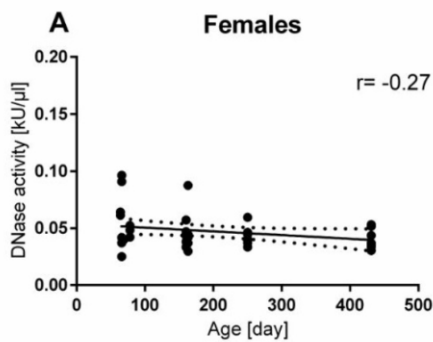
DNASE ACTIVITY DETERMINANTS

What is known?

Many determinants affecting deoxyribonuclease (DNase) activity were described before e.g. concentration of divalent cations. However, whether there is a relation of DNase activity to age and body weight is unknown.

What is new?

DNase activity is associated with neither age nor weight of CD1 mice. Sex differences in DNase activity were observed with higher values in males.



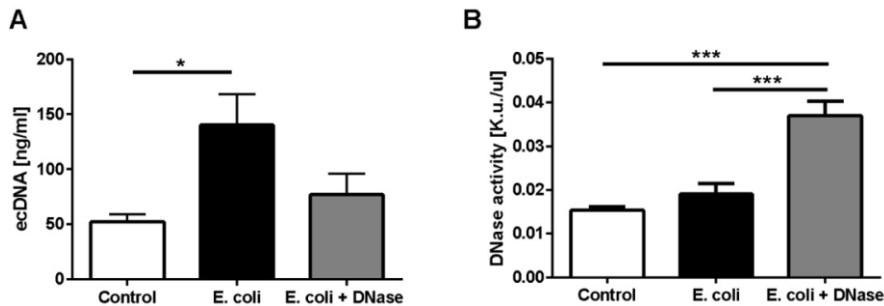
EFFECT OF DEOXYRIBONUCLEASE TREATMENT IN A MOUSE MODEL OF SEPSIS

What is known?

Previous studies have shown that deoxyribonuclease (DNase) by cleaving extracellular DNA prevents the antibacterial effects of extracellular traps, but also has beneficial effects in sepsis.

What is new?

The study showed that intravenous DNase improves survival of septic mice by cleavage of extracellular DNA, especially of nuclear origin.



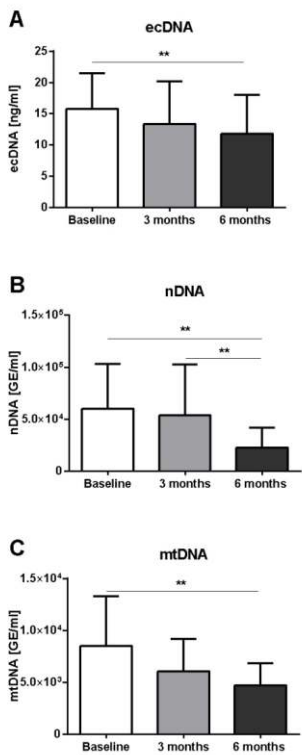
EXTRACELLULAR DNA IN PATIENTS WITH RHEUMATOID ARTHRITIS

What is known?

Extracellular DNA is elevated in plasma of patients with rheumatoid arthritis. The aim of the study was to characterize the effect of biological treatment on concentration of total extracellular DNA as well as nuclear and mitochondrial extracellular DNA.

What is new?

Concentrations of total extracellular DNA, nuclear and mitochondrial DNA in plasma of patients with rheumatoid arthritis significantly lower after biological anti-TNF treatment.



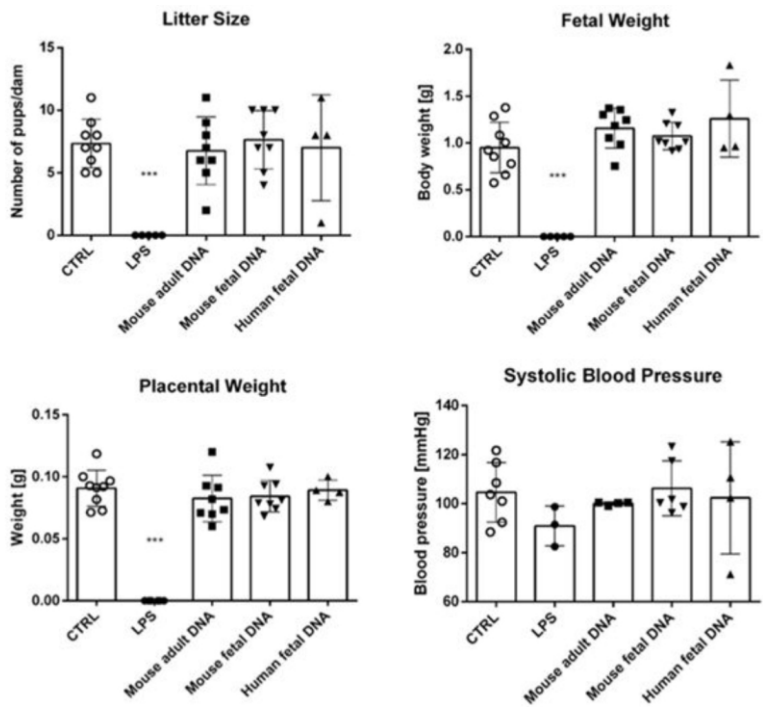
FETAL DNA DOES NOT INDUCE PREECLAMPSIA-LIKE SYMPTOMS

What is known?

Preeclampsia is associated with higher concentrations of fetal DNA in maternal plasma. Higher concentrations of fetal DNA in mid-gestation were found to increase the risk of preterm birth, and the cell-free fetal DNA circulating in maternal plasma has been suggested as being a potential trigger for labor induction.

What is new?

Neither human fetal DNA nor mouse fetal DNA induced any relevant fetal or maternal pathology. Most importantly, fetal DNA injections given to pregnant mice did not induce fetal hypotrophy, maternal hypertension, or proteinuria.



PERIODONTITIS AND SALIVARY MARKERS OF RENAL FUNCTIONS

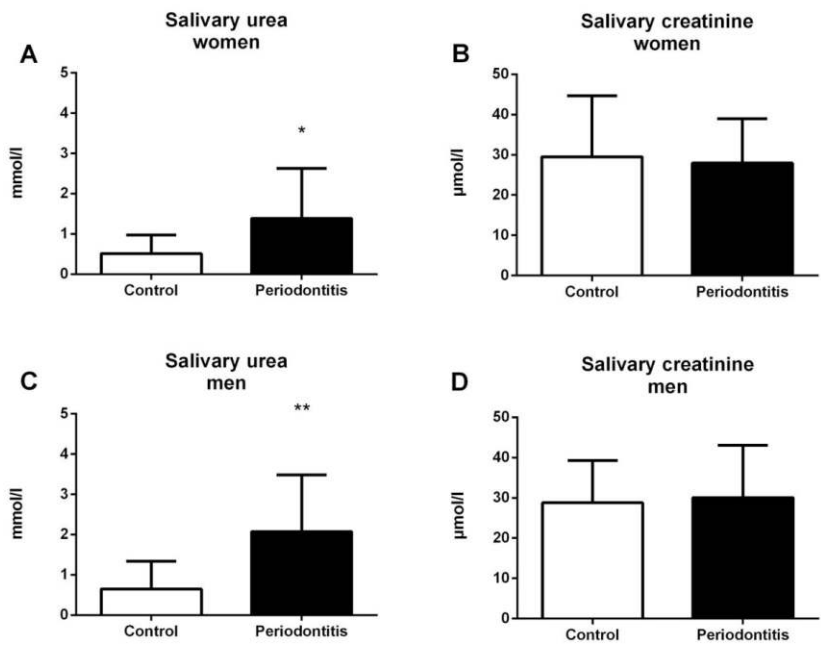
What is known?

Salivary creatinine and urea can be measured in saliva and are higher in patients with impaired kidney functions. The sources of high biological variability are unknown.

What is new?

Periodontitis affects salivary concentrations of urea, but not creatinine. This is caused by neither blood contamination nor by higher bacterial content. So, the reasons remain unknown.

Clinical samples



THE ROLE OF MICROBIOTA IN A MODEL OF INFLAMMATORY BOWEL DISEASE

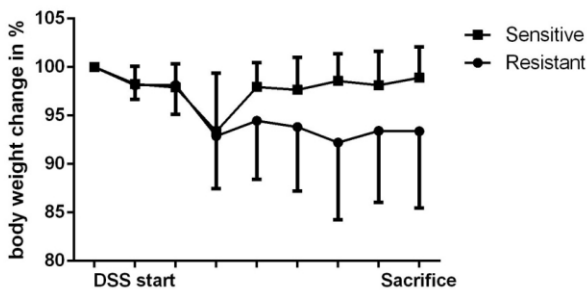
What is known?

Gut microbiota play role in pathogenesis of inflammatory bowel disease. Fecal microbiota transplantation is a method that is able to replace original gut microbiota with that of the donor.

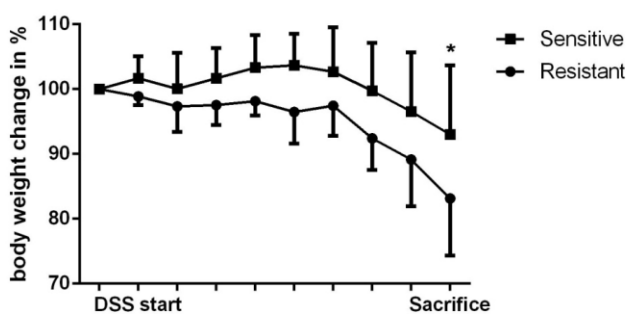
What is new?

Susceptibility to chemically induced colitis can be modified via fecal microbiota transplantation. However, microbiota from sensitive animals induced partial resistance and vice versa.

Body weight change



Body weight change



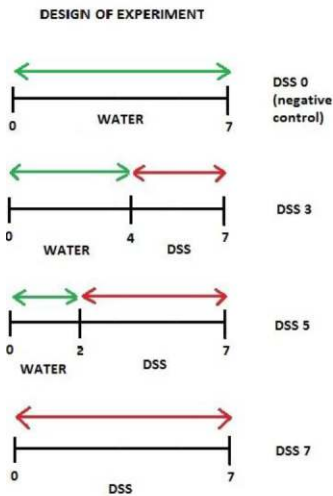
THE ROLE OF EXTRACELLULAR NUCLEIC ACIDS IN INFLAMMATORY BOWEL DISEASE

What is known?

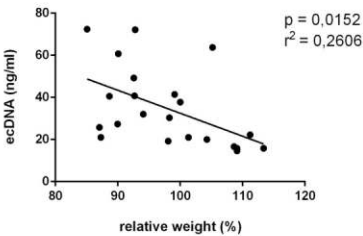
Extracellular DNA is increased in several inflammatory disorders and can be used as a marker of disease severity. DNase is an enzyme that digests extracellular DNA.

What is new?

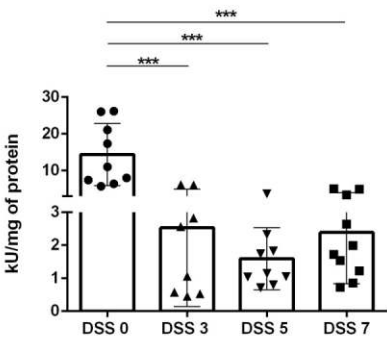
Extracellular DNA is increased in human and mouse colitis. Differences in DNase activity among individuals and along the gastrointestinal tract might play a role in variability of colitis severity.



Correlation between relative weight and ecDNA concentration



DNase activity of colon



SALIVARY CREATININE AND UREA IN RENAL DISEASES

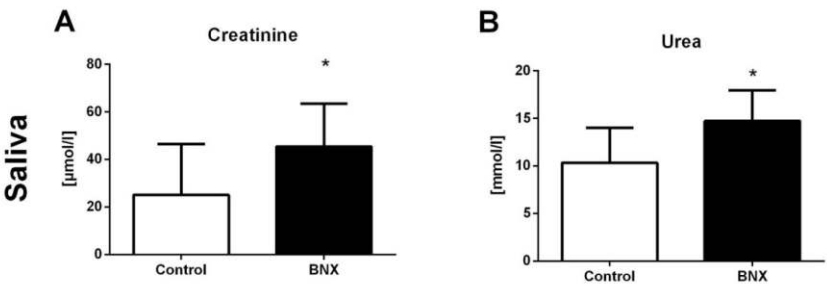
What is known?

Numerous studies have shown a positive correlation between serum/plasma and salivary creatinine and urea concentrations in patients. Experimental proofs are lacking.

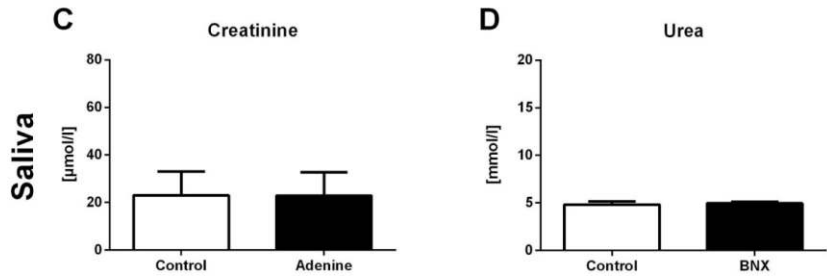
What is new?

An increase of salivary creatinine and urea in mice depends on the experimental model of renal failure and its severity.

Bilateral nephrectomy (AKI)



Adenine nephropathy (CKD)



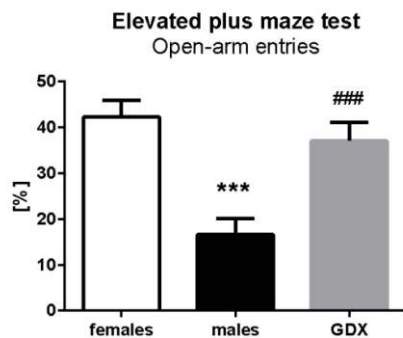
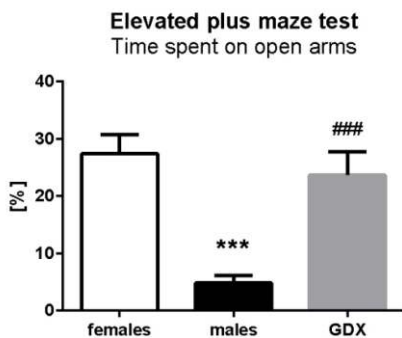
SEX DIFFERENCES IN ANXIETY-LIKE BEHAVIOR IN AGING RATS

What is known?

A large body of evidence from animal experiments in rodents suggests that males are more anxious than females.

What is new?

Sex differences in anxiety in aged rats are likely mediated by endogenous testosterone production in males, because prepubertal gonadectomy in males diminishes sex differences in anxiety-like behavior.



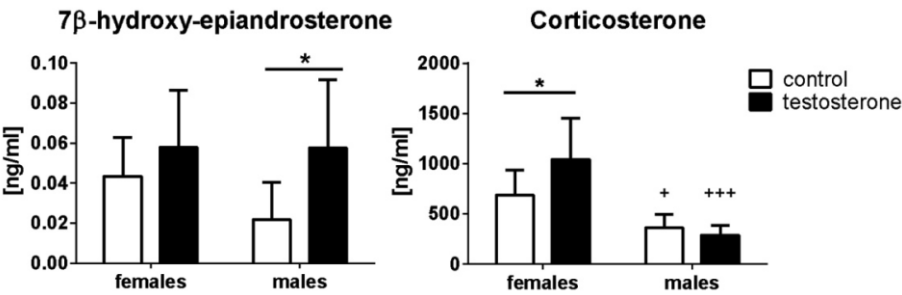
THE EFFECT OF PRENATAL TESTOSTERONE EXPOSURE ON STEROID PRODUCTION IN OFFSPRING

What is known?

Maternal hyperandrogenism during pregnancy might have metabolic and endocrine consequences on the offspring as shown for the polycystic ovary syndrome. The endocrine consequences of prenatal experimental hyperandrogenism are unknown.

What is new?

Prenatal testosterone exposure seems to partially affect steroid biosynthesis of offspring in a sex-specific manner, resulting in higher plasma concentration of 7 β -hydroxy-epiandrosterone in males and higher plasma concentration of corticosterone in females when compared to control offspring.



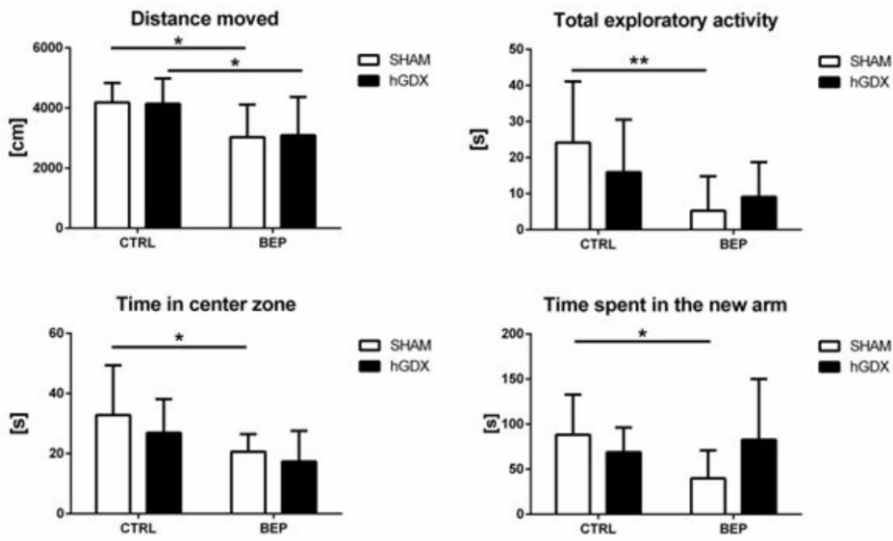
TRANSIENT EFFECTS OF CHEMOTHERAPY FOR TESTICULAR CANCER ON MOUSE BEHAVIOR

What is known?

Current treatment of testicular cancer including unilateral orchiectomy and chemotherapy is very successful. However, observational studies have shown adverse effects of the treatment on cognitive abilities.

What is new?

In mice, adverse behavioral effects induced by chemotherapy are transient and these effects disappear later in life. Compensated hypogonadism induced by hemicastration has no major effects on the behavior of mice.



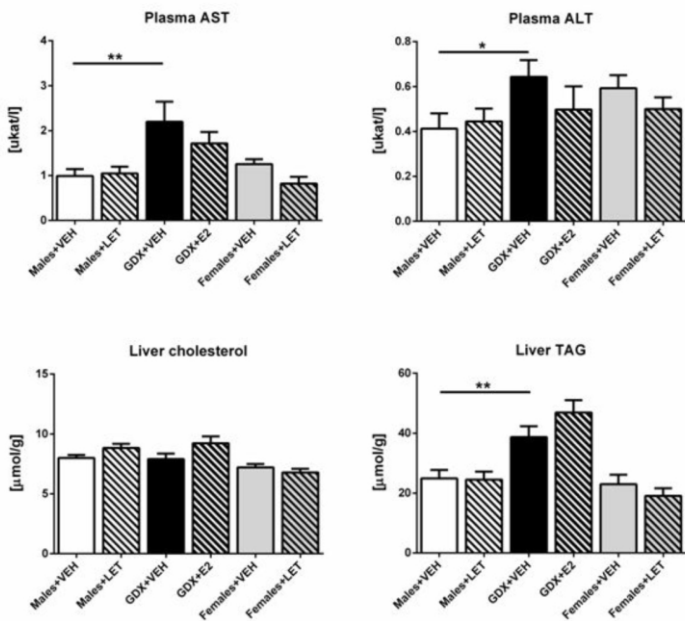
LONG-TERM ANDROGEN DEFICIENCY DOES NOT INDUCE METABOLIC SYNDROME IN MIDDLE-AGED RATS

What is known?

Clinical observational studies and animal experiments suggest that hypogonadism is associated with the metabolic syndrome. Most of the animal experiments analyzed only the effects of short-term hypogonadism.

What is new?

Long-term hypogonadism started before puberty did not induce metabolic syndrome in middle-aged male rats, but led to partial liver damage. Sex differences in metabolic parameters in middle-aged rats were not mediated by testosterone. Short-term administration of letrozole and supplementation of estradiol had no effects.



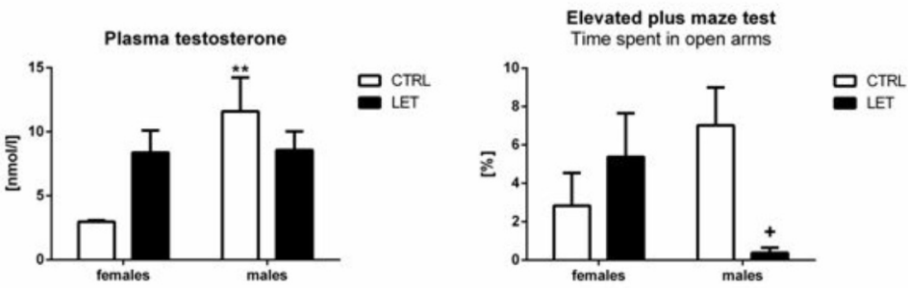
LETROZOLE, TESTOSTERONE AND ANXIETY-LIKE BEHAVIOR IN AGING

What is known?

Aromatase catalyzes the conversion of testosterone to estradiol. Animal experiments have shown that the aromatase inhibitor letrozole induces anxiety in young ovariectomized females as a model of aging.

What is new?

In intact aged animals, sex differences were found not only in testosterone but also in the effects of letrozole treatment on plasma testosterone. Letrozole induced anxiety in male aged rats, but not in female aged rats.





CONFERENCES

An active participation in scientific conferences is an indispensable part of our work. At conferences we have the opportunity to present the results of our analyzes, to discuss with experts and to establish in new cooperation. In 2017 we attended the following scientific conferences:

93RD PHYSIOLOGICAL DAYS

31.1.2017 - 2.2.2017

Košice, Slovakia

(Peter Celec, Barbora Izrael Vlková,
Július Hodosy, Ľubomíra Tóthová,
Roman Gardlík, Lucia Lauková,
Jozef Čonka, Emese Domonkos)

GENETIC CONFERENCE

16.3.2017 - 17.3.2017

Martin, Slovakia

(Peter Celec, Barbora Izrael Vlková,
Barbora Konečná, Lucia Lauková)

3RD INTERNATIONAL MEETING ON CELL-FREE DNA

4.4.2017 - 9.4.2017

Copenhagen, Denmark

(Peter Celec, Barbora Izrael Vlková)



**INTERDISCIPLINARY CONFERENCE ON INNOVATION IN HEALTH CARE - IHCO 2017,
15.3.2017 - 16.3.2017, Bratislava, Slovakia**

(Peter Celec)

TECHSUMMIT, 10.5.2017 - 11.5.2017, Bratislava, Slovakia

(Peter Celec)

2ND DAYS OF PRIMARY PEDIATRY, 12.5.2017 - 13.5.2017, Jasná, Slovakia

(Peter Celec)

45TH HEPATOLOGICAL DAYS, 18.5.2017 - 20.5.2017, Donovaly, Slovakia

(Veronika Borbélyová, Barbora Konečná, Roman Gardlík)

**DAYS OF PRACTICAL OBESITOLOGY AND METABOLIC SYNDROME,
14.6.2017 - 17.6.2017, Bardejov, Slovakia**

(Peter Celec, Barbora Izrael Vlková, Emese Domonkos, Veronika Borbélyová)



SYMPOSIUM ON EXTRACELLULAR VESICLES

4.9.2017 - 5.9.2017, Vienna, Austria

(Barbora Konečná, Lucia Lauková)

FEPS, 13.9.2017 - 15.9.2017, Vienna, Austria

(Veronika Borbélyová, Barbora Konečná)



**THE 6th CENTRAL EUROPEAN CONGRESS ON OBESITY (CECON)
AND THE 15th SLOVAK CONGRESS ON OBESITY,
5.10.2017 - 7.10. 2017, Bratislava, Slovakia**

(Peter Celec, Katarína Šebeková)

**10TH WORLD CONGRESS ON DEVELOPMENTAL ORIGINS OF HEALTH AND DISEASE,
14.10.2017 - 19.10.2017, Rotterdam, Netherlands**

(Katarína Šebeková)

IZAKOVIČ MEMORIAL, 18.10.2017 - 20.10.2017, Nitra, Slovakia

(Peter Celec, Barbora Izrael Vlková)

**RECOOP 8th ANNUAL PROJECT REVIEW MEETING,
19.10. 2017- 22.10.2017, Zagreb, Croatia**

(Alexandra Gaál Kovalčíková, Marianna Gyurászová)

22ND BIOLOGICAL DAYS, 23.10.2017 - 25.10.2017, Smolenice, Slovakia

(Veronika Borbélyová, Barbora Konečná)





GASTROENTEROLOGY DAY OF BRATISLAVA-RUŽINOV, 10.11.2017, Bratislava, Slovakia

(Peter Celec, Roman Gardlík, Jozef Čonka, Barbora Gromová, Kristína Tomová a Róbert Lipták)

TARGETING MICROBIOTA, 25.10.2017 - 28.10.2017, Berlin, Germany

(Roman Gardlík)

**4TH HEIDELBERG INTERNATIONAL SYMPOSIUM ON DIABETIC COMPLICATIONS,
15.11.2017 - 18.11.2017, Heidelberg, Germany**

(Katarína Šebeková)

FALLING WALLS LAB SLOVAKIA, 29.9.2017, Bratislava, Slovakia

(Barbora Konečná, Diana Drobná, Ľubica Janovičová, Emese Domonkos)



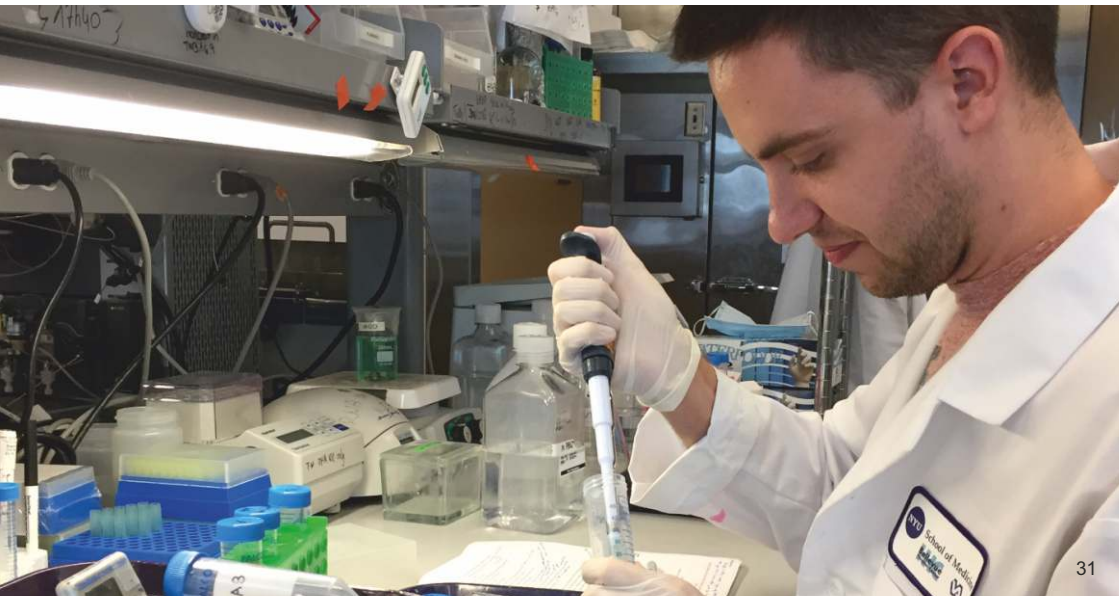
FOREIGN RESEARCH STAYS

Danube University Krems, Department for Health Sciences and Biomedicine, Christian Doppler Laboratory for Innovative Therapy Approaches in Sepsis, Krems, Austria, 01.01.2017 - 30.04.2017,
National Scholarship Programme of the Slovak Republic
(Lucia Lauková)



Semmelweis University, 1st Department of Paediatrics, Budapest, Hungary, 1.10.2016 – 1.10.2017
(Marianna Gyurászová)

New York University School of Medicine, Department of Neurology, New York, USA, 1.3.2017-1.9.2017,
Vilcek Foundation (Jozef Čonka)



INVITED LECTURES

Invited lecture represents the honor of scientific work and effort. In 2017, the researchers from IMBM were invited to several domestic and international scientific meetings and seminars to give a solicited talk focused on the presentation of their own original results:

Šebeková K. Glycated proteins in nutrition: friend or foe. Modulating Ageing Antiageing.
From Molecular Biology to Clinical Perspectives. 1.9.2017 - 3.9.2017, Halle/Saale, Germany

Šebeková K. Nutrition in utero influences predisposition to cardiometabolic diseases in adulthood.
7th International Science and Education Symposium on Bioregeneration Medicine in Slovakia, 21.9.2017,
Bratislava, Slovakia

Celec P. Evidence based genomic medicine. Izakovič memorial, 8.10.2017 - 20.10.2017, Nitra, Slovakia



POPULARIZATION OF SCIENCE

POHODA FESTIVAL 7.7.2017 (Peter Celec)



TALKSHOW JAN KRAUS 4.10.2017 (Peter Celec)



EDUCATION ACTIVITIES

IMBM is a research institute, but it is also important to participate in educational process. Beyond institutional meetings, seminars and courses we prepared the lectures, seminars and practical courses at the Faculty of medicine and Faculty of natural sciences Comenius University:

FACULTY OF MEDICINE:

Physiology
Pathophysiology
Pathology

FACULTY OF NATURAL SCIENCES:

Molecular endocrinology
Basics of theoretical and experimental medicine
Animal physiology and ethology
Progress in molecular biology
Advanced methods in molecular biology
Behavioral genetics
Special genetics

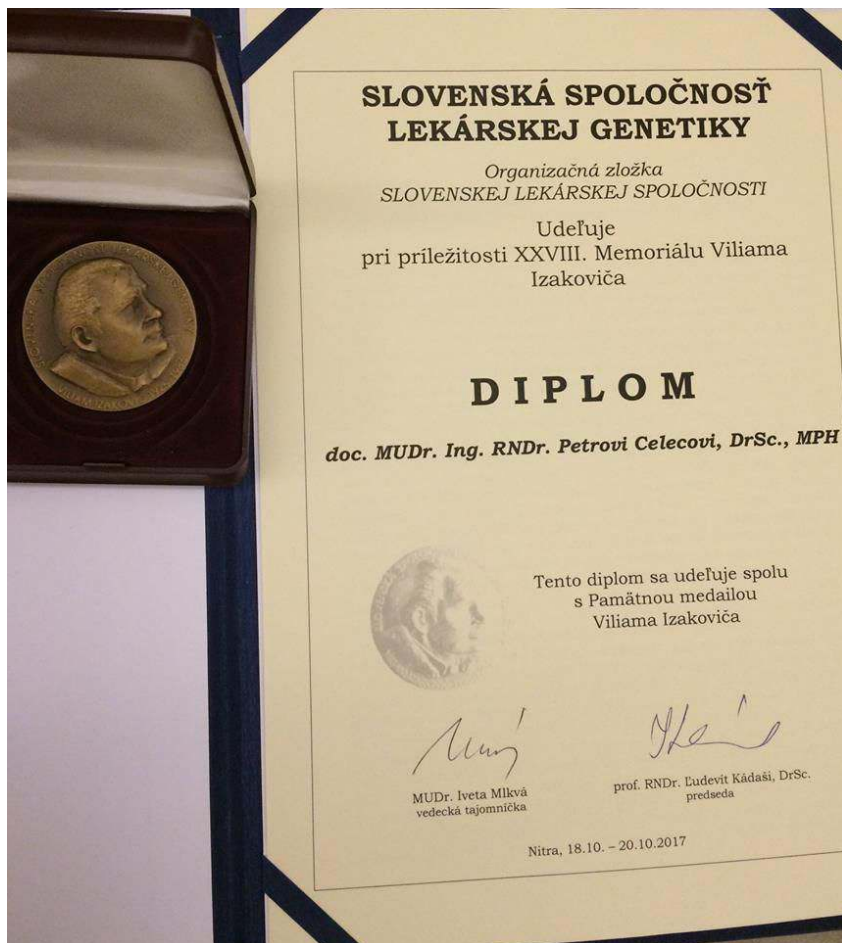


OTHER LECTURES

Faculty of Electrical Engineering and Information Technology
State Veterinary and Food Administration of the Slovak Republic

PRIZES

SLOVAK SOCIETY OF MEDICAL GENETICS - MEMORIAL MEDAL OF VILIAM IZAKOVIČ (Peter Celec)



COOPERATIONS

Department of Pathophysiology, Faculty of Medicine in Pilsen, Charles University, Pilsen, Czech Republic
(assoc. prof. Jan Cendelín)

Department of Dental Hygiene, Faculty of Health Care, University Of Presov, Slovakia
(assoc. prof. Eva Koval'ová)

1st Department of Internal Medicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia
(assoc. prof. Emokey Steňová)

National Institute of Rheumatic Diseases, Piešťany, Slovakia
(Vanda Mlynáriková, MD)

II. gynecology and obstetrics department, Faculty of Medicine, Comenius University, Bratislava, Slovakia
(assoc. prof. Jozef Záhumenský)

5th Department of Internal Medicine, Faculty of Medicine, Comenius University, Bratislava, Slovakia
(prof. Tibor Hlavatý)

Department Obstetrics and Gynecology, Sahlgrenska University Hospital/Ostra, Gothenburg, Sweden
(prof. Bo Jacobsson)

Department Obstetrics and Gynaecology, University Hospital Hradec Kralove, Charles University, Hradec Kralove, Czech Republic
(assoc. prof. Marián Kácerovský)

Department of Clinical Microbiology, Karolinska University Hospital, Stockholm, Sweden
(Milan Chromek, MD)



Department of Pathological Physiology, Faculty of medicine, Masaryk University, Brno, Czech Republic
(prof. Katerina Kaňková)

Institute of Clinical Biochemistry and Laboratory Diagnostics, Charles University, Prague,
Czech republic
(prof. Marta Kalousová)

1st Department of Obstetrics and Gynecology, Semmelweis University, Budapest, Hungary
(prof. Bálint Nagy)

Department of Pharmacodynamics, Semmelweis University, Budapest, Hungary
(prof. Eva Szökő)

Department of Nutritional and Physiological Chemistry, University of Vienna, Vienna, Austria
(prof. Veronika Somoza)

Australian Centre for Ecogenomics, University of Queensland, Australia
(Mária Džunková, PhD)

Department of Neurology, NYU Langone Medical Center, New York, USA
(Henrieta Scholtzová, MD)



PUBLICATIONS

1. Čonka J, Konečná B, Lauková L, Vlková B, Celec P: Fetal DNA does not induce preeclampsia-like symptoms when delivered in late pregnancy in the mouse. *Placenta*, 52: 100-105, 2017 (IF=2.972)
2. Koborová I, Gurecká R, Csongová M, Volkovová K, Szoko E, Tábi T, Šebeková K. Association between metabolically healthy central obesity in women and levels of soluble receptor for advanced glycation end products, soluble vascular adhesion protein-1, and the activity of semicarbazide-sensitive amine oxidase. *Croatian Medical Journal*, 58(2):106-116, 2017 (IF=1.483)
3. Wagnerova A, Babickova J, Liptak R, Vlkova B, Celec P, Gardlik R. Sex Differences in the Effect of Resveratrol on DSS-Induced Colitis in Mice. *Gastroenterology Research and Practice*, 8051870, 2017 (IF=1.742)
4. Bystrický B, Jurišová S, Karaba M, Minárik G, Benca J, Sedláčková T, Tóthová Ľ, Vlková B, Čierna Z, Janega P, Manášová D, Gronešová P, Pindák D, Madiak J, Celec P, Mego M: Relationship Between Circulating Tumor Cells and Tissue Plasminogen Activator in Patients with Early Breast Cancer. *Anticancer Research*, 37(4): 1781-1791, 2017 (IF=1.895)
5. Brachtlová T, Gardlík R, Tóthová Ľ: Putative effects of sex hormones on urinary tract infection. *Folia Biologica (Praha)*, 63: 35-41, 2017 (IF=0.833)
6. Aziriová S, Repová K, Krajčirovičová K, Baka T, Zorad S, Mojto V, Slavkovský P, Hodosy J, Adamcová M, Paulis L, Šimko F: Effect of ivabradine, captopril and melatonin on the behaviour of rats in L-nitro-arginine methyl ester-induced hypertension. *Journal of Physiology and Pharmacology*, 67(6): 895-902, 2016 (IF=2.804)
7. Vokálová L, Lauková L, Čonka J, Melišková V, Borbélyová V, Bábíčková J, Tóthová L, Hodosy J, Vlková B, Celec P: Deoxyribonuclease partially ameliorates thioacetamide-induced hepatorenal injury. *American Journal of Physiology-Gastrointestinal and Liver Physiology*, 312(5):G457-G463, 2017 (IF=3.468)
8. Domonkos E, Borbélyová V, Csongová M, Bosý M, Kačmárová M, Ostatníková D, Hodosy J, Celec P: Sex differences and sex hormones in anxiety-like behavior of aging rats. *Hormones & Behavior*, 93:159-165, 2017 (IF=3.378)

- 9.** Gyuraszova M, Kovalcikova A, Gardlik R: Association between oxidative status and the composition of intestinal microbiota along the gastrointestinal tract. *Medical Hypotheses*, 103: 81-85, 2017 (IF=1.066)
- 10.** Madaric J, Valachovicova M, Paulis L, Pribojova J, Mateova R, Sebekova K, Postulkova L, Madaricova T, Bucova M, Mistrik M, Vulev I. Improvement in asymmetric dimethylarginine and oxidative stress in patients with limb salvage after autologous mononuclear stem cell application for critical limb ischemia. *Stem Cell Research & Therapy*, 8:165, 2017 (IF=4.211)
- 11.** Lauková L, Konečná B, Bábíčková J, Wagnerová A, Melišková V, Vlková B, Celec P: Exogenous deoxyribonuclease has a protective effect in a mouse model of sepsis. *Biomedicine & Pharmacotherapy*, 93:8-16, 2017 (IF=2.759)
- 12.** Leone DA, Peschel A, Brown M, Schachner H, Ball MJ, Gyuraszova M, Salzer-Muhar U, Fukuda M, Vizzardelli C, Bohle B, Rees AJ, Kain R: Surface LAMP-2 Is an Endocytic Receptor That Diverts Antigen Internalized by Human Dendritic Cells into Highly Immunogenic Exosomes. *Journal of Immunology*, 199(2):531-546, 2017 (IF=4.856)
- 13.** Bábíčková J, Klinkhammer BM, Buhl EM, Djudjaj S, Hoss M, Heymann F, Tacke F, Floege J, Becker JU, Boor P: Regardless of etiology, progressive renal disease causes ultrastructural and functional alterations of peritubular capillaries. *Kidney International*, 91(1):70-85, 2017 (IF=8.395)
- 14.** Babková Durdiaková J, Celec P, Koborová I, Sedláčková T, Minárik G, Ostatníková D: How do we love? Romantic love style in men is related to lower testosterone levels. *Physiological Research*, 66(4):695-703, 2017 (IF=1.461)
- 15.** Becerik S, Öztürk VÖ, Celec P, Kamodyova N, Atilla G, Emingil G: Gingival crevicular fluid and plasma oxidative stress markers and TGM-2 levels in chronic periodontitis. *Archives of Oral Biology*, 83:47-54, 2017 (IF=1.748)
- 16.** Simko F, Pechanova O, Repova K, Aziriova S, Krajcirovicova K, Celec P, Tothova L, Vrankova S, Balazova L, Zorad S, Adamcova M: Lactacystin-Induced Model of Hypertension in Rats: Effects of Melatonin and Captopril. *International Journal of Molecular Sciences*, 18(8):E1612, 2017 (IF=3.226)

- 17.** Borbélyová V, Domonkos E, Bábíčková J, Tóthová Ľ, Kačmárová M, Uličná O, Ostatníková D, Hodosy J, Celec P: Does long-term androgen deficiency lead to metabolic syndrome in middle-aged rats? *Experimental Gerontology*, 98:38-46, 2017 (IF=3.34)
- 18.** Ahmad MS, Kimhofer T, Ahmad S, AlAma MN, Mosli HH, Hindawi SI, Mook-Kanamori DO, Šebeková K, Damanhoury ZA, Holmes E: Ethnicity and skin autofluorescence-based risk-engines for cardiovascular disease and diabetes mellitus. *PLoS One*, 12(9):e0185175, 2017 (IF=2.806)
- 19.** Podracká Ľ, Celec P, Šebeková K: Utilisation of salivary markers in nephrology. *Vnitřní Lékařství*, 62 (Supplementum 6):62-65, 2016
- 20.** Mydlík M, Derzsiová K, Koborová I, Šebeková K: Plasma and salivary markers of oxidative and carbonyl stress in patients with acute intermittent porphyria. *Vnitřní Lékařství*, 62 (Supplementum 6):25-29, 2016
- 21.** Domonkos E, Borbélyová V, Kolátorová L, Chlupáčová T, Ostatníková D, Hodosy J, Stárka L, Celec P: Sex differences in the effect of prenatal testosterone exposure on steroid hormone production in adult rats. *Physiological Research*, 66 (Supplementum 3):S367-S374, 2017 (IF=1.461)



GRANT PROJECTS

APVV GRANT

APVV-16-0273

DEOXYRIBONUCLEASE ACTIVITY IN PLASMA AND ITS IMPORTANCE IN CLEARANCE OF EXTRACELLULAR DNA

Peter Celec

2017-2021

KEGA GRANT

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PRACTICAL BIOMEDICAL RESEARCH COURSES FOR PHD STUDENTS

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THE ROLE OF NETOSIS IN THE PATHOGENESIS OF PREECLAMPSIA

Barbora Izrael Vlková

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Roman Gardlík

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VEGA 1/0062/16

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Katarína Šebeková

2016-2018

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Janka Bábíčková

2017

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THE ROLE OF TESTOSTERONE IN THE ETIOLOGY OF ANXIETY-DEPRESSIVE DISORDER

Veronika Borbélyová

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DETERMINATION OF EXTRACELLULAR DNA CONCENTRATION IN ACUTE LIVER FAILURE

Jozef Čonka

2017

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ANALYSIS OF OXIDATIVE STRESS MARKERS DYNAMICS IN SALIVA IN ANIMAL MODEL OF PERIODONTITIS

Katarína Janšáková

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THE EFFECT OF DEOXYRIBONUCLEASE ON THE EXTRACELLULAR DNA IN ANIMAL MODELS OF SEPSIS

Lucia Lauková

2007

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THE OPTIONS IN USING OF BACTERIA OBTAINED FROM THE HUMAN AND MICE SKIN IN THE TREATMENT OF SKIN DISEASES

Lenka Palková

2017



WHERE TO FIND US?

FACULTY OF MEDICINE COMENIUS UNIVERSITY

5th floor

**SASINKOVA 4
BRATISLAVA
811 08
SLOVAK REPUBLIC**



FACULTY OF MEDICINE COMENIUS UNIVERSITY PAVILION OF MEDICAL SCIENCES SLOVAK ACADEMY OF SCIENCES

6th floor

**DÚBRAVSKÁ CESTA 9
BRATISLAVA
845 05
SLOVAK REPUBLIC**



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Content: Peter Celec
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