

SCIENTIFIC PROGRAM



INTEGRATED HEALTH CONFERENCE



HOTEL VILA GAL, PORTO, PORTUGAL

CSRM-2024
Nov 25-26, 2024 | Portugal

Cell Science & Regenerative Medicine

WGDD-2024
Nov 25-26, 2024 | Portugal

Gastroenterology & Digestive Diseases

ISIDV-2024
Nov 25-26, 2024 | Portugal

Infectious Diseases & Vaccines

Psychology
Nov 25-26, 2024 | Portugal

Cognitive Neuroscience & Psychology

GCFN-2024
Nov 25-26, 2024 | Portugal

Food & Nutrition

INTEGRATED HEALTH CONFERENCE

MODERATOR : DR. GULSEN MERAL

REGISTRATIONS (08:00 - 08:30)

OPENING REMARKS (08:30 - 09:00)

09:00-09:30 **Translational Bioinformatics Resources and AI Solutions for Neurological and Neurodegenerative Diseases**
Trupti Joshi, University of Missouri, Columbia

09:30-10:00 **The Paradox of Modern Living**
Maysar Sarieddine, Founder & Director, The Innerspace, Lebanon

HEYNOTE FORUM (10:00 - 11:30)

10:00-10:30 **Membrane rafts organizing proteins?**
Aleksander F. Sikorski, Research and Development Centre, Regional Specialist Hospital in Wrocław, Poland

10:30-11:00 **Pancreatic adenocarcinoma**
Nebojsa Manojlovic, Military Medical Acedemy, Serbia

11:00-11:30 **Covid-19 And The Mineralocorticoid Receptor; Key To Understanding An Effective Therapy**
Christopher Edwards, Imperial College, United Kingdom

GROUP PHOTO & REFRESHMENT BREAK (11:30 - 11:50)

CHAIR: DR. HAREN A BENINGO

TECHNICAL SESSION-I

11:50-12:15 **Proinflammatory cytokines and their effect on murine small intestinal organoid secretion**
Jasmin Ballout, Justus Liebig University Giessen, Germany

12:15-12:40 **Role of long non-coding RNAs (lncRNAs) in HIV latency**
Ran Taube, Ben Gurion University, Israel

12:40-13:05 **Food Depiction in the Posts Created by Female Lithuanian Influencers in Facebook and Instagram**
Robertas Basijokas, Vilnius University, Lithuania

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LUNCH @ RESTAURANT (13:05 - 13:40)

POSTER VIEWING (13:40 - 14:00)

- Poster - 1** **Fabrication of anisotropic skeletal muscle using in situ magnetic fields supplemented bioprinting process**
Hanjun Hwangbo, Sungkyunkwan University, Republic of Korea
-
- Poster - 2** **A simple recipe on how to obtain multicellular tumor spheroids to explore breast cancer microenvironment**
Oliwia Piwócka, Greater Poland Cancer Centre, Poland
-
- Poster - 3** **Optimizing Matrix Stiffness for Enhanced Differentiation of Neural Progenitor Cells in Tissue Engineering**
GeunHyung Kim, Sungkyunkwan University, Republic of Korea
-
- Poster - 4** **DDX21 Modulates HIV Replication and Latency**
Praveen Kumar Murugavelu, Ben Gurion University, Israel
-
- Poster - 5** **The Role of Rab31 in the Regulation of HIV Gene Expression and Viral Latency**
Heli Glebko, Ben Gurion University, Israel
-
- Poster - 6** **Docosahexaenoic and eicosapentaenoic acid supplementation could attenuate negative effects of maternal metabolic syndrome on male and female offspring lipid metabolism**
Kristina Starčević, University of Zagreb, Croatia
-
- Poster - 7** **Heavy Metal Toxicity and Infant Foods**
Judith C. Anglin, University of Vermont, USA
-
- Poster - 8** **Blackcurrant juice polyphenols and the change in their content by lactic acid fermentation**
Kamila Borowiec, University of Life Sciences in Lublin, Poland
-
- Poster - 9** **Pharmacological modulation of monomeric C-reactive protein to control chronic inflammatory disease**
Mark Slevin, The George Emil Palade University of Medicine, Pharmacy, Science and Technology, Romania

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- Poster - 10** **Screening of adult ADHD among patients with obesity seeking bariatric surgery**
Anna Rajtar, Jagiellonian University, Poland
-
- Poster - 11** **The Influence of energy drinks on the mental health of young adults**
Natalia Kopiś-Posiej, Medical University of Lublin, Poland
-
- Poster - 12** **Effects of tenofovir alafenamide versus tenofovir disoproxil fumarate on serum lipid profiles in patients with chronic hepatitis B**
Chao Wu, Nanjing Drum Tower Hospital, China
-
- Poster - 13** **Fabrication of a PLLA/HA/dECM composite scaffold for encouraging osteogenesis of stem cells**
WonJin Kim, Sungkyunkwan University, Republic of South Korea

CHAIR: DR. RAN TAUBE

TECHNICAL SESSION-II

- 14:00-14:25** **The effect of Gamma Irradiation on nucleolar activity, the presence of chromosomal abnormalities and the efficiency of energy conversion as indicators for mutation breeding in *Triticum turgidum* ssp. *durum* L. cultivar Orania**
Eben Von Well, Agricultural Research Council - Small Grain, South Africa
-
- 14:25-14:50** **Signalling transduction through RIPK2, a drug target for IBDs**
Erika Pellegrini, Institute of Structural Biology (IBS), France
-
- 14:50-15:15** **BDNF-induced synaptic plasticity: the role of mitochondrial fission**
Filipe Duarte, CNC - Center for Neuroscience and Cell Biology, University of Coimbra, Portugal
-
- 15:15-15:40** **Membrane Anatomy of D2/3+CME for GI Cancer**
Jianping Gong, Tongji Hospital of Tongji Medical College, China

REFRESHMENT BREAK (15:40-16:00)

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- 16:00-16:25** **Aldose Reductase Inhibitor AT-007 Prevents Mitochondrial Dysfunction And Neurodegeneration In Sorbitol Dehydrogenase Deficiency-Induced Neuropathy**
Amanda Lobato, University of Chicago, USA
-
- 16:25-16:50** **Squalenoyl siRNA PMP22 nanoparticles are effective in treating mouse models of Charcot-Marie-Tooth disease type 1A**
Liliane Massade, INSERM, France
-
- 16:50-17:15** **Bilateral vocal fold paresis and glottal bridge synechia in COVID-19**
Antonia Elisabeth Tardue-Breiter, Medical University of Graz , Austria
-
- 17:15-17:40** **Drug-drug synthetic lethality to combat liver cancer: From bench to bedside**
Haojie Jin, Shanghai Cancer Institute, China
-
- 17:40-18:05** **Delay in loop ileostomy reversal surgery does not impact upon post-operative clinical outcomes. Complications are associated with an increased loss of microflora in the defunctioned intestine**
Rachel Rigby, Lancaster University, United Kingdom
-
- 18:05-18:30** **The Role of Nutrigenetics and Epigenetics in Longevity: Can We Turn Back Our Epigenetic Clock?**
Gülşen Meral, Epigenetic Coaching Company , United Kingdom

PANEL DISCUSSIONS

END OF DAY 1

INTEGRATED HEALTH CONFERENCE

KEYNOTE FORUM (09:00 - 10:30)

09:00-09:30 **Therapeutic GST enzymes targeting cancer via epitope-binding fusion proteins**
Bengt Mannervik, Stockholm University, Sweden

09:30-10:00 **Difficult duodenal dilemmas, endoscopy has stolen the show but there is still a role for old fashioned surgery – focus on pancreas sparing duodenectomy**
Daniel Joyce, Cleveland Clinic, USA

10:00-10:30 **Strategies for monitoring patients with Barrett's esophagus**
Thomas Rabenstein, Diakonissen-Stiftungs-Krankenhaus Speyer, Germany

GROUP PHOTO - REFRESHMENT BREAK (10:30-10:50)

CHAIR: DR. ELLA HIM

TECHNICAL SESSION-III

10:50-11:15 **Stem Cells for the Management of Osteoarthritis: Hype or Hope?**
Kent Kwoh, University of Arizona, USA

11:15-11:40 **Viral Shedding Of Andv During Acute Phase Of Hantavirus Infection**
Constanza Martinez, Pontificia Universidad Catolica de Chile, Chile

11:40-12:05 **RIOK2 transcriptionally regulates telomerase activity to prevent telomere shortening**
Shrestha Ghosh, Dana Farber Cancer Institute, USA

12:05-12:30 **Severe intracranial infections in children : the emergence of Otosinogenic Empyema**
Marco Antonio Stefani Ferreira, Hôpital Necker - Enfants Malades, France

12:30-12:55 **Real life data important to make appropriate choices at the end of life in patients with pancreatic cancer**
Brigitte Haberkorn, Maasstad Hospital, The Netherlands

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LUNCH @ RESTAURANT (12:55- 13:40)

CHAIR: PROF. THOMAS RABENSTEIN

TECHNICAL SESSION-IV

Microbial Transglutaminase: A New Potential Player in Gluten Related Disorders

13:40-14:05

Patricia Wusterhausen, AESKU, Germany

Genetically Engineered CLDN18.2 CAR-T Cells Expressing Synthetic PD1/CD28 Fusion Receptors and Signaling Mechanism Regulation Factor Produced Using a Lentiviral Vector

14:05-14:30

Heonju Lee, CARBio Therapeutics, South Korea

Pleiotropic impacts of chloroquine encompass concurrent activation of pro-survival and pro-death signaling in glioblastoma stem cells: Implications for chloroquine-mediated radiosensitization

14:30-14:55

Ella Kim, University Medical Center Mainz, Germany

Persistence of Anti-Rabies Antibody Response in Horses Following Vaccination

14:55-15:20

Marina Eyngor, Kimron Veterinary institute (KVI), Israel

The combined hepatocellular carcinoma–intrahepatic cholangiocarcinoma (cHCC–CCA) – a rare primary liver cancer

15:20-15:45

Monica Acalovschi, Iuliu Hatieganu University of Medicine and Pharmacy, Romania

Adenosine receptors harmonize the degree of inflammation and the consequent tissue repair with the degree of injury

15:45-16:10

Zsuzsa Szondy, University of Debrecen, Hungary

REFRESHMENT BREAK (16:10-16:25)

Basigin Binds to Calpain 4 for the Production of Traction Forces

16:25-16:50

Karen A Beningo, Wayne State University, USA

Endoscopic Findings in Patients Who Underwent Bariatric Surgery

16:50-17:15

Isabela Cristina Coelho da Cunha e Castro, University of Itajaí Valley, Brazil

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17:15-17:40 **Complexity of damage-associated molecular pattern molecules (DAMPs) expression profile in porcine brain affected by ischemic stroke**

Izabela Malysz-Cymborska, University of Warmia and Mazury, Poland

17:40-18:05 **Advancing In Vitro Natural Rubber Synthesis via Cell-Free Systems**

Abdul Wakeel Umar, Beijing Normal University, China

18:05-18:30 **Successful expansion of MDR-TB Clones in Northern Tunisia**

Naira DEKHIL, Institute Pasteur de Tunis, Tunisia

18:30-18:55 **Seroprevalence of viral transfusion transmissible infections (HBsAg, anti-HCV, anti-HIV, Syphilis) and coinfection among healthy volunteer blood donors during 5-years in Luanda, Angola**

Angelina Edna Quintas, University of Porto, Portugal

END OF DAY 2

November 26
Virtual Presentations
Central European
Time

INTEGRATED HEALTH
CONFERENCECET
08:50 - 16:00

- 08:50-09:15** **Molecular characterization and clinical relevance of Metabolic Signature Subtypes in Gastric cancer**
Wei Chong, Shandong Provincial Hospital, China
-
- 09:15-09:40** **Comparison of Open and Laparoscopic assisted Pancreaticoduodenectomy for periampullary carcinoma – A Propensity score-matched analysis**
Rohith Kodali, All India Institute of Medical Sciences, India
-
- 09:40-10:05** **Targeted Modulation of TNF- α and Adiponectin via Ginger and Sea Buckthorn Microemulsion: A Novel Approach for Nonalcoholic Fatty Liver Disease**
Nilay Solanki, Ramanbhai Patel College of Pharmacy, India
-
- 10:05-10:35** **Keynote Presentation: Effective albumin – A novel paradigm in the management of decompensated liver cirrhosis**
Mauro Bernardi, University of Bologna, Italy
-
- 10:35-11:00** **Combining in-vitro and in-silico digestion modelling to improve the predictive power for in-vivo behavior**
George Alexander van Aken , Insight Food inside, The Netherlands
-
- 11:00-11:25** **The impact of HIV and chronic immunosuppression on treatment response, toxicity and survival of patients with locally advanced anal canal cancer: a 16-year single-institutional analysis**
Catarina Moreira van der Elzen , Liga Portuguesa Contra o Cancro, Portugal
-
- 11:25-11:50** **Comparative Analysis of COVID-19 Outcomes in Type 1 and Type 2 Diabetes: A Three Year Retrospective Study**
Cioca Flavius, "Victor Babes" University of Medicine and Pharmacy Timisoara, Romania
-
- 11:50-12:15** **Application of Manuka honey in treatment patients with GERD**
Michał Gośliński, Nicolaus Copernicus University in Toruń, Poland
-
- 12:15-12:40** **Mathematical modeling of booster vaccine efficacy for SARS-CoV-2 in healthy, cancer, and immunosuppressed patients**
Chrysovalantis Vouturi, University of Cyprus, Cyprus

**INTEGRATED HEALTH
CONFERENCE**CET
08:50 - 16:00

- Keynote Presentation: Use of indocyanine green fluorescence imaging in the extrahepatic biliary tract surgery**
12:40-13:10
Orestis Ioannidis, Aristotle University of Thessaloniki, Greece
-
- Intestinal CX3CR1+ Macrophage Dysregulation Drives Immune Activation and Viral Persistence in Chronic SIV Infection: Implications for HIV-1 Cure Strategies**
13:10-13:35
Mariangela Cavarelli, Université Paris-Saclay, France
-
- Mycophenolate-induced Colitis: A Case Report with Focused Review of Literature**
13:35-14:00
Rehan M. Farooqi, MedStar Montgomery Medical Center, USA
-
- HNF1B as a Tumor Suppressor Gene: implication of HNF1B Inactivation in Pancreatic Cystic Duct Formation and Predisposition to Intraductal Papillary Mucinous Neoplasms (IPMN)**
14:00-14:25
Cecile Haumaitre, INSERM, France
-
- MG53 suppresses tumor growth via transcriptional inhibition of KIF11 in pancreatic cancer**
14:25-14:50
Chuanxi Cai, University of Virginia, USA
-
- VEGFA mRNA-LNP promotes biliary epithelial cell-to-hepatocyte conversion in acute and chronic liver diseases and reverses steatosis and fibrosis**
14:50-15:15
Valerie Gouon-Evans, Boston University Boston Medical Center, USA
-
- Accurate Recapitulation of Chikungunya Virus Complete Coding Sequence Phylogeny Using Variable Genome Regions for Genomic Surveillance**
15:15-15:40
Mario H. Rodriguez, National Institute of Public Health, Mexico
-
- Food-Specific Antibodies Reflect Inflammation and Antigen Removal in Eosinophilic Esophagitis**
15:15-15:40
Ashley Pyne, University of Utah, USA
-
- In Silico and In Vivo Investigations of SIRTUIN4: Implications for Tumor Suppression and Chemotherapy Resistance in Colorectal Cancer**
15:40-16:05
Allal Badredine, University of Sciences And Technology Houari Boumediene, Algeria

END

INTERNATIONAL SYMPOSIUM ON COGNITIVE NEUROSCIENCE AND PSYCHOLOGY



Dr. Trupti Joshi

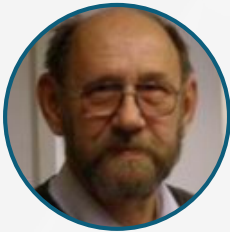
Department of Biomedical Informatics,
Biostatistics and Medical Epidemiology (BBME)

Translational Bioinformatics Resources and AI Solutions for Neurological and Neurodegenerative Diseases

Abstract: Next generation sequencing (NGS) and multiomics data (genomics, epigenomics, transcriptomics (bulk and single-cell), proteomics, metabolomics, miRNA, microbiome, phenomics etc.) have become an integral part of research in all domains including biomedical sciences, plants sciences, animal sciences, genomic epidemiology, and others. With the advances in high throughput technologies, several large research consortiums, and labs world-wide are generating a plethora of multiomics data every single day. This rapid revolution in the multiomics technologies has posed both challenges as well as opportunities, for developing advanced informatics solutions that can incorporate emerging technologies such as cloud computing, deep learning, artificial intelligence etc. and making them more readily available, interpretable and explainable to users from diverse communities. Our research groups focus is to make cross-cutting informatics frameworks and solutions more efficient and accessible, such that they can be incorporated into everyday practice for various applications such as Precision Medicine, Precision Agriculture, and Genomic Epidemiology amongst others.

To address such needs, we have developed Soybean Knowledge Base (SoyKB) and Knowledge Base Commons (KBCommons) frameworks, both fully equipped to handle the entire multiomics landscape from genome to phenome and connected seamlessly and powered by Cyverse data store and XSEDE HPC resources. We have also developed and applied multiomics data integration techniques for biomarker identification and prioritization, including development of tools such as IMPRes for in silico hypothesis generation and pathway inference. Our in-house developed deep learning method for phenotype predictions has been further expanded to G2PDeep-v2, to now support any combinations of multiomics. All these tools and methods are directly applicable for any neurological and neurodegenerative diseases.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Aleksander F. Sikorski¹, Magdalena Trybus¹ and Anita Hryniewicz-Jankowska²

¹Research and Development Centre, Regional Specialist Hospital, Wrocław; ²University of Wrocław, Department of Cytochemistry, Faculty of Biotechnology, 50-363 Wrocław, Joliot-Curie 14a, Poland

Membrane rafts organizing proteins?

Abstract: Membrane rafts play a crucial role in many important cellular functions. Our research on erythroid cells led us to hypothesize that specific interactions of flotillins with MPP1 are responsible for membrane raft domain organization and regulation. Recently, we asked whether the flotillin-based protein interaction network with specific membrane proteins underlies the mechanism of raft-domain formation and regulation in cells with low expression of MPP1.

We sought to identify other flotillin partners via the immobilized recombinant flotillin-2-based affinity approach coupled with mass spectrometry, further confirmed via immunoblotting and co-immunoprecipitation. Moreover, this newly discovered interaction was demonstrated via overlay assay using recombinant EFR3A and flotillin-2. EFR3A is a stable component of the detergent-resistant membrane fraction of HeLa cells, and its presence was sensitive to cholesterol depletion. While silencing the EFR3A gene expression, we observed decreased order of the plasma membrane of living cells or giant plasma membrane vesicles derived from knocked down cells and altered mobility of the raft probe, as indicated via FLIM and spot-variation FCS. Moreover, silencing of EFR3A expression was found to disturb epidermal growth factor receptor and phospholipase C gamma phosphorylation and affect epidermal growth factor-dependent cytosolic Ca²⁺ concentration.

Our data indicate that at least two palmitoylated proteins, MPP1 or EFR3A are engaged in the raft domain organization. This implies the participation of this interaction in regulating multiple cellular processes, including those connected with cell signaling, which points to the possible role in human health, particularly human cancer biology.

This research was supported by the National Science Centre, Poland, projects No. 2020/37/B/NZ1/01106 to AFS. The authors are grateful to our team members for their continuous efforts on rafts research.

Keywords: raft domain organization and regulation, flotillins, flotillin-2; EFR3A, membrane order, FLIM, svFCS, EGFR

Biography: Aleksander F. Sikorski is a retired professor in biochemistry and cell biology of the University of Wrocław, now working at the Research and Development Centre, Regional Specialist Hospital in Wrocław. His major scientific interest is membrane biochemistry, in particular, lateral organization of biological membranes and liposomes as drug carriers. He has been an author and co-author of more than 130 scientific papers and supervised 28 Ph. D. graduates. He is one of founding editors and since 2016 Editor-in-Chief of the international journal "Cellular and Molecular Biology Letters" (Established in 1996, i.f. 9.2) which is now published in BMC/Springer Nature.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Nebojsa Manojlovic

Military Medical Academy, Serbia

Pancreatic Adenocarcinoma

Abstract: Pancreatic ductal adenocarcinoma (PDAC), which is notorious for its aggressiveness and poor prognosis, remains an area of great unmet medical need, with a 5-year survival rate of 10%—the lowest of all solid tumours. At diagnosis, only 20% of patients have resectable (RPC) or borderline resectable disease (BRPC), while 80% of patients have unresectable tumours that are locally advanced (LAPC) or have distant metastases. Nearly 60% of patients who undergo upfront surgery for RPC are unable to receive adequate adjuvant chemotherapy because of postoperative complications and early cancer recurrence. An important paradigm shift to achieve better outcomes has been the sequence of therapy, with neoadjuvant chemotherapy preceding surgery. Three surgical stages have emerged for the preoperative assessment of nonmetastatic pancreatic cancers: RPC, BRPC and LAPC. The main goal of neoadjuvant treatment (NAT) is to improve postoperative outcomes through enhanced selection of candidates for curative-intent surgery by identifying patients with aggressive or metastatic disease during initial chemotherapy, reducing tumour volume before surgery to improve the rate of margin-negative resection (RO resection, a microscopic margin-negative resection), reducing the rate of positive lymph node occurrence at surgery, providing early treatment of occult micrometastatic disease, and assessing tumour chemosensitivity and tolerance to treatment as potential surgical criteria. Future research is needed to establish predictive biomarkers, measures of therapeutic response, and multidisciplinary strategies to improve patient-centred outcomes.

Biography: Professor Nebojsa Manojlovic has been Head of Department of Gastroenterology and Department for Digestive Oncology in Clinic for Gastroenterology and Hepatology of Military Medical Academy in Belgrade.

After receiving his medical degree from the Medical Faculty of Belgrade University, he started with a specialization in internal medicine and postgraduate study of digestive systems in the university hospital Bežanijska Kosa in Belgrade. During a residency in internal medicine, he moved to the Institute for Oncology and Radiology of Serbia (National Cancer Research Center) and the University Clinical Center of Serbia when he finished specialization in internal medicine, got a master's degree in digestive system, finished specialization in gastroenterology and hepatology, and specialized in oncology and became a research consultant in oncology.

After that, he moved to the Clinic for Gastroenterology and Hepatology of the Military Medical Academy, where he became Head of Department for Digestive Oncology in the Military Medical Academy, where he finished his doctoral thesis and became Assistant Professor of Internal Medicine; after that, Associate Professor and Professor of Gastroenterology and Hepatology, and Digestive Oncology. He received grants from the European Society for Gastrointestinal Endoscopy and the European Society for Medical Oncology. He is serving as a reviewer of more medical journals, including the World Journal of Gastroenterology, the World Journal of Gastrointestinal Oncology, the World Journal of Gastrointestinal Endoscopy, the World Journal of Case Reports, Cancers, Gut Pathogens, and the Journal of Personalized Medicine, and a member of the editorial boards of some of them.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Christopher Edwards

Imperial College, London, UK

Covid-19 And the Mineralocorticoid Receptor; Key to Understanding an Effective Therapy

Abstract: Covid-19 has killed millions of people around the world. Vaccines have made a major impact but new virus variants continue to emerge and many people are either not vaccinated or under-vaccinated. It thus remains a major health problem. Our research has focused on understanding the pathogenesis of COVID and using this to introduce a highly effective treatment. COVID-19 binds to the ACE receptor and uses this to enter the cell. The loss of this receptor results in a failure of conversion of angiotensin-II (A-II) to angiotensin (1-7). High levels of A-II stimulate NADPH-oxidase with consequent elevated Reactive Oxygen Species (ROS) levels. The Mineralocorticoid Receptor (MR) is normally specific for aldosterone and is protected from cortisol by 11 β -HSD2 which converts cortisol to cortisone. This inactivation is lost with high ROS levels which results in cortisol activating the MR. In epithelial cells such as in the kidney activation of the MR stimulates ATP exocytosis, activation of purinergic receptors, calcium entry, contraction of the cell and opening of the sodium channel. In endothelial cells it results in exocytosis of Weibel Palade bodies containing the Von Willebrand Factor (VWF) (comes out like a spider's web, attracts platelets and hence clotting) and angiotensin II which massively increases capillary leak. Severe COVID is associated with high levels of VWF and angiotensin II. MR blockade inhibits their release. We have used a combination of spironolactone to block MR and dexamethasone to inhibit cortisol to treat COVID (SpiroDex). In two major trials of inpatients admitted with COVID we have shown that Spirodex is significantly better than dexamethasone alone. The discovery that 59% hospital patients with COVID had undetectable levels of aldosterone confirms the hypothesis.

Biography: Professor Christopher Edwards is an endocrinologist with a special interest in corticosteroids. He served as a Professor of Clinical Medicine at Edinburgh University from 1980 to 1995, where he was also Dean of Medicine from 1991 to 1995. In 1995, he became the Principal of Imperial College School of Medicine, holding this role until 2000. Following that, he was appointed Vice-Chancellor of Newcastle University, a position he held from 2000 to 2007. Professor Edwards then chaired Chelsea and Westminster Hospital from 2008 to 2014 and also chaired Medical Education England from 2008 to 2012. Additionally, he served as Chairman of the Council of the British Heart Foundation from 2010 to 2015. He has contributed significantly to clinical research, holding the position of Senior Clinical Research Fellow at Imperial College. With over 500 publications, he has made substantial contributions to medical science and healthcare leadership.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Jasmin Ballout, Svenja Pauer, Martin Diener

Institute for Veterinary Physiology and Biochemistry,
Justus Liebig University Giessen, Giessen, Germany

Proinflammatory cytokines and their effect on murine small intestinal organoid secretion

Abstract: Intestinal organoids are stem cell derived, 3D cell cultures reflecting the morphology and function of the native intestinal epithelium, e.g. transport processes or maintenance of the epithelial barrier. During intestinal inflammation, these functions can be disturbed by proinflammatory cytokines like tumor necrosis factor α (TNF α) leading to a leaky barrier and higher net secretion of electrolytes (mainly Cl⁻) and water into the gut lumen. To elucidate the still incompletely understood effects of proinflammatory cytokines on the intestinal epithelium, murine small intestinal organoids were incubated with TNF α or a cytokine mix over several days.

Both, TNF α and the cytokine mix, induced a swelling of the organoids characterized by a rounded shape and flattened epithelium due to an influx of fluid into the lumen. This could be rather explained by changes in the Ca²⁺-dependent Cl⁻ secretion than by an impaired epithelial barrier. Inhibition of the Na⁺-K⁺-2Cl⁻ symporter 1 (NKCC1) by bumetanide reduced the cytokine-induced organoid swelling. Changes in cytosolic Ca²⁺ lead to the assumption that TNF α modulates the Ca²⁺ entry from the extracellular side and not the release from intracellular Ca²⁺ stores, when organoids were stimulated with the Ca²⁺-dependent secretagogue, carbachol. In contrast, the cytokine mix seems to affect both Ca²⁺ entry as well as release from intracellular Ca²⁺ stores confirmed by an increased Ca²⁺ signaling and upregulation of different transporters and mediators involved in this pathway.

Taken together, this study shows that proinflammatory cytokines have direct effects on the intestinal epithelium by increasing the Ca²⁺-dependent Cl⁻ secretion.

Keywords: Intestinal organoids, cytokines, Ca²⁺ signaling, secretion, epithelium

Biography: Dr. Jasmin Ballout studied veterinary medicine at the Justus Liebig University in Giessen, Germany. In 2019 she finished her doctoral thesis about neuro-immune interactions in the gastrointestinal tract in the context of inflammatory bowel diseases (IBD) at the institute for veterinary physiology and biochemistry, JLU Giessen. Currently, she is working as Postdoc in the group of Professor Martin Diener focusing on intestinal organoids as inflammatory model or purinergic and short-chain fatty acid signaling in the intestine.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Ran Taube; Kuzmina Alona

Ben-Gurion University of the Negev; The Shraga Segal
Microbiology Immunology and Genetics, Beer Sheva,
Israel

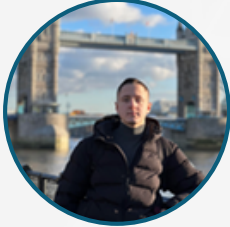
Role of long non-coding RNAs (lncRNAs) in HIV latency

Abstract: Therapeutic reversal of HIV latency and elimination of the latent reservoir is the final frontier towards a complete cure of HIV infection. However, current therapeutic strategies fail in settings, and the inability to design effective therapeutic options that control HIV gene expression reflects gaps in our understanding of how HIV transcription and viral latency are regulated. While the mechanisms by which host proteins govern HIV gene expression and viral latency have been extensively investigated and are relatively well-understood, there remains a significant gap of knowledge regarding the emerging role of the non-coding transcriptome, specifically long non-coding RNAs (lncRNA) in understanding the steps that establish viral latency.

We present preliminary results that suggest that the lncRNA CYTOR is a novel activator of HIV gene expression that is recruited to the HIV promoter and activates HIV gene expression. CYTOR also suppresses viral latency establishment, and facilitates latency reversal. These functions stem from the direct association of CYTOR with the cellular transcription elongation machinery that mediates RNA-polymerase pause-release and transcription elongation and modification of the chromatin landscape around the viral promoter. Indirectly, CYTOR regulates down-stream gene targets to promote T cell activation and actine remodeling. Overall, our study provides new insights on the regulation of HIV transcription and the role of lncRNAs in the control of viral latency, as we obtain a comprehensive understanding of the role of CYTOR in HIV gene expression and latency establishment.

Keywords: HIV; non-coding RNA; latency; RNA Polymerase II; transcription control

GLOBAL CONGRESS ON FOOD AND NUTRITION



Robertas Basijokas, Donatas Austys

Department of Public Health, Institute of Health Sciences,
Faculty of Medicine, Vilnius University, Vilnius,
Lithuania

Food Depiction in the Posts Created by Female Lithuanian Influencers in Facebook and Instagram

Abstract:

Background. Considering health differences between females and the general population, and that content published in social networks might act as a risk factor to health, we aimed to assess the prevalence of posts depicting food published by Lithuanian female influencers on Facebook and Instagram.

Material and methods. All publicly available posts (3745 in total) created by 10 most popular female Lithuanian influencers on Facebook and Instagram in 2022 were included to this study. The content analysis of the posts was performed and information about depicted food was registered. Distribution of the posts depicting food was assessed according to social networks.

Results. Every third (32.0%) post presented foods. Fast food was presented in 7.9%, sweets – in 41.6%, vegetables - in 65.7%, fruits and berries – in 45.4%, cereals – in 42.9%, dairy products – in 40.8%, meat – in 26.9%, sea food – in 13.7% of these posts. More posts portraying food in general and fast food were posted on Instagram (respectively, 33.1% vs 31.0%, 9.9% vs 6.3%) ($p \leq 0.05$). More posts portraying vegetables, sweets, fruits and berries, cereals, dairy products, meat, sea food were posted on Facebook (respectively, 68.3% vs 62.5%, 45.4% vs 37.1%, 48.5% vs 41.9%, 45.5% vs 39.7%, 43.2% vs 37.8%, 29.7% vs 23.6%, 16.0% vs 11.0%) ($p \leq 0.05$).

Conclusions. Every third Lithuanian female influencer post depict food, more frequently on Instagram. Healthy food is more frequently depicted on Facebook. Healthy and unhealthy foods are presented with similar frequency.

Keywords: Influencers; female; social networks; nutrition; content analysis.

Biography: 23 years old Public Health Specialist who is currently studying for a master's degree at Vilnius University, Faculty of Medicine, Vilnius, Lithuania

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



**Hanjun Hwangbo¹, WonJin Kim¹, Dogeon Yoon²,
Hyeongjin Lee³ and GeunHyung Kim^{1*}**

¹Department of Precision Medicine, Sungkyunkwan University School of Medicine (SKKU-SOM), Suwon, 16419, Republic of Korea

²Burn Institute, Hangang Sacred Heart Hospital, College of Medicine, Hallym University, Seoul, Republic of Korea

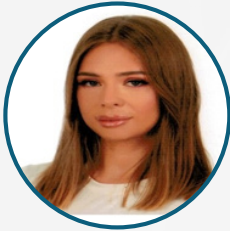
³Department of Biotechnology and Bioinformatics, Korea University, Sejong 30019, Republic of Korea

Fabrication of anisotropic skeletal muscle using in situ magnetic fields supplemented bioprinting process

Abstract: Skeletal muscle consists of uniaxially aligned myofibers, which can provide unparalleled functionalities, such as mechanical support and contractility. In cases of a critical injured tissues which are irreversible, implantation of an artificial bioconstructs that mimicks the native specified architecture have shown promising results. Previously, various strategies including cell electrospinning, in situ E-field stimulation, and 4D fabrication techniques have been utilized to obtain alignment of cells and provide appropriate topographical cues. Here, we have formulated a novel bioink consisting of GelMA, C2C12 myoblast, and magnetic particles (Fe₂O₃) to induce alignment of the magnetic particles and provide a topographical cue. To induce the alignment of magnetic particles, an in situ magnetic field parallel to the nozzle was provided. Additionally, UV light was irradiated directed onto the glass nozzle simultaneously during extrusion in order to crosslink the GelMA component. As a result, cellular alignment using DAPI/Phalloidin images indicated a significant alignment of cells that were exposed to in situ M-field compared to conventional group. Similarly, the myogenic activities of the cells evaluated using DAPI/myosin heavy chain (MHC) immunofluorescent staining and RT-PCR indicate that that in situ M-field have significantly upregulated the myogenic activities. To further elucidate the in vitro findings, the bioconstructs were implanted into a volumetric muscle loss (VML) defect in mice. The results indicated that muscle regeneration and functional recovery in mice that received the bioconstruct obtained using in situ M-field were significantly higher than in those that received the control bioconstruct. Based on these promising results, we cautiously estimate that the situ M-field assisted bioprinting system can be applied in the fabrication of therapeutics for VML defects.

Keywords: Tissue engineering, stimulus-assisted bioprinting, Magnetic field, Skeletal muscle regeneration

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



**Oliwia Piwocka^{1, 2, 3}, Karolina Sterzyńska⁴,
Agnieszka Malińska⁴, Wiktoria M. Suchorska^{1, 3},
Katarzyna Kulcenty³**

¹Department of Electroradiology, Poznan University of Medical Sciences, 61-866 Poznan, Poland

²Doctoral School, Poznan University of Medical Sciences, 60-812 Poznan, Poland

³Radiobiology Laboratory, Department of Medical Physics, Greater Poland Cancer Centre, 61-866 Poznan, Poland

⁴Department of Histology and Embryology, Poznan University of Medical Sciences, 61-781 Poznan, Poland

A simple recipe on how to obtain multicellular tumor spheroids to explore breast cancer microenvironment

Abstract: Breast cancer research has seen significant advances with the development of three-dimensional (3D) cell culture models that better mimic the tumor microenvironment compared to traditional two-dimensional (2D) cultures. Our study utilized various breast cancer cell lines (T47D, BT474, SKBR3, MM231), co-cultured with cancer-associated fibroblasts (CAFs), endothelial cells (ECs), and macrophages to create multicellular tumor spheroids (MCTSs), presenting for the first time successful tetra-culture of 3D breast cancer. These spheroids provide a more realistic model for investigating tumor dynamics, invasion, and drug resistance.

Protocol ensures the generation of uniform MCTSs across different cell lines, preserving oxygen and nutrient gradient. Immunofluorescence and immunohistochemistry analyses revealed distinct patterns of cellular distribution within spheroids. The live/dead assay indicated high viability in all types of MCTSs for 7-14 days. The invasion assay demonstrated significant invasive potential in BT474 and MM231 spheroids, consistent with their clinical aggressiveness. Furthermore, MCTSs exhibited higher resistance to cisplatin than 2D cultures, underscoring the importance of incorporating 3D models in preclinical studies.

This method offers a simplified yet effective approach to MCTS generation, providing a valuable platform for studying breast cancer biology and testing therapeutic responses. The findings highlight the critical role of the tumor microenvironment in cancer progression, making our study a significant contribution to cancer research.

Keywords: tumor-microenvironment, multicellular spheroids, cross-talk, breast cancer, 3D culture, co-culture

Biography: Oliwia Piwocka is a PhD student at Poznan University of Medical Sciences. Despite her age, she is a successful student, highly regarded by her supervisors, and actively involved in academic life. She has published 10 papers with a combined impact factor of 56 and has participated in research internships in Europe and the United States. Oliwia Piwocka is interested in intracellular cross-talk, its research in 3D cell cultures, and the impact of radiotherapy on those interactions.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



**GeunHyung Kim^{1*}, Hanjun Hwangbo¹, WonJin Kim¹,
Dogeon Yoon², and Hyeongjin Lee³**

¹Department of Precision Medicine, Sungkyunkwan University School of Medicine (SKKU-SOM), Suwon, 16419, Republic of Korea

²Burn Institute, Hangang Sacred Heart Hospital, College of Medicine, Hallym University, Seoul, Republic of Korea

³Department of Biotechnology and Bioinformatics, Korea University, Sejong 30019, Republic of Korea

Optimizing Matrix Stiffness for Enhanced Differentiation of Neural Progenitor Cells in Tissue Engineering

Abstract: Matrix stiffness plays a crucial role in the differentiation of neural progenitor cells (NPCs), significantly impacting their morphology, function, and development. Matrix stiffness refers to the rigidity of the extracellular matrix (ECM) that surrounds cells, providing structural support and biochemical and biomechanical cues. Through mechanotransduction, cells convert mechanical signals from the ECM into biochemical signals, affecting gene expression and cellular function. For NPCs, which can differentiate into various neural lineages, ECM stiffness can direct their fate. Softer matrices, resembling the natural stiffness of brain tissue, promote neuronal differentiation, leading to neurons with extended neurites and functional properties like synapse formation and electrical activity. Understanding matrix stiffness's impact on NPC differentiation is crucial for neural tissue engineering and regenerative medicine. Designing scaffolds with appropriate stiffness can enhance neuronal differentiation and integration, offering potential treatments for neurodegenerative diseases and spinal cord injuries. To investigate this, we synthesized GelMA with varying methacrylation degrees and loaded NPCs onto these hydrogels. We also evaluated the matrix stiffness by exposing GelMA hydrogel to various dosages of UV light. Two models were designed: (i) a cell-free (low stiffness) and cell-laden (high stiffness) reciprocating layer, and (ii) a construct with increasing stiffness throughout. These models were used to study the role of matrix stiffness on NPC cellular responses. In conclusion, our findings underscore the critical importance of optimizing matrix stiffness for effective neuronal tissue engineering applications.

Keywords: Tissue engineering, stimulus-assisted bioprinting, Magnetic field, Skeletal muscle regeneration

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Praveen Kumar Murugavelu and Ran Taube

Department of Microbiology, Immunology and Genetics,
Faculty of Health Sciences, Ben Gurion University, Beer
Sheva, Israel

DDX21 Modulates HIV Replication and Latency

Abstract: HIV persistence and latency are major obstacles for curing viral infection. The virus stays dormant in infected cell reservoirs that are established early during infection despite antiretroviral therapy (ART). Understanding the molecular mechanisms that promote HIV latency and targeting the host factors that regulate HIV gene expression is crucial for developing new strategies for eradicating these hidden reservoirs. In a screen to identify host factors that regulate HIV gene expression, we identified DDX21 (DEAD-box helicase), as a potential factor involved in establishing HIV latency. DDX21 is part of a large family of evolutionarily conserved RNA helicases, responsible for transcription regulation, RNA processing, antiviral innate defense, RNA binding and folding. Previous results report show that DDX regulates HIV replication by facilitating the binding of the viral Rev protein to Rev Response Element (RRE) and by interacting with Rev in the nucleolus and nucleus. However, DDX21's role in HIV transcription and latency is poorly understood. Previous studies have shown that DDX21 knockout negatively regulates IFN- β production. Moreover, CPSF6 interacts directly with HIV capsid to promote nuclear entry of the pre-integration complex and its targeting for integration. In our study, we hypothesize that DDX21 could be crucial for maintaining viral integration via CPSF6 interaction and depletion of DDX21 could facilitate HIV replication by reducing the production of IFN- β . We utilized CRISPR-Cas9 to knock-out DDX21 in Jurkat T cells resulting in increased HIV replication. These findings suggest that DDX21 plays a complex role in regulating HIV latency and highlights its potential as a therapeutic target for eradicating latent HIV reservoirs.

Keywords: HIV latency, DDX21, Dead-box helicase, CPSF6 and HIV transcription.

Biography: Praveenkumar Murugavelu is a dedicated researcher currently pursuing his PhD at Department of Microbiology, Immunology and Genetics, Ben Gurion University, Israel. Born in India, Praveenkumar's academic journey and passion for virology research have taken him far from his homeland, leading to significant contributions in his field of study. His current research focuses on HIV transcriptional regulation and latency, aiming to uncover mechanisms that could lead to better therapeutic strategies for HIV. He has already made notable contributions to the field of virology, with two first-author and two co-author publications in reputed journals.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Heli Glebko and Ran Taube

The Shraga Segal Department of Microbiology,
Immunology and Genetics, Faculty of Health Sciences,
Ben Gurion University, Beer Sheva, Israel

The Role of Rab31 in the Regulation of HIV Gene Expression and Viral Latency

Abstract: Modern antiretroviral therapy (ART) effectively suppresses HIV infection, but fails to completely eradicate the virus due to the persistence of a latent reservoir, mainly in resting CD4⁺ T cells. Lifelong ART is required but unsustainable due to side effects and the risk of drug resistance. To effectively manage HIV infection and eliminate the latent reservoir, it is crucial to understand where and how the virus persists in the body during therapy and to uncover the molecular mechanisms that control viral latency.

Rab GTPases are a large family of small GTPases that switch between active and inactive states based on whether they are bound to GTP or GDP. These proteins regulate the trafficking of cellular cargo between membranous organelles and act as master regulators of intracellular membrane trafficking, determining the specificity and directionality of vesicular transport. Rab31 is a member of the Rab GTPases and acts as a key regulator in the biogenesis of exosomes, particularly through an ESCRT-independent mechanism. In its active state, Rab31 interacts with effector proteins to regulate the formation and secretion of exosomes. Rab proteins are involved in the late stages of the viral life cycle, such as the assembly and release of viral particles. Specifically, it was reported that Rab5 and Rab7 play a role in influenza viral entry, while Rab11 is essential for the assembly of HSV-1 or HCMV. Moreover, Rab11 and its adaptor proteins (Rab11-FIPs) also play a crucial role in the trafficking of the HIV-1 envelope glycoprotein. Here in, we report that Rab31 plays a role in the regulation of HIV gene expression and viral latency. CRISPR-knockout of Rab31 expression in HIV-infected T cells results in increased levels of latent cells, suggesting that Rab31 is an important regulator in HIV gene expression and viral latency.

Keywords: HIV latency, Rab GTPases, Rab 31, Viral life cycle.

Biography: Heli Glebko is a master's student at Ben Gurion University. She has been dedicated to Microbiology research, especially virology. She worked at various healthcare and now researching HIV latency to contribute to translational research

GLOBAL CONGRESS ON FOOD AND NUTRITION



**Kristina Starcevic, Petra Roskaric, Suncica Sertic,
Tomislav Masek**

Faculty of Veterinary Medicine, University of Zagreb,
Zagreb, Croatia

Docosahexaenoic and eicosapentaenoic acid supplementation could attenuate negative effects of maternal metabolic syndrome on male and female offspring lipid metabolism

Abstract: Docosahexaenoic acid and eicosapentaenoic acid could influence the development of metabolic syndrome caused by the Western diet. Therefore, we wanted to investigate whether DHA and EPA could prevent disorders of lipid metabolism in the offspring caused by maternal metabolic syndrome. A rat model of maternal metabolic syndrome was created in which a high-fructose diet (15% fructose in drinking water for six months) was used. The females in the control group received normal water. The females with metabolic syndrome were further divided into the HF group, which received only fructose in the drinking water, and the DHA/EPA-HF group, which received fructose in the water and increased amounts of DHA and EPA in the diet (2.5% fish oil in the diet). The metabolic syndrome of the mothers altered the liver fatty acid profile of the offspring, with the most significant changes in delta-9 desaturation. Supplementation with DHA and EPA partially normalised the fatty acid composition in the female offspring: 18:1n9, 22:4n6 and total monounsaturated fatty acid levels decreased to control levels and 18:2n6 levels increased to control levels. A similar pattern was also observed in the male offspring, but without a complete return to control levels. Increased delta-9 desaturation was also confirmed by quantitative PCR, and it was observed that the addition of DHA/EPA significantly decreased expression in female and male offspring. In contrast, betacellulin levels were back to normal only in the female offspring. Liver levels of DHA and EPA were significantly increased in both male and female offspring. The changes observed in this study suggest that DHA/EPA supplementation may modulate the effects of maternal programming on lipid metabolism disorders in the offspring.

Keywords: maternal programming, metabolic syndrome, offspring, lipid metabolism, betacellulin

Biography: Associate Professor Kristina Starčević has been working in the field of chemistry and biochemistry at the Faculty of Veterinary Medicine Zagreb, Croatia, for 13 years. Her main scientific interest is lipid metabolism in metabolic diseases and the influence of maternal nutrition on lipid metabolism disorders in offspring

GLOBAL CONGRESS ON FOOD AND NUTRITION



Judith Anglin, PhD, RDN, LDN, FAND

Department Chair – Nutrition and Food Sciences, University of Vermont, USA

Omobolanle David Garuba

Graduate Student, Texas Southern University, USA

Ayodotun Sodipe, PhD

Professor, Texas Southern University, USA

Heavy Metal Toxicity and Infant Foods

Abstract: A healthy, adequate, and safe diet that meets nutritional needs is essential for normal growth, development, physiological and metabolic functions. Babies and infants have underdeveloped organs and immune systems and are at an increased risk for illnesses and extreme care should be taken to ensure safety and adequacy of foods. An alarming increase of heavy metals in the food system via the soil is due to industrialization and technological advancements. This could result in metal toxicity with adverse health conditions if ingested in harmful amounts. Monitoring agencies tasked with reducing the presence of heavy metals in foods and other products have established safe levels. This study evaluated heavy metals in selected food products for newborns and toddlers. Ten brands of baby foods were analyzed for arsenic, cadmium, zinc, lead, nickel, aluminum, and chromium. Baby formula and processed foods for newborns to 3 years and contain one or more of the following ingredients: dairy, fruits, vegetables, root vegetables, grains, sugar supplement and juice were analyzed. The products were analyzed in triplicates using QQQ-ICP-MS instrumentation to detect the presence of the heavy metals. Mixed model analysis found significant differences in metal concentrations ($p=0.03$) with an average metal concentration of $0.96 \mu\text{g/g}$. No significant correlations were found between the packaging materials used and the observed metal concentrations in the food samples. The study concluded that the presence of heavy metals may be due to food type and the soil in which it is grown and not the packaging materials, establishing food system contamination by heavy metals. The need to further reinforce random quality control checks by monitoring agencies to ensure safe level guidelines are being followed by manufacturers.

Keywords: Heavy metals, baby foods, nutrition, food-system

Biography: Judith Anglin is the Chair of the Department Nutrition and Food Sciences at the University of Vermont (UVM). She is a graduate of Howard University - PhD in Nutrition Sciences with Experimental Nutrition emphasis. Her journey in the field of Nutrition and Dietetics began at the University of Technology in Jamaica. She has over twenty years of experience as a clinical dietitian, researcher, program director, and educator. She has conducted studies and published in peer review journals assessing nutritional status of individuals with chronic diseases including obesity, kidney diseases, diabetes, and sickle cell anemia

GLOBAL CONGRESS ON FOOD AND NUTRITION



**Kamila Borowiec¹, Anna Stachniuk²,
Martyna Broda¹, Anna Wypych¹**

¹University of Life Sciences in Lublin, Lublin, Poland

²Medical University of Lublin, Lublin, Poland

Blackcurrant juice polyphenols and the change in their content by lactic acid fermentation

Abstract: Lots of scientific research is focused on excessive free-radical reactions and exacerbated inflammatory processes as the causes of the neurodegenerative disorders. In turn, polyphenolic compounds present in food are suggested to be the reason for its pro-health actions. The biological effects of blackcurrant are in the limelight for some time due to its high polyphenolic contents, antioxidant effect, cholinesterase and cyclooxygenase 2 inhibition. It has been well documented that bioavailability of polyphenols after oral administration is contingent on the hydrolysis of the glycoside linkage. Thus the main attention of the study is focused on free aglycons including flavonols of blackcurrant juice. The selection of bacteria strains (among *Lacticaseibacillus rhamnosus* strains) exhibiting the highest β -glucosidase activity can improve the fermentation process. The methodology included the use of liquid chromatography high-resolution mass spectrometry LC-HRMS (UHPLC 1290 Infinity with an accurate mass quadrupole time-of-flight (Q-TOF) 6550 iFunel mass spectrometer, Agilent Technology) to analyze the flavonol profile in blackcurrant juice followed by the application of spectrophotometric techniques to study total polyphenols and total flavonols contents in the fermented juice. As a result, the content of flavonols in the fermented juice was determined and the effect of the process duration and the used strain of bacteria were observed. In addition, the increased pH value (due to the optimization of the bacteria growth process) also negatively affected the content of flavonols. The highest contents of total polyphenolic compounds and flavonols were observed in the juice fermented by *L. rhamnosus* 1445. However, it is suggested that *L. rhamnosus* B-1937 strain is able to increase the juice bioavailability due to high production of β -glucosidase.

Keywords: blackcurrant, juice, lactic fermentation, flavonols, LC-MS

Biography: I am a graduate of biotechnology at the University of Life Sciences in Lublin and I completed my dissertation there in 2014. I have completed two training research internships: "Breeding of zebrafish *Danio rerio* and cell cultures in vitro" (2023) and "Application of LC-Q/TOF-MS in the analysis of bioactive compounds from bilberry fruit" (2019/2020). I am the co-author of the invention entitled "Polyphenolic composition having the application in prophylaxis and supporting treatment of neurodegenerative diseases, preferably Alzheimer's disease" (Patent no. PL 237891) and leader of two projects supported by the National Science Centre in Poland (2019-2020 and 2024-2027)

GLOBAL CONGRESS ON FOOD AND NUTRITION



Mark Slevin

Amelia Tero-Vescan, Ylenia Pastorello Universitatea de Medicina, Farmacie, Stiinte se Technologie; "George Emil Palade" din Targu-Mures, Romania

Pharmacological modulation of monomeric C-reactive protein to control chronic inflammatory disease

Abstract: Growing evidence shows that inflammation is involved in the pathophysiology of inflammatory-based conditions including cardiovascular, neurological and anxiety disorders. C-reactive protein (CRP) is the most widely used marker of inflammation and is increased in the serum of patients concomitant with increased risk of development of these disorders. In inflammatory conditions, CRP, a pentameric molecule, dissociates into monomeric CRP (mCRP), which has strong proinflammatory effects, unlike the parent molecule, for example by stimulating proinflammatory cytokines, abnormally activating vascular endothelial cells, and for example, increasing permeability and leakage, impairment of the blood-brain barrier, accumulation of toxic proteins such as tau and beta-amyloid ($A\beta$), involvement in the formation of $A\beta$ -mCRP hybrid plaques, thereby creating an increased vulnerability to neurodegeneration and dementia. A recently synthesised synthetic inhibitor of mCRP known as C10M has been shown to abrogate CRP dissociation through contact with lysophosphocholine on the membrane of cells, effectively blocking both local and systemic inflammation. Here an overview of these protective mechanisms will be supported by in vitro and in vivo evidence showing potential pharmacological protection against development of long-term morbidity with consideration of lifestyle, nutritional and other biological manipulation providing pharmacological relief.

Keywords: C-reactive protein, inflammation, chronic disease, pharmacological intervention

Biography: First European BBVA Professor in clinical Biomedicine-EU grant-at ICC-Barcelona 2007-1009-Institute of Cardiovascular disease in Spain; Innovate UK consultant for industrial grant review and decision making; Panel board member for National grant reviewing in Poland, Spain, Romania; Optics Valley, Wuhan-Senior international advisor; Professor of Pathology, Weifang University and hospital honorary consultant; Council member and Fellow of/for American Heart and Stroke Association; Chairman of Kidscan cancer charity, UK and co-founder-director of KIBOSE charity foundation; Consultant for Smith and Nephew-FDA (UK and USA)

INTERNATIONAL SYMPOSIUM ON COGNITIVE NEUROSCIENCE AND PSYCHOLOGY



Anna Rajtar^{1, 2}, Michał Wysocki², Andrzej Budzyński²

¹Department of Psychiatry, Jagiellonian University Medical College,
Cracow, Poland,

²The Ludwik Rydygier Specialist Hospital in Cracow

Screening of adult ADHD among patients with obesity seeking bariatric surgery

Abstract: Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental condition characterized by inattention, hyperactivity, and impulsivity. The symptoms of adult ADHD seem to be common in the obese population, but are rarely investigated before bariatric surgery. ADHD-related symptoms, such as impulsivity, have also been identified as potential risks factors for less weight loss in patients undergoing bariatric surgery. The purpose of the current study was screening for ADHD symptoms, depression, anxiety in patients presenting for bariatric surgery and to examine their relationship with each other. The study sample included 23 adult patients with obesity who sought bariatric surgery at the Department of General and Oncological Surgery of the Ludwik Rydygier Specialist Hospital in Cracow between May 2024 and October 2024. Anthropometric and clinical data were collected from medical records. ADHD symptoms were identified using semi-structured interview The Diagnostic Interview for ADHD in Adults (DIVA-5) based on the DSM-5 criteria for ADHD. Two psychometric scales were used to carry out this study: Beck Anxiety Inventor (BAI) for anxiety and Beck Depression Inventory (BDI-II) for depression. The prevalence of ADHD was 30 % in adolescents seeking bariatric surgery (BMI Mean \pm SD = 41.36 ± 5.1 kg/m²). There were no significant differences in body mass index between participants with or without ADHD. Patients with a positive screening showed significantly higher rates of depression ($p = .012$). Conclusion ADHD symptoms may be common in patients with obesity seeking bariatric treatment and are positively associated with depression.

Keywords: ADHD, neurodevelopmental disorders, bariatric surgery, obesity.

Biography: I am a clinical neuropsychologist and cognitive-behavioral psychotherapist. I work at the Department of Psychiatry at the Jagiellonian University Medical College in Krakow. I professionally conduct psychological and neuropsychological diagnostics and the qualification of patients for surgical treatment of obesity. Clinically and scientifically, I am interested in the neuropsychological mechanisms of mental disorders, especially emotion regulation disorders and eating disorders

INTERNATIONAL SYMPOSIUM ON COGNITIVE NEUROSCIENCE AND PSYCHOLOGY



**Natalia Kopiś-Posiej^{1 2}, Paweł Krukow², Andrzej Cudo¹,
Kamil Jonak³, Katarzyna Mróz³, Adam Kiersztyn³,
Ryszard Maciejewski¹**

¹Department of Experimental Psychology, The Institute of Psychology, The John Paul II Catholic University of Lublin

²Department of Clinical Neuropsychiatry, Faculty of Medicine, Medical University of Lublin

³Lublin University of Technology, Department of Computer Science

The Influence of energy drinks on the mental health of young adults

Abstract: Recent studies have increasingly highlighted the negative impact of energy drink (ED) consumption on the mental health of young adults. ED are associated with a higher risk of anxiety, depression, ADHD symptoms, and psychological distress. The high levels of caffeine (which can exceed 500 mg in some drinks) and sugar in energy drinks are believed to contribute significantly to these mental health issues. These ingredients can disrupt sleep patterns, leading to poor sleep quality and duration, further exacerbating mood and cognitive functioning. Additionally, young adults who regularly consume these beverages may struggle with attention and mood regulation, leading to lower academic achievement. In our project, we decided to study the influence of energy drinks on young adults' health and mental condition. We are willing to answer questions about the impact of ED on mood, circadian rhythms, activity, impulsivity, and cognitive functions. Additionally, we use the Ecological Momentary Assessment paradigm which involves precise temporal monitoring of the mental state and selected behaviours co-occurring with a specific situation or time dimension, typically related to a given type of activity.

Keywords: energy drinks, mental health, young adults.

Biography: I am a technical specialist at The John Paul II Catholic University of Lublin and a scientific assistant at the Medical University of Lublin. I am interested in mental health and cognitive processes in my research. I have experience in neurophysiology studies on EEG and fNIRS (functional near infrared spectroscopy).

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Fei Cao¹, Tao Fan¹, Xue Jiang², Jian Wang^{3,4}, Ye Xiong¹, Shaoqiu Zhang³, Zhiyi Zhang¹, Xingxiang Liu², Chuanwu Zhu⁵, Jie Li^{1,3,4}, Rui Huang^{1,3,4}, **Chao Wu^{1,3,4}**

¹ Department of Infectious Diseases, Nanjing Drum Tower Hospital Clinical College of Traditional Chinese and Western Medicine, Nanjing University of Chinese Medicine, Nanjing, Jiangsu, China;

² Department of Clinical Laboratory, Huai'an No. 4 People's Hospital, Huai'an, Jiangsu, China;

³ Department of Infectious Diseases, Nanjing Drum Tower Hospital, Affiliated Hospital of Medical School, Nanjing University, Nanjing, Jiangsu, China;

⁴ Institute of Viruses and Infectious Diseases, Nanjing University, Nanjing, Jiangsu, China;

⁵ Department of Infectious Diseases, The Affiliated Infectious Diseases Hospital of Soochow University, Suzhou, Jiangsu, China.

Effects of tenofovir alafenamide versus tenofovir disoproxil fumarate on serum lipid profiles in patients with chronic hepatitis B

Abstract: The effect of lipid profiles in patients with chronic hepatitis B (CHB) during tenofovir alafenamide (TAF) treatment remains unclear. We aimed to compare the impact of TAF versus tenofovir disoproxil fumarate (TDF) on the serum lipid profiles in patients with CHB. A total of 430 patients with CHB were retrospectively included from 3 hospitals, including 158 patients treated with TAF and 272 patients treated with tenofovir disoproxil fumarate (TDF) and were followed for a median of 16.0 months and 18.0 months, respectively. The changes of serum lipid profiles during treatment were compared between TDF and TAF groups. In this multi-center real-world retrospective cohort, the cumulative incidence of dyslipidemia was significantly higher in the TAF group compared to TDF group ($P < 0.001$). After TAF treatment, a significant increase of serum TG levels (from 0.83 mmol/L to 1.02 mmol/L, $P < 0.001$) and TC levels (from 4.16 mmol/L to 4.32 mmol/L, $P < 0.001$) was observed. After propensity score matching (PSM), the TAF group remain had a relatively higher incidence of dyslipidemia ($P < 0.001$) compared to TDF group. The TG levels (from 0.83 mmol/L to 1.04 mmol/L, $P < 0.001$) and TC levels (from 4.16 mmol/L to 4.38 mmol/L, $P < 0.001$) were both increased significantly compared to the baseline levels in the PSM cohort. The TAF treatment was an independent factor for elevated TG levels (HR=3.042, 95% CI: 1.486-6.231, $P = 0.002$) and TC levels (HR=9.488, 95% CI: 4.111-21.902, $P < 0.001$) after treatment. Compared to TDF treatment, the TAF treatment was associated with higher incidence of dyslipidemia in patients with CHB. Thus, close monitoring of lipid profiles is needed in patients with CHB who received TAF treatment.

Key words: hepatitis B, tenofovir alafenamide, tenofovir disoproxil fumarate, lipid profile

Biography: Professor Chao Wu is a chief physician in Department of Infectious Diseases, Nanjing Drum Tower Hospital, Affiliated Hospital of Medical School, Nanjing University (Nanjing, China). He is also the professor of Internal Medicine in Medical School of Nanjing University, Nanjing Medical University and Nanjing University of Chinese Medicine. He focused his scientific interests on viral hepatitis and emerging infectious diseases.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



WonJin Kim,¹ SooJung Chae,¹ JuYeon Kim,¹ Hanjun Hwangbo,¹ Hyeongjin Lee,² Dogeon Yun,³ GeunHyung Kim¹

¹Sungkyunkwan University School of Medicine (SKKU-SOM), Suwon, Republic of Korea

²Korea University, Sejong, Republic of Korea.

³Burn Institute, Hangang Sacred Heart Hospital, College of Medicine, Hallym Univeristy, Seoul, Republic of Korea

Fabrication of a PLLA/HA/dECM composite scaffold for encouraging osteogenesis of stem cells

Abstract: In osteogenic differentiation of human stem cells, they can be affected by the biochemical microenvironments as well as the mechanical microenvironments of the biomaterials. In particular, based on this perspective, the incorporation of bioactive organic and inorganic components can significantly influence the differentiation of stem cells into the osteogenic lineage. Poly (L-lactic acid) (PLLA)-based biocomposites have been widely used in hard tissue engineering applications due to their reasonable biocompatibility and mechanical properties. However, the imperfect bioactivity and mechanical properties of these composites limit their use in bone defect regions that require high load-bearing capacity. To address this issue, this study introduced two fabrication strategies to enhance the mechanical and biological properties of hydroxyapatite (HA)/PLLA biocomposites. By incorporating in situ plasma treatment during the 3D printing process, followed by thermal annealing, the flexural modulus of the composite increased by 2.1-fold compared to standard HA/PLLA composites. Additionally, this combinational process enabled the efficient coating of bioactive material, which is decellularized extracellular matrix (dECM) derived from porcine bones. The fabricated biocomposite scaffold was evaluated for various in vitro cellular activities, including cell proliferation and osteogenic activity. Based on the mechanical and biological studies, the cultivation of human stem cells with the HA/PLLA/dECM biocomposite scaffold can be a promising candidate for bone tissue regeneration.

Keywords: Tissue Engineering, Stem cell osteogenesis, 3D printing, Biocomposites, In situ plasma treatment, dECM coating

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Eben Von Well*¹, Annabel Fossey², Mardé Booyse³

¹ARC-Small Grain, Bethlehem, South Africa

²Graduate mastery, Randburg, South Africa

³ARC-Biometry, Stellenbosch, South Africa

The effect of Gamma Irradiation on nucleolar activity, the presence of chromosomal abnormalities and the efficiency of energy conversion as indicators for mutation breeding in *Triticum turgidum* ssp. durum L. cultivar Orania

Abstract: The effect of gamma irradiation of kernels on nucleolar activity, mitotic index, as well as the number of bridges, ring chromosomes, micronuclei and incomplete mitosis as indicators of metabolic activity and growth retardation, was investigated in root tip cells of tetraploid wheat *T. turgidum* ssp. durum. The efficiency of energy conversion into growth was used as an indicator for the optimal dosage for mutation breeding. Seeds of *Triticum turgidum* ssp. durum L. cv. Orania (AABB) were given gamma irradiation dosages of 50, 150, 250 and 350 Gy. Root tips were fixated in La Cour's 2BD from 17.5 to 47.5 h after the onset of imbibition to study the first mitotic division and its consequences on the cells that were in G2 and G1 phases at the time of gamma irradiation. Untreated material produced a maximum of four nucleoli formed by the nucleolar organizing regions (NORs) on chromosomes 1B and 6B. In irradiated material additional nucleoli were noted in the nuclei and nucleoli were also noted in the micronuclei. Highly significant increases in the number of bridges, micronuclei, ring chromosomes and interphase cells with incomplete mitosis occurred at different irradiation intervals. The efficiency of energy conversion into growth retarded accordingly with an increase in gamma irradiation dosages. The increase in number of nucleoli in the nucleus was due to incomplete mitosis and the overall increase in nucleoli in cells was due to activation of the NORs on chromosome 1A in micronuclei. The efficiency of energy conversion into growth decreased due to cell death and energy used for repairing of damaged cells.

Keywords: Chromosomal abnormalities, cytogenetics, efficiency of energy conversion, gamma irradiation, mutation breeding, nucleolar activity.

Biography: I am presently working for the Agricultural Research Council – Small Grain (18 years) as a wheat and mutation breeder as well as being the Curator of the Small Grain Germplasm Collection. I also have experience in human cytogenetics karyotyping. As mutation breeder, I have been involved in two projects collaborating with the IAEA. I am investigating methods to determine the optimal dosage for mutation breeding in seed propagated plants, making use of *Triticum* (wheat) as my model plants, because they form a polyploid complex. I am also a reviewer for 11 journals.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



S. Cusack¹ and Erika Pellegrini^{1,2}

¹EMBL, 71 Avenue des Martyrs, 38000 Grenoble,

²Current adresse : IBS, 71 Avenue des Martyrs, 38000 Grenoble

Signalling transduction through RIPK2, a drug target for IBDs

Abstract: In the innate immune response, activation of the pattern recognition receptors Nucleotide Oligomerization Domain 1 and 2 (NOD1 and NOD2) triggers a proinflammatory response, which plays a crucial role in both bacterial pathogen detection and gut homeostasis maintenance. Dysregulation of NOD signalling is involved in several genetic and non-genetic inflammatory diseases, such as Inflammatory Bowel Diseases (IBDs), which comprise Crohn's disease and Ulcerative Colitis, increasingly frequent disorders in the Western world.

Activation of NOD by bacterial peptidoglycans leads to the recruitment of the adaptor kinase RIPK2, which, upon auto-phosphorylation, serves as a scaffold for binding downstream effectors, such as XIAP, a key E3 ubiquitin ligase in the NOD signalling pathway. The kinase domain of RIPK2 is an attractive drug target for inflammatory diseases related to NOD2, and inhibition of RIPK2 kinase activity has been shown in vivo to be beneficial as a therapeutic strategy to treat IBDs. However, RIPK2 auto-phosphorylation activity is not required for signalling, questioning the significance of the kinase domain in signalling transduction.

To answer this question, we applied integrative structural biology (X-ray crystallography, cryo-EM, and NMR), supported by biophysical characterization and in-cell validation, to obtain structural snapshots of RIPK2, either alone or in complex with upstream (NOD2CARDs) and downstream (XIAP) proteins in the signalling pathway [1-3]. During this talk, I will guide you through the long journey that took us to obtain these structures and eventually provide a molecular explanation of how NOD2 triggers the active conformation of RIPK2 by promoting its polymerization and how this event promotes kinase dimerisation and, therefore, the scaffolding role of the kinase domain (Fig 1).

Our findings not only deepen our comprehension of the NOD signalling but also provide useful data for the design of more potent and specific inhibitors targeting NOD signalling.

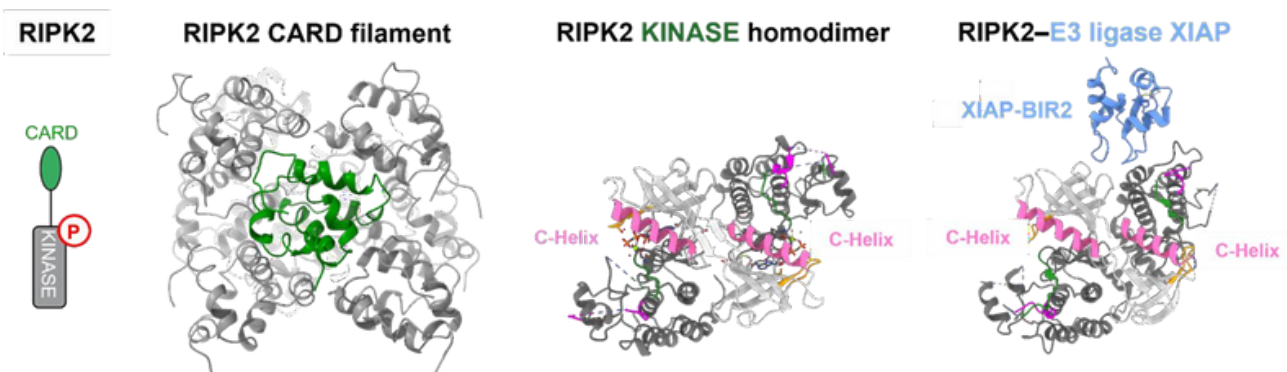


Figure 1. Gallery of the RIPK2 structures, which will be described in the talk.

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Biography: Erika Pellegrini's career in the field of structural biology began with a one-year internship during the second year of her M.Sc. in Medical, Molecular, and Cellular Biotechnologies at Università Vita-Salute San Raffaele in Milan, Italy. This internship took place in the Biocrystallographic unit under Dr. Massimo Degano at San Raffaele University, where she received extensive training in protein expression and purification from bacterial sources. Afterward, She moved outside her country for three years PhD (from January 2011 until January 2013), shared between the Structural Biology group at the European Synchrotron Radiation Facility (ESRF, Grenoble, France) and the NMR group of Prof. John Waltho at the University of Sheffield, UK. During the PhD, she acquired and tuned skills in molecular biology, biochemistry, and X-ray crystallography by applying these techniques in studying enzymatic phosphorylation transfer of relevant drug targets: the bacterial mutase β -Phosphoglucomutase (β PGM), the human small-G protein RhoA and the human kinase p38 α .

In the subsequent 5 years post-doc in the group of Dr Stephen Cusack at the European Molecular Biology Laboratory, (EMBL, Grenoble; April 2013-June 2018), She successfully applied and extended the acquired PhD knowledge on protein kinases. In July 2018, following her first maternity leave, she was promoted to the position of research scientist (July 2018-November 2022), with dual responsibilities: continuing her research on RIPK2 and participating in the managing of the internal cryo-EM platform (July 2018-September 2020). Since 2018, she has been also collaborating with an industrial partner, Oncodesign Precision Medicine (OPM), Djon, France on the structure optimization of RIPK2 kinase inhibitors targeting IBDs.

In October 2023, she joined the EBEV group, at the Institut de Biologie Structurale (IBS, UMR 5075 CEA-CNRS-UGA Grenoble, France), where she investigated the interaction between CHromatin-Modifying Proteins or CHarged Multivesicular body proteins (CHMPs) and DNA in vitro, and she plan to use her structural biology skills to reveal the mechanism of action of CHMP proteins on chromatin remodeling both in vitro and in a more physiological context.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



**Filipe Duarte^{1,3}, Elisa Corti^{1,2}, Pedro Baptista¹,
Carlos Duarte^{1,3}**

1CNC – Center for Neuroscience and Cell Biology, 2III – Institute for
Interdisciplinary Research,

3Department of Life Sciences, University of Coimbra, Coimbra, Portugal

BDNF-induced synaptic plasticity: the role of mitochondrial fission

Abstract: Brain-Derived Neurotrophic Factor (BDNF) is an important regulator of synaptic activity and a mediator of LTP of hippocampal synapses. Furthermore, synaptic activity controls mitochondrial fission and dynamic control of fission regulates plasticity induction in hippocampus. Given the important role of mitochondrial fission in establishing LTP and knowing the key role of BDNF in LTP induction, we hypothesized that the effects of BDNF on synaptic potentiation could be mediated by mitochondrial fission. We observed that local protein synthesis of Drp1, a key mediator of mitochondrial fission, is enhanced after stimulation of cultured hippocampal neurons with BDNF. FUNCAT-PLA experiments showed that BDNF upregulates the ‘de novo’ synthesis of Drp1 in the dendritic compartment, and at the synapses of cultured hippocampal neurons. Furthermore, immunocytochemistry experiments showed that BDNF stimulation increases Drp1 phosphorylation on Serine 616 in dendrites of cultured hippocampal neurons, which is known to increase the rate of mitochondrial fission. We have also analysed the effects of BDNF on mitochondrial dynamics in the dendritic compartment, labelling mitochondria through transfection with mito-DsRed and using video microscopy. These studies showed an increase of overall mitochondrial dynamics following stimulation of hippocampal neurons with BDNF. Moreover, inhibition of Drp1 with P110 decreased LTP in hippocampal CA1 synapses induced by 5 trains of theta burst-stimulation, and this effect was not additive with the inhibition by TrkB-Fc, which prevents the effect of endogenous BDNF. The results show a key role for mitochondrial dynamics in the effects of BDNF as mediator of synaptic plasticity.

(Supported by FCT [PTDC/MED-NEU/3736/2020])

Keywords: Brain-Derived Neurotrophic Factor (BDNF), Mitochondria, Synapse

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Xiao-Lin Wu¹, Yi-Xin Tong¹, M.D., Ph.D., Da-Xing Xie¹, M.D.,
Ph.D., Hai-Jie Li¹, M.D., Ph.D., Jie Shen¹ M.D., Ph.D.,
Jian-Ping Gong¹ # M.D., Ph.D.

¹Department of Gastrointestinal Surgery, Tongji Hospital of Tongji
Medical College, Huazhong University of Science and Technology, Wuhan,
430030, PR China

Membrane Anatomy of D2/3+CME for GI Cancer

Abstract: Complete mesocolic excision (CME) or D3 lymphadenectomy led to survival benefits for local advanced right colon cancer, but with vague definitions and debated surgical hazard. Aiming to achieve a precise definition of it in colon cancer treatment, we proposed laparoscopic right hemicolectomy (D3+CME) as a novel procedure, which means excised right mesocolic as complete as possible in D3 field. However, people wonder to know the surgical and oncological results of this procedure. In this perspective single-center cohort study, we compared the surgical and oncological outcomes between D3+CME and conventional CME. D3+CME group performed better in lymph nodes harvested (25.0 [17.0, 33.8] vs. 18.0 [14.0, 25.0], $P < 0.001$) and the proportion of intraoperative blood loss ≥ 50 mL (31.7% vs. 51.8%, $P < 0.001$); no significant difference was observed in the complication rate between two groups. Kaplan-Meier analysis demonstrated that a better cumulative 5-year disease-free survival (91.3% vs. 82.2%, $P = 0.026$) and a better cumulative 5-year overall survival (95.2% vs. 86.1%, $P = 0.012$) were obtained in the D3+CME group. Multivariate COX regression revealed that D3+CME was an independent protective factor for disease-free survival ($P=0.026$). In conclusion, D3+CME could improve surgical and oncological outcome simultaneously for colon cancer compared to conventional CME.

Key words: D3+CME; Complete mesocolic excision; Right-sided colon cancer; Surgery; Survival

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Xiao-Lin Wu¹, Yi-Xin Tong¹, M.D., Ph.D., Da-Xing Xie¹, M.D.,
Ph.D., Hai-Jie Li¹, M.D., Ph.D., Jie Shen¹ M.D., Ph.D.,
Jian-Ping Gong¹ # M.D., Ph.D.

¹Department of Gastrointestinal Surgery, Tongji Hospital of Tongji
Medical College, Huazhong University of Science and Technology, Wuhan,
430030, PR China

Technical Notes and Short-term Results of Laparoscopic Right Hemicolectomy (D3+CME) for Colon Cancer

Purpose:

To illustrate the critical techniques and safety of laparoscopic D3+CME for right hemicolectomy, according to our previous experience.

Methods:

Anatomical relationships and operative techniques were demonstrated. 100 consecutive patients who underwent right hemicolectomy with D3+CME procedure between December 2014 and December 2017 were included in the present study.

Results:

Under the conception of membrane anatomy, the space between mesocolon and its surrounding structure (mesocolonic bed) was the main surgical plan. Mesenteric dissection line should be extended to the left side of SMA. The medial-to-lateral dissection approach made D3+CME performed efficiently. In this study group, the mean volume of blood loss for each patient was 7.2 ± 3.6 mL. The median operative time was 115 ± 19.5 min. The mean number of harvested lymph nodes was 24.5 ± 9.7 . The median proximal and distal resection margins were 22 ± 12.4 cm and 16.6 ± 7.2 cm. The postoperative complication rate was 11.1 %. The median hospital stay was 11.8 ± 4.9 days. No patients underwent conversion during laparoscopic surgery. All the patients are disease-free during the follow-up periods, the mean follow-up time is 12 months (ranges 3-20 months).

Conclusions:

D3+CME group have lower rates of postoperative complications and better pathologic (specimen lengths, resection margin lengths, number of lymph nodes, and R0 resection rate) outcomes. Based on these results, the technique of D3+CME can be considered as a routine elective approach for right sided colon cancer.

Key words: D3+CME; Complete mesocolic excision; Right-sided colon cancer; Surgery; Survival

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Amanda Lobato^{1,2,\$}, Yi Zhu¹, Adriana Rebelo³, Tijana Canic⁴, Natalie Ortiz-Vega^{1,5,\$}, Xianzun Tao^{1,\$}, Sheyum Syed⁴, Christopher Yanick^{6,7}, Mario Saporta⁷, Michael Shy⁸, Riccardo Perfetti⁹, Shoshana Shendelman⁹, Stephan Züchner³, Grace Zhai^{1\$}

¹Department of Molecular and Cellular Pharmacology, University of Miami Miller School of Medicine, Miami, FL

²Graduate Program in Human Genetics and Genomics, University of Miami Miller School of Medicine, Miami, FL

³Dr. John T. Macdonald Foundation Department of Human Genetics and John P. Hussman Institute for Human Genomics, University of Miami Miller School of Medicine, Miami, FL

⁴Department of Physics, University of Miami, Coral Gables, FL

⁵Graduate Program in Cellular and Molecular Pharmacology, University of Miami Miller School of Medicine, Miami, FL

⁶Department of Neurology, University of Miami Miller School of Medicine, Miami, FL

⁷Graduate Program in Neuroscience, University of Miami Miller School of Medicine, Miami, FL

⁸Department of Neurology, University of Iowa, Iowa City, IA

⁹Research & Development, Applied Therapeutics, New York, NY

^{\$}Current Address: Department of Neurology, University of Chicago, Chicago, Illinois, USA

Aldose Reductase Inhibitor AT-007 Prevents Mitochondrial Dysfunction And Neurodegeneration In Sorbitol Dehydrogenase Deficiency-Induced Neuropathy

Abstract: Sorbitol dehydrogenase (SORD) deficiency has been identified as the most frequent autosomal recessive form of hereditary neuropathy, affecting roughly 10,000 patients worldwide. Loss of SORD causes high sorbitol levels in cells due to the inability to convert sorbitol to fructose in the two-step polyol pathway, leading to neurodegeneration. However, underlying mechanisms of sorbitol-induced neurodegeneration have not been fully elucidated. A *Drosophila* model of SORD deficiency was characterized by locomotor assay and brain imaging. Reactive oxygen species (ROS) staining in the brain, ventral nerve cord, and muscle, as well as patient fibroblasts was performed to understand the pathological changes at the molecular level. To reduce sorbitol accumulation by inhibiting conversion from glucose, a next-generation central nervous system (CNS) penetrant aldose reductase inhibitor (ARI) developed by Applied Therapeutics, Inc, named AT-007, was applied to patient fibroblasts, patient-derived motor neurons, and flies. Sorbitol levels in cells and fly brains were measured, and neurological phenotypes of flies were analyzed.

We showed progressive synaptic degeneration in the fly brain, revealed with lamina vacuoles and electroretinogram abnormalities. In addition, with a novel automated behavior geotaxis monitoring system, we showed a locomotor impairment in SORD deficiency flies, due to abnormal neuromuscular junction innervation in the leg. Finally, we found an accumulation of ROS in the CNS and muscle of the flies, as well as patient fibroblasts, indicating mitochondrial dysfunction. AT-007 significantly reduced sorbitol levels in patient fibroblasts, patient-derived motor neurons, and the *Drosophila* model. Moreover, we demonstrated that feeding with AT-007 in *Drosophila* significantly improved locomotor activity, mitigated synaptic degeneration, and reduced ROS levels. Our findings establish the underlying disease pathogenesis and provide a potential treatment strategy for patients with SORD deficiency.

Keywords: SORD, Drosophila, ROS, aldose reductase inhibitor

Biography: Amanda is a native of Florida with roots deeply embedded in Brazilian heritage. Amanda's earlier years were marked by a blend of living in Brazil and returning to the US to complete her education. She embarked on her journey to obtain an Associate's degree at Broward College, followed by her Bachelor's degree in Biology at St. Thomas University. In 2019 she was admitted into the Human Genetics and Genomics graduate program at the University of Miami, where she completed her PhD this past February. It was there that she found her mentor, Dr. Grace Zhai, whose research seamlessly aligned with Amanda's interests in human genetics and neurodegeneration. Amanda sought collaborations, leaving her mark with scholarly contributions of three first author papers and four middle author papers, as well as attending and presenting at national and international conferences. Now, as a postdoctoral scholar at the University of Chicago, Amanda aims to continue paving the way for potential interventions using therapeutic approaches for other genetic neurological disorders. In her spare time, Amanda enjoys playing soccer, going to the beach, or adventurous traveling.

INTERNATIONAL SYMPOSIUM ON COGNITIVE NEUROSCIENCE AND PSYCHOLOGY



Suzan Boutary¹, David Adams^{1,2}, Michael Schumacher¹, Charbel Massaad³, **Liliane Massaad-Massade¹**

¹U1195 Diseases and Hormones of the Nervous System, Inserm and University Paris-Saclay, 94276, Le Kremlin-Bicêtre, France.

²Neurology Department, AP-HP, Université Paris-Saclay and French Reference Center for Familial Amyloid Polyneuropathy and other rare peripheral neuropathies (CRMR-NNERF), Bicêtre University Hospital, Le Kremlin-Bicêtre, France.

³Faculty of Basic and Biomedical Sciences, Paris Descartes University, INSERM UMRS 1124, 75006, Paris, France.

Squalenoyl siRNA PMP22 nanoparticles are effective in treating mouse models of Charcot-Marie-Tooth disease type 1 A

Abstract: CMT type 1A (CMT1A) is caused by a duplication in chromosome 17p11.2, resulting in the overexpression of Peripheral Myelin Protein 22 (Pmp22). Currently, there is no effective treatment for CMT1A. We developed a potential therapy using siRNA conjugated to squalene nanoparticles (siRNA PMP22-SQ NPs), administered intravenously at a cumulative dose of 2.5 mg/kg. This treatment restored locomotor activity and electrophysiological parameters in three transgenic CMT1A mouse models with varying disease severity. Post-treatment, Western blot assays showed normalization of Pmp22 protein levels. Electron microscopy confirmed the regeneration of myelinated axons and the compaction of myelin, a critical step in restoring myelin sheath function. Additionally, Confocal microscopy showed the normalization of sciatic nerve markers Krox20, Sox10, and neurofilament indicated the regeneration of both myelin and axons. The therapeutic effects of siRNA PMP22-SQ NPs persisted for three weeks, and repeat administration led to full functional recovery. Beyond CMT1A, these findings suggest that this approach could be a powerful therapeutic strategy for inherited peripheral neuropathies based on the normalization of disease gene expression by siRNA. Based on these promising results, a startup named MAAsiRNA was established in 2023 to further develop this therapy.

Keywords: Charcot Marie Tooth 1A (CMT1A), siRNA PMP22-squalene nanoparticles (siRNA PMP22-SQ NPs), startup MAAsiRNA

Biography: Dr. Liliane Massade, DR1 CNRS and leader of Team 2, heads the "Targeted Therapy for Peripheral Neuropathies" team at INSERM UMR 1195, also part of LaBEX Nanosaclay. With extensive expertise in cellular and molecular biology and siRNA pharmacology, her research is bolstered by prestigious grants from ANR, Nanosaclay, ARC, ERC, and SATT Paris Saclay. Dr. Massade has authored over 78 scientific publications in top journals like Comm. Biol, Cancer Res., Oncogene, J Control Release, and PNAS, and holds two patents. She is one of the four founders of MAAsiRNA (<https://www.maasirna.com/>) a startup based on her research work.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Antonia Tardue-Breiter^{1,2} Anna Glück^{2,3}
Helga Dier^{2,4} Georg Mathias Sprinzl^{1,2}

¹Department of Otorhinolaryngology, **University Hospital St. Pölten**, St. Pölten, Austria

²Karl Landsteiner University of Health Sciences, Krems, Austria

³Department of Neurology, University. Hospital St. Pölten, St. Pölten, Austria

⁴Department of Anaesthesiology and Intensive Care, University Hospital St. Pölten, St. Pölten, Austria

Bilateral vocal fold paresis and glottal bridge synechia in COVID-19

Abstract: Although COVID-19 is known to affect peripheral as well as cranial nerves, there is a paucity of reports on vocal fold paresis in COVID-19, bilateral vocal fold paresis (BVFP) in particular.

We describe a case of bilateral vocal fold paresis and glottal bridge synechia following mechanical ventilation in COVID-19-pneumonia. Potential pathomechanisms and treatment options are discussed.

This case demonstrates the complexity of laryngeal complications in COVID-19.

An early interdisciplinary team approach combining high-dose intravenous corticosteroids, surgical treatments as well as functional therapies is recommended.

Keywords: bilateral vocal fold paresis, bridge synechia, COVID-19, laryngeal edema

Biography: Antonia Tardue-Breiter is an ENT-specialist, phoniatician and classical singer. She received her degrees in medicine and classical singing in her home town Vienna, Austria. After her residency in ENT in Switzerland (University Hospital Basel) and Germany (Städtisches Klinikum Dresden), she finished her training as a phoniatician at the University Hospital in Innsbruck. Since 2019, she has been working as the teamleader of the phoniatic team at the ENT-Department of the University Hospital St. Pölten in Lower Austria. Her specialty and main research interests focus on the treatment of voice disorders and the care of professional voice-users, singers in particular.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Haojie Jin

Shanghai Cancer Institute, China

Drug-drug synthetic lethality to combat liver cancer: From bench to bedside

Abstract: Recently, drug–drug synthetic lethality was developed to counter intrinsic drug resistance that often results from feedback-mediated activation of the same or a parallel signalling pathway upon drug treatment. The high-throughput technologies of CRISPR-Cas9-mediated gene knockout have greatly facilitated unbiased discovery of such drug–drug synthetic lethality. Here, we will discuss two examples of drug–drug synthetic lethality, which have been translated from ‘bench to bed’, highlighting the power of high-throughput screening in guiding the design of clinical combination therapies.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Beamish EL, Johnson J, Shih B, Killick R, Dondelinger F, McGoran C, Brewster-Craig C, Davies A, Bhowmick A, Rigby RJ.

Faculty of Health and Medicine, Lancaster University and Lancashire Teach Hospitals NHS Trust

Delay in loop ileostomy reversal surgery does not impact upon post-operative clinical outcomes. Complications are associated with an increased loss of microflora in the defunctioned intestine

Abstract: Research question: Why do so many patients experience complications following ileostomy reversal surgery?

Background. Surgical formation of a loop ileostomy to temporarily divert the faecal stream and allow tissue healing, with the aim of re-joining the bowel around 1 year later, is carried out in around 10,000 patients per year in the UK. One in 4 patients experience severe complications, such as lack of function following reversal (ileus) or anastomotic leak, and 5% of patients cannot undergo reversal, leaving them with a permanent stoma. A further 20% of patients experience less severe symptoms, such as bloating, distension or irregular bowel movements

Purpose: To analyse differences between functional and defunctioned limbs of stoma upon reversal and link these to patient data and surgery outcomes.

Methodology: We assessed histology, fibrosis and microbiota and associated these measurements with patient data and surgery outcomes.

Results: Our data demonstrates that defunctioned bowel becomes atrophied (47% reduction in villus height) and intestinal microflora numbers drop by an average of 62.4% (Beamish et al., 2017). Surprisingly, complications are not associated with increased fibrosis or atrophy of the bowel although both factors are increased within the defunctioned limb. Our data also reveal that the microbiota is not 'dysbioic' in the defunctioned limb, but patients with a greater reduction in microflora are more likely to experience complications. The time a patient has a stoma does not impact on loss of microbiota, or risk of complications (Beamish et. al, 2023).

Conclusion: We propose that replenishing microflora numbers, and subsequently host tissue growth, prior to surgery will reduce post-surgical complications following ileostomy reversal

Key words: Ileostomy, bowel cancer, microflora, prebiotics, surgery

Biography: Dr Rachael Rigby gained a BSc Pathology and Microbiology from Bristol University in 1998 and obtained a PhD in Intestinal Immunology from Imperial College London in 2004. She investigated the responses of intestinal dendritic cells, in mouse and human, to bacterial products, discovering mechanisms of action of probiotics. Her postdoctorate work at UNC-Chapel Hill (2004-2008), investigated the role of gut microbiota in recovery from intestinal surgery and chemotherapy and tumour suppressor, SOCS3, in intestinal cancer and inflammation. As Senior Lecturer in Biomedicine at Lancaster University (2008-present) she continues to investigate the role of microbes in intestinal pathologies, such as cancer, infection and surgical adaptation.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Gulsen Meral ,MBA,MD,PhD

Epigenetic Coaching Company UK, President of the Nutrigenetic-Epigenetic Society Turkey, Epigenetic Coaching Founder

The Role of Nutrigenetics and Epigenetics in Longevity: Can We Turn Back Our Epigenetic Clock?

Abstract: As the global population ages, understanding the biological mechanisms of longevity and healthy aging has become increasingly important. Aging is a systemic process that affects all biological systems and is characterized by an increased incidence of age-related degenerative diseases. DNA methylation plays a significant role in the aging process, with changes in methylation levels associated with age-related diseases. One-carbon metabolism, which includes folate and vitamin B12, supports DNA methylation, and high homocysteine levels are linked to age-related diseases.

The epigenetic clock uses DNA methylation patterns to estimate biological age and monitor the aging process. A healthy lifestyle helps align biological and chronological ages, but environmental factors can disrupt this balance. Regular monitoring of the epigenetic clock allows for the assessment of the effectiveness of dietary and lifestyle interventions. Nutrigenetic analysis has emerged as a valuable tool in examining the interaction between nutrition and genetics. Genetic factors can influence the absorption, metabolism, and utilization of various nutrients. Nutrigenetic analysis helps personalize dietary recommendations based on genetic profiles and reduce the risk of deficiencies.

Anti-aging encompasses a range of interventions aimed at slowing down or reversing the effects of aging. These strategies typically involve genetic, biochemical, and lifestyle changes. Combining nutrigenetic analysis with epigenetic clock data offers a comprehensive approach to supporting healthy aging and longevity.

Biography: Associate Professor Gülşen Meral graduated from Istanbul University Cerrahpaşa School of Medicine in 1994. She became a specialist in paediatrics in 2001. She is Associate Professor in Pediatrics and worked as a specialist as well as deputy chief physician and chief physician at several hospitals. She was the Rector's advisor between 2019-2021 at the Northern Cyprus ITU. She is also an Acupuncture instructor. She worked as a Nutrigenetics graduate course and lecturer and gave undergraduate and graduate courses on child development. She has many national and international publications, and worked on editorial boards and as reviewers. She has a Master's Degree in Hospital Management. She has a Turkish language literature undergraduate education. She completed PhD program in Medical Genetics. In addition to her scientific achievements, she is ambitious about poetry and has 5 poetry books. She is the Founder of the Nutrigenetics and Epigenetics Association, and has memberships in the Green Crescent and Rumelia Association, Istanbul Acupuncture Association, and International Society of Nutrigenetics & Nutrigenomics. She participated in the first and second International Epigenetic Congress as the president. She is still the organizer and educator of the Epigenetic Coaching Program. She is actively giving trainings on Nutrigenetic & Epigenetic Counselling to health professionals from all over the World as a certified CPD program. She continues research and training as the founder and manager of Epigenetic Coaching.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Bengt Mannervik and Aram Ismail

Stockholm University, Department of Biochemistry and Biophysics,
Stockholm, Sweden

Therapeutic GST enzymes targeting cancer via epitope-binding fusion proteins

Abstract: The directed delivery of a drug-activating enzyme to a tumor is an emerging clinical treatment modality with a potential to significantly improve drug efficacy and concomitantly reduce adverse side effects. We are designing combinations of drug-activating enzymes and a prodrug with tumor-targeting antibodies, which is expected to give synergy and enhanced therapeutic efficacy in the treatment of leukemia and other malignancies. Antibodies, or alternative specific binding proteins, will target selected epitopes of cancer cells in which the accompanying enzyme will exert its drug-activating function. We have engineered human glutathione transferase (GST) enzymes for increased catalytic activity with the alkylating prodrug Telcyta with the aim of delivering the enzyme selectively to tumors. The approach is generic and can be implemented with alternative binding proteins and GSTs with different functionalities. Our prototypes for recombinant GST-antibody proteins are based on tumor-homing antibodies for use against leukemias featuring CD123 or CD22 epitopes. Recombinant GSTs are covalently linked to antibodies, which direct the GST to the tumor prior to administration of the prodrug. The enzyme-catalyzed activation of the prodrug will locally induce a cytotoxic effect to the tumor. Anti-CD22 and anti-CD123 antibodies by themselves have tumor-killing properties, and the simultaneous prodrug activation is expected to offer synergy and enhanced tumor cell death. Our novel approach of GST-mediated toxicity directed to CD22- or CD123-expressing cancer cells is expected to synergistically combine the effects of conventional chemotherapy with those of immunotherapy, reducing the likelihood of relapse of disease as well as counteracting the induction of secondary malignancies due to off-target effects.

Our research has been supported by the Swedish Childhood Cancer Research Fund and the Swedish Cancer Society.

Keywords: Prodrug activation, Glutathione transferase (GST), Antibody-directed enzyme prodrug treatment (ADEPT), Leukemia, Therapeutic fusion protein

Biography: Prof. Bengt Mannervik, Stockholm University, Sweden Current professional affiliations: Department of Biochemistry and Biophysics, Stockholm University, Sweden. and Department of Chemistry, Scripps Research, La Jolla, CA, USA. University education: Candidate of philosophy, Stockholm University (SU), 1964. Licentiate of philosophy, SU, 1967. Ph.D., SU, 1969. Docent, SU, 1970. Faculty positions: Senior Lecturer, Department of Biochemistry, SU, 1970-87; Acting Chairman numerous periods, 1971-88. Professor, Department of Biochemistry, SU, 1987-88. Professor, Karin and Herbert Jacobsson endowed Chair in Biochemistry, Uppsala University (UU), 1988-2010; Senior Professor, UU, 2010-12. Senator, UU, 2005-08. Professor, SU, 2010-. Adjunct Professor, Scripps Research, La Jolla, CA, USA, 2013-. Visiting professorships: Senior Fulbright Scholar, UC Berkeley, CA, USA, 1981-82. University of Chieti, Italy, (shorter periods) 1985-1997. University of Perugia, Italy, 1990. Research Scholar, The Scripps Research Institute, La Jolla, CA, USA, 1998 (5 months). UC Berkeley, CA, USA, 1998 (1 mo), 2012 (2 mo). Miller Visiting Professor, UC Berkeley, CA, USA, 2004 (Spring). College de France, Paris, France, 2012.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Daniel Joyce, MD FACS

Staff Surgeon, Department of General Surgery, Cleveland Clinic,
Cleveland, OH 44195

Difficult duodenal dilemmas, endoscopy has stolen the show but there is still a role for old fashioned surgery – focus on pancreas sparing duodenectomy

Abstract: Endoscopy has become the mainstay in managing complex duodenal problems including ampullary adenomas, duodenal bleeding. Nonetheless there are distinct situations where traditional surgical techniques are necessary such as refractory bleeding, genetic disorders where endoscopic polypectomy is not a durable option. Traditionally it was thought the only approach to complete duodenal resection was a pancreatoduodenectomy. This talk will focus on the still present role for complex duodenal surgery with particular emphasis on pancreas sparing duodenectomy.

Biography: Prof. Daniel Joyce is a general surgeon in Cleveland, Ohio and is affiliated with Cleveland Clinic. He received his medical degree from Royal College of Surgeons Ireland and has been in practice between 11-20 years. Prof. Daniel Joyce has expertise in treating colon removal, upper gi endoscopy, among other conditions.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Thomas Rabenstein, Christian Ell

Diakonissen-Stiftungs-Krankenhaus Speyer, Germany

Strategies for monitoring patients with Barrett's esophagus

Abstract: Barrett-Adeno-Cancer (AC) diagnosed after patients suffer from typical symptoms (dysphagia, weight loss, bleeding) have an advanced disease in more than 50 % which is associated with a bad long-term prognosis: less than 10 % in 5 years. In case of mucosal early AC treated by local endoscopic resection the 5-year-survival rate increases significantly (80 to 98 %) (1, 2). Compared to surgery endoscopic resection is the method of choice in case of mucosal AC because of a highly significant lower rate of complications and deaths and a preserved function of the esophago-gastric junction (3).

Intestinal metaplasia of the distal esophagus (Barrett-Esophagus, BE) is strongly associated with reflux disease, a proven premalignant condition and the most important risk factor for development of Barrett-Adeno-Cancer (AC). AC is an increasing tumor entity of the Western World, and also in Asia. The individual risk for progress from low-grade intraepithelial neoplasia (BE) to AC ranges from 0,1 to 1,0 % per year and is increased for male gender, white ethnicity, adiposity, smoking and long-term history of reflux disease. Thus, persons on risk for BE and AC can be identified easily.

Methods and strategies for screening and surveillance of BE will be demonstrated and discussed during presentation as well as therapeutic strategies in case of low-grade or high-grade intraepithelial neoplasia and early mucosal AC (4).

Screening for BE and surveillance of BE is a recommended standard nowadays (ESGE guideline 2023; 4), while concrete recommendations for patient selection, technical performance and time periods for controls differ a little from country to country. The aim of screening upper GI endoscopy is to identify individuals on risk. This is easily done by a one-in-a-lifetime gastroscopy. Patients without BE do not need follow-up examinations. Once BE is diagnosed and preexisting AC is ruled out, recommendations for surveillance depend on length of the Barrett segment and other risk factors. Acid suppression therapy (PPI, reflux-surgery) is mostly recommended to reduce inflammation, symptoms and transformation pressure to malignant disease. Prophylactic interventions for non-malignant BE are not recommended outside of studies.

According to the experience based on thousands of patients with BE and AC in a single Center and other institutions, a so-called Index-endoscopy finds not only patients with BE for future surveillance but also patients who already have AC (5, 6). Indeed, from all cases of AC we had treated in Wiesbaden two-thirds were diagnosed during Index-endoscopy and one third during surveillance. Early detection of AC leads to a significant improvement of survival, since many have early tumor stages and can be successfully treated by endoscopic or surgical resection. In case of endoscopic therapy, the following lifetime expectancy is even similar to adjusted normal people without malignant diseases. Screening and surveillance of BE seem to be cost efficient as well, even if randomized studies are lacking.

Biography: Prof. Thomas Rabenstein is a prominent medical professional based at the Diakonissen-Stiftungs-Krankenhaus in Speyer, Germany. He holds the position of Chief Physician for Internal Medicine and Gastroenterology at the hospital, where he has contributed significantly to the field of oncology and internal medicine. Prof. Rabenstein has an extensive background, having served in various leadership roles, including as the Deputy Head and later the Head of the Oncology Center in Speyer. With a career that spans many years, he has been involved in numerous clinical and academic endeavors. He holds an Extraordinary Professorship for Internal Medicine at Friedrich-Alexander University Erlangen-Nuremberg and is widely recognized for his expertise in gastroenterology, especially in oncological gastroenterology. Prof. Rabenstein is also a member of multiple professional associations and contributes to research and ethics counseling within his field.



INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



C. Kent Kwoh, MD, MACR

University of Arizona College of Medicine – Tucson,
Tucson, Arizona, USA

Stem Cells for the Management of Osteoarthritis: Hype or Hope?

Abstract: Osteoarthritis is the most common form of arthritis. As a common cause of disability, knee osteoarthritis affects an estimated 365 million individuals worldwide and is expected to increase by 75% over the next 30 years. Unfortunately, there are no approved drugs to slow or stop the progression of this disease (i.e., disease-modifying osteoarthritis drugs, DMOADs). As a result, there has been a growing demand for more effective nonoperative treatment options for knee osteoarthritis, and stem cell therapy offers the potential to modify the natural course of this disease. The purpose of this presentation is to review the current evidence that stem cells provide symptom relief and structural benefit in knee osteoarthritis. As meta-analyses are considered the highest level of evidence (Level 4), a Medline search was performed to identify meta-analyses and network meta-analyses of intra-articular stem cells for knee osteoarthritis. Given that over 20 meta-analyses and network meta-analyses have been published on this topic since 2022, a select subset of these articles will be discussed in more detail with regard to their methodological quality and risk of bias. Two articles that reviewed the methodological quality and risk of bias in systemic reviews and meta-analyses published prior to 2021 will also be discussed. Previously published studies exhibit a large degree of heterogeneity in terms of study design, comparability of different sources of stem cells, varying dosages administered, efficacy of delivery methods, variability in the comparator groups, and measured outcomes. As such, the results of meta-analyses of stem cell therapy to treat knee osteoarthritis should be interpreted with caution, and one should be prudent drawing conclusions from these articles.

Keywords: knee osteoarthritis, meta-analyses, cartilage regeneration, pain, function

Biography: Dr. C. Kent Kwoh's research involves the assessment of efficacy of treatments for osteoarthritis, including the use of intra-articular therapies such as stem cell therapy and platelet rich plasma (PRP). He has served on committees for the development of guidelines for the management of hand, hip and knee osteoarthritis for the American College of Rheumatology, the Osteoarthritis Research Society International and the American Academy of Orthopaedic Surgeons. He has received continuous funding from the National Institutes of Health (NIH) since 1989 and is author or co-author of more than 300 peer-reviewed journal articles.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Ferrés Marcela MD, MPH¹⁻² *, **Martínez-Valdebenito Constanza Msc¹⁻²***, Henriquez Carolina Msc¹, Marco Claudia Msc¹, Barrera Aldo PhD¹, Angulo Jenniffer PhD¹⁻², Barriga P. Gonzalo PhD³, Cuiza Analia RN⁴, Ferreira Leonila MD⁵, Rioseco María Luisa MD⁶, Calvo Mario MD⁷, Fritz Ricardo MD⁸; Bravo Sebastián MD⁹; Bruhn Alejandro MD⁹; Graff Gerónimo MD¹⁰, Llancaqueo Alvaro MD¹¹, Rivera Gonzalo MD¹², Cerda Carolina¹² Tischler Nicole PhD¹³, Valdivieso Francisca MD¹⁴, Vial Pablo MD⁴, Mertz Gregory MD¹⁵, Vial Cecilia 4 PhD, Le Corre N. MD, PhD¹⁻²

¹Departamento de Enfermedades Infecciosas e Inmunología Pediátrica, Facultad de Medicina, Pontificia Universidad Católica de Chile, Santiago, Chile

²Laboratorio de Infectología y Virología Molecular, Red Salud UC-Christus, Santiago, Chile

³Laboratory of Emerging Viruses, Virology Program, Institute of Biomedical Sciences, Faculty of Medicine, Universidad de Chile, Santiago, Chile

⁴Facultad de Medicina Clínica Alemana-Universidad del Desarrollo, Santiago, Chile.

⁵Hospital regional Guillermo Benavente, Concepción, Chile

⁶Hospital Regional de Puerto Montt, Puerto Montt, Chile

⁷Hospital Regional de Valdivia, Valdivia, Chile

⁸Instituto Nacional del Tórax, Santiago, Chile

⁹Hospital Clínico Red Salud UC-Christus, Santiago, Chile

¹⁰Clínica Alemana de Santiago, Santiago, Chile

¹¹Hospital de las Higueras, Talcahuano, Chile.

¹²Hospital Hernán Henríquez Aravena, Temuco, Chile

¹³Fundación Ciencia & Vida, Molecular Virology Laboratory, Santiago, Chile ¹⁴Facultad de Medicina Clínica Alemana-Universidad del Desarrollo, Santiago, Chile.

¹⁵University of New México, Albuquerque, USA

Viral shedding of and during acute phase of hantavirus infection

Abstract:

Background: Andes virus (ANDV) is a zoonotic orthohantavirus that causes hantavirus cardiopulmonary syndrome (HCPS). Transmission typically occurs through environmental exposure, inhaling rodent feces and urine, but rare person-to-person transmission has been documented, mainly in family clusters and super-spreader events. Previous studies indicated that close contact (e.g., deep kissing, sexual contact, sharing food/drink, breastfeeding) during the prodromic phase posed a high risk for person-to-person transmission. Other studies utilized next-generation sequencing (NGS) for genomic comparisons between related cases in outbreaks. This study investigates ANDV presence and infectivity in body fluids from confirmed cases.

Methods: Clinical samples (buffy coat, plasma, gingival crevicular fluid (GCF), saliva, nasopharyngeal swabs (NPS), and urine) were collected weekly for three weeks from 133 confirmed ANDV HCPS cases (via specific ANDV-RT-qPCR) enrolled between 2008 and 2022. Samples were categorized as acute or convalescent (up to and after 16 days of symptom onset). Infectivity of positive fluids was assessed by culturing samples on Vero E6 cells and using flow cytometry assays to determine ANDV-N protein production.

Findings: ANDV-RNA was detected in 100% of buffy coats during the acute phase, declining to 95% by day 17, and 93% between days 23-29. ANDV-RNA in GCF and saliva decreased from 30% and 12% respectively during the acute phase to 12% and 11% during convalescence. Successful infectivity assays of positive fluids (including GCF, saliva, NPS, and urine) were observed in 42% (18/43) obtained during the acute phase. After re-culture, the capacity to infect Vero E6 cells was maintained in 88.9% (16/18). In brief, this study identifies the timing of ANDV shedding in a large cohort, suggesting a period during the acute phase (up to 16 days post-symptom onset) with higher viral shedding, depending on the compartment. The presence of infectious viral particles in GCF, saliva, and nasopharyngeal secretions indicates that exposure to these fluids may facilitate person-to-person transmission. This study enhances understanding of viral shedding during acute and convalescent phases, identifying body fluids with evidence of ANDV infection. This information can improve infection control strategies for healthcare personnel and close household contacts, and provides valuable data for molecular diagnosis from various sample sources.

Biography: Constanza Martínez-Valdebenito is a Biochemist with a Bachelor's degree from Universidad de Santiago de Chile, a Master of Science in Epidemiology, and a PhD candidate in Epidemiology at Pontificia Universidad Católica de Chile. Her research focuses on emerging infectious diseases, particularly zoonotic diseases, including hantavirus, influenza virus, and scrub typhus.

With over 16 years of experience in hantavirus research and a decade of work on scrub typhus, she has developed expertise in molecular diagnosis, epidemiology, genetic epidemiology, and vector-borne infections. Her work extends to understanding immunological responses in infectious diseases, contributing significantly to the fields of public health and disease prevention.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Shresth Ghosh, PhD

Dana-Farber Cancer Institute, Harvard Medical School, Boston, USA

RIOK2 transcriptionally regulates telomerase activity to prevent telomere shortening

Abstract: Telomere shortening is a characteristic feature of tissues derived from aging individuals and from patients diagnosed with idiopathic pulmonary fibrosis (IPF) or blood cancers such as myelodysplastic syndrome (MDS). Although telomerase activity tightly controls telomere length homeostasis, the upstream regulation of telomerase holoenzyme subunits has remained largely elusive. Also, the intriguing association between telomere shortening and anemia in aged individuals is poorly understood. We have previously reported that RIOK2 (right open reading frame kinase 2) functions as a master transcription factor in human blood cell development¹, and loss of RIOK2 impairs erythroid differentiation, thus causing anemia^{1,2}. Here, we show that RIOK2 transcriptionally regulates key telomerase subunits (TriC and Dyskerin complexes) to maintain telomere length homeostasis in several different cell types using gene expression analyses, fluorescence in situ hybridization, chromatin immunoprecipitation, reconstitution experiments, and TRAP assays³. Interestingly, RIOK2's expression is downregulated in aged individuals and IPF patients, and its mRNA levels significantly correlate with the expression of TriC and Dyskerin complex subunits in samples derived from MDS and IPF patients as well as aging individuals. Most importantly, ectopic expression of RIOK2 significantly alleviates telomere shortening and associated DNA damage responses in primary lung fibroblasts isolated from IPF patients³. Collectively, our findings demonstrate that RIOK2 governs both telomere length homeostasis and blood cell development, highlighting it as an unprecedented connecting link between anemia and telomere shortening in aging individuals. Thus, RIOK2-driven transcriptional programs have potential therapeutic implications in MDS, IPF and aging.

Keywords: RIOK2, telomere shortening, telomerase activity, MDS, IPF.

Biography: Dr. Shrestha Ghosh earned her PhD in Biochemistry from the University of Hong Kong (HKU) after having completed her bachelor's in biotechnological engineering from India. She received the best thesis award in the medicine faculty of HKU, published several first-author papers, and her thesis has been published as a book by Springer Nature. Dr. Ghosh then joined Dana-Farber Cancer Institute, Harvard Medical school, where she started studying hematopoietic differentiation in the context of blood cancers. She is now an Instructor of Medicine, has published several first author papers in reputed journals like Nature Immunology, Nature Communications, and has recently cofounded a biotech startup. Today she'll speak about her recent work on exploring the link between telomere shortening and anemia.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



**Marco Stefani, A. Galland, S. Blanot, K. Beccaria, R. Luscan,
F. Simon, C.J. Roux, H. Sauvé-Martin, G.A. Orliaguet**

Hôpital Necker Enfants Malades, Paris, France

Severe intracranial infections in children : the emergence of Otopsinogenic Empyema

Abstract: Intracranial empyemas (IE) are rare complications of the ORL sphere that can compromise life or cause neurological sequels. Few studies describe their characteristics. In the “Ile de France region”, pediatric IE are sent to our referring hospital to be treated according to our multidisciplinary protocol.

This monocentric retrospective study have taken in account a previously studied cohort of 76 patients over 5 years in our hospital (2016-2020), and added all patients until march 2023, for a total cohort of 151 patients over 7,25 years. We noticed a remarkably increasing incidence from 2020 and forward. In addition to the previously studied data, we have analysed risk factors for neurological sequels or surgical reintervention.

Bimodal distribution was found in regards to age at presentation: otogenic empyema (OE) in younger children than sinogenic empyema (SE). SE presented significantly more neurologic symptoms and subdural IE localization on imaging.

A surgical drainage was performed after imaging in 100%. A surgical reintervention was necessary in 33% of SE and 10% of OE ($p < 0,001$).

Bacteriologic sampling was collected in 100%, and germ was identified in 93%. Predominant germs were Fusobacterium necrophorum (50%) on OE and Streptococcus milleri (45%) for SE.

Risk factors for surgical reintervention were parietal localisation for SE, and the presence of residual empyema for both. Neurologic sequels were observed in 23% of cases (30% of SE vs 14% of OE, $p < 0,05$). Risk factors for sequels were subdural and parietal localisation of the IE.

This study shows one of the largest cohorts of pediatric intracranial empyema from ORL infections. The good results in terms of morbi-mortality confirm the efficacy of a multidisciplinary approach framed by an established institutional protocol.

Keywords: Intracranial empyema, ORL, mastoiditis, sinusitis, neurosurgery, intensive care.

Biography: Pediatrician from Paraguay, working in the Neurosurgical pediatric intensive care unit of Necker Enfants Malades, Paris, since november 2022.

- Doctor in medicine since 2016, National University of Asuncion, Paraguay
- Specialist in Pediatrics since 2020, National University of Asuncion, Paraguay
- Advanced specialised training - Pediatric intensive care, 2023, Université Paris Cité, Paris, France
- Currently specialising in Neurologic intensive care, Université Paris Sorbonne, Paris, France

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Brigitte Haberkorn

Maasstad Hospital, The Netherlands

Real life data important to make appropriate choices at the end of life in patients with pancreatic cancer

Abstract: Introduction Pancreatic cancer is one of the five most common causes of cancer mortality in developed countries. In patients with metastatic disease, the most frequent treatment used is FOLFIRINOX, which is associated with moderate toxicity which could influence quality of life. The efficacy of FOLFIRINOX in a general population in the Netherlands has not been subject of research before, and therefore, this research has been set up in order to investigate what the real-life benefits of FOLFIRINOX are in a population with metastatic pancreatic cancer (mPC) treated in three general hospitals in the Netherlands. Methods The data used in this study was collected by patient records leading to a noninterventional retrospective cohort study. Eighty-six patients, over 18 years of age, diagnosed with mPC between the years 2015 and 2022 and treated with FOLFIRINOX at Maasstad Hospital in Rotterdam, Amphia Hospital in Breda, or Catharina Hospital in Eindhoven, were included in the study. Kaplan-Meier models were used in order to represent survival outcomes.

Results: The results showed a median overall survival of 228 days (IQR 118–355). Only 14.0% (n = 12) completed the firstline treatment, and 51.2% (n = 44) of patients stopped treatment before or during cycle 6. Toxicity is highest, grade 3, after the first cycle but remains high for grade 1 and 2 during all treatment cycles. Conclusion Survival rates for patient with metastatic pancreatic cancer treated with FOLFIRINOX were worse in our study population than in comparative studies. It is evident that results from trials cannot always be directly translated to daily practice. It is therefore necessary to check after approval whether new drugs live up to their expectations. And thereby, should we not be more critical in offering treatment to patients with such a poor life expectancy and focus more on the quality of life?

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Torsten Matthias, Patricia Wusterhausen

Aesku.Group GmbH, Wendelsheim, Germany

Microbial Transglutaminase: A New Potential Player in Gluten Related Disorders

Abstract: Celiac disease (CD) incidence is increasing worldwide, alongside, the food industry is introducing ingredients such as microbial transglutaminase (mTG) that revolutionize food production. Human tissue transglutaminase (tTG) is the autoantigen of celiac disease. Both enzymes de/transamidate gluten, known to induce Gluten Related Disorders (GRD) like Celiac Disease (CD) or Non-Celiac Gluten Sensitivity (NCGS).

The hypothesis suggests that mTG acts as an environmental enhancer of GRD based on several key scientific findings. Similar to endogenous tTG, mTG modifies gluten through deamidation and transamidation. However, mTG is less selective with its substrates and can crosslink a wide range of proteins and other macromolecules. This alteration affects their structure, antigenicity, and physical and chemical properties, thereby increasing the load that the immune system must handle. Additionally, mTG enhances the stability of proteins, including gluten, against proteinases, which reduces nutrient digestion efficiency and impedes the elimination of foreign proteins. In CD, intestinal permeability increases, with gluten and infections as key contributors. Industrial mTG modifies gluten and cross-links it with other food components, disrupting tight junctions between intestinal cells. This allows more immunogenic molecules to enter, potentially triggering GRD. Industrial use of microbial transglutaminase (mTG) may initiate gluten-related disorder (GRD) pathogenesis as early as food processing, market storage, or within the gut, due to early deamidation and cross-linking. Consuming foods treated with mTG could elevate GRD incidence by creating immunogenic neo-epitopes. Transparent labeling of mTG use is crucial until further research clarifies its risks. If these effects are confirmed, they could reshape additive policies, product labeling, consumer awareness, regulatory standards, and public health practices.

Keywords: Gluten Related Disorders, Celiac Disease, Non-Celiac Gluten Sensitivity, microbial Transglutaminase, Neo-epitopes

Biography: Patricia Wusterhausen completed her Master's degree in Biomedical Sciences and Technology at the University of Applied Sciences in Mannheim in 2012. Shortly after graduation, she joined the AESKU.KIPP Institute, where she served as a Project Manager for over a decade, contributing to advancements in biomedical research and technology. In 2024, Patricia transitioned to the role of Medical Science Liaison Manager at AESKU.Diagnostics in the Research & Development department, where she now supports scientific communication and fosters collaboration to drive innovation in diagnostic solutions. Her career reflects a deep commitment to the field of biomedical sciences and cutting-edge diagnostics.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Seo Jin Hwang, Eun Hee Jeong, Mi Hee Chang,
Heon Ju Lee

CARBio Therapeutics, Republic of Korea

Genetically Engineered CLDN18.2 CAR-T Cells Expressing Synthetic PD1/CD28 Fusion Receptors and Signaling Mechanism Regulation Factor Produced Using a Lentiviral Vector

Abstract: This study aimed to develop synthetic Claudin18.2 (CLDN18.2) chimeric antigen receptor (CAR)-T (CAR-T) cells as a treatment for advanced gastric cancer using lentiviral vector genetic engineering technology that targets the CLDN18.2 antigen and simultaneously overcomes the immunosuppressive environment caused by programmed cell death protein 1 (PD-1). Synthetic CAR T cells are a promising approach in cancer immunotherapy but face many challenges in solid tumors. One of the major problems is immunosuppression caused by PD-1. CLDN18.2, a gastric-specific membrane protein, is considered a potential therapeutic target for gastric and other cancers. In our study, CLDN18.2 CAR was a second generation CAR with inducible T-cell costimulatory (CD278), and CLDN18.2-PD1/CD28 CAR was a third-generation CAR, wherein the synthetic PD1/CD28 chimeric-switch receptor (CSR) was added to the second-generation CAR. In vitro, we detected the secretion levels of different cytokines and the killing ability of CAR-T cells. We found that the secretion of cytokines such as interferon-gamma (IFN γ) and tumor necrosis factor-alpha (TNF- α) secreted by three types of CAR-T cells was increased, and the killing ability against CLDN18.2-positive GC cells was enhanced. In vivo, we established a xenograft GC model and observed the antitumor effects and off-target toxicity of CAR-T cells. These results support that synthetic anti-CLDN18.2 CAR-T cells have antitumor effect and anti-CLDN18.2- PD1/CD28 CAR could provide a promising design strategy to improve the efficacy of CAR-T cells in advanced gastric cancer. Recently, CARBio-022 CAR-T cells have added the X domain gene, which is a signaling mechanism regulation factor. The fifth generation CAR-T cells do not become exhausted, have excellent long-term and cancer-killing effects, but have the same body weight and are not toxic. Based on the 5th generation CARBio-022 CAR-T cells, we plan to prepare clinical trials targeting advanced gastric and pancreatic cancer using Mnc12. And we are rapidly developing treatments using organoids derived from patients with lung, liver, or biliary cancer.

Background: About 2,000 clinical trials are underway for CAR-T gene therapy, and the United States was the first in the world to conduct clinical trials in 1990, and clinical results have been announced in earnest since 2006. The long-standing dream of curing incurable diseases is gradually being realized, starting with the cure for blood cancer using CAR-T (Chimeric Antigen Receptor-T) gene therapy. It is a cutting-edge new medicinal technology that corrects, prevents, or treats diseases by synthesizing therapeutic genes and introducing them into the human body using a virus as a carrier.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Ella L. Kim

Johannes Gutenberg University Medical Centre / Laboratory for
Experimental Neurooncology / Clinic for Neurosurgery/Mainz, Germany

Pleiotropic impacts of chloroquine encompass concurrent activation of pro-survival and pro-death signaling in glioblastoma stem cells: Implications for chloroquine-mediated radiosensitization

Abstract: Glioblastoma is the most malignant form of brain tumor in adults. High degree of intrinsic and acquired radioresistance is the major challenge to glioblastoma therapy with effective radiosensitizing treatments remaining an unmet medical need. The biological paradigm of glioblastoma is based on a premise that so-called glioblastoma stem-like cells are as the major cellular determinants of glioblastoma radioresistance and tumor re-growth after (or under) cytotoxic non-targeted therapies. Pleiotropic agent chloroquine has attracted considerable attention in the past decade for its potential radiosensitizing effects in difficult-to-treat cancers including glioblastoma. However the molecular and cellular mechanisms underlying anti-tumour actions of chloroquine remain poorly understood. Our investigations reveal a previously unknown mechanistic duality and antagonistic impacts of chloroquine manifest in the concurrent activation of both survival-promoting and death-inducing molecular signaling in glioblastoma stem cells via transcription-dependent and transcription-independent mechanisms. Our findings indicate that the ultimate outcome of chloroquine treatment is determined by the balance between pro-death and pro-survival signals elicited at the level of transcriptional control as well as via direct impacts on the abundance of key regulators of the DNA damage response and cell fate including ATM, p53, p21, HIPK2 and AKT. We propose a conceptual framework for predicting the efficacy of chloroquine for glioblastoma radiosensitization based on the status of tumor suppressor p53, which has a decisive impact on the balance between pro-survival and pro-death responses activated by chloroquine. Our model based on findings with glioblastoma stem cells has a broader impact and is applicable to other radioresistant cancers. A more detailed discussion will focus on the current and perspective approaches to individualized molecular diagnostics for glioblastoma.

Keywords: glioblastoma / glioblastoma stem cells / chloroquine / radiosensitization

Biography: Dr. Ella Kim has received her Ph.D. at the Institute of Molecular Biology (Kiev, Ukraine) in 1990. In 1992, Dr. Kim took a postdoct position at the Barrow Neurological Institute (Phoenix, AZ USA). In 2003, she received an EMBO Fellowship for a research project on transcriptional control by tumour suppressor p53 at the Heinrich-Pette-Institut (Hamburg, Germany). Since 2003, Dr. Kim directs own research on molecular and cellular mechanisms of glioblastoma progression. Since 2011, Dr. Kim directs the Laboratory of Experimental Neurooncology at the Clinic for Neurosurgery of the University Medical Centre of Mainz (Germany).

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Marina Eyngor, Sharon Tirosh-Levy, Leehe Shaiman Barom, Shiri Novak, Gili Schwartz, Boris Yakobson, Amir Steinman

Koret School of Veterinary Medicine, Hebrew University of Jerusalem Kimron Veterinary Institute, Bet Dagan, Israel

Persistence of Anti-Rabies Antibody Response in Horses Following Vaccination

Abstract: Rabies is a fatal zoonotic disease that affects all mammalian species, including horses. Although horses are rarely infected, vaccination is recommended to minimize the risk of transmission to humans. However, the persistence of immunity and the need for booster doses are not well defined in horses. This study aimed to evaluate the duration of immunity following rabies vaccination in horses.

A total of 126 serum samples were collected from 93 horses, vaccinated 6 to 91 months before sampling. Rabies-virus-neutralizing antibody (RVNA) levels were evaluated using the Rabies Fluorescent Focus Inhibition Test (RFFIT). A protective RVNA titer of above 0.5 IU/mL was found in 112 (88.9%) of the samples and 84 (90.3%) of the horses. Antibody titers declined over time ($\rho = -0.271$, $p = 0.002$); however, there was no significant difference in antibody titers or the prevalence of unprotected horses between the time intervals following vaccination. Purebred horses had lower antibody titers ($p = 0.024$). The response to booster vaccination was inspected in ten horses, and increased antibody titers were found in eight of them. The results of this study demonstrate the prolonged persistence of protective immunity in horses following rabies vaccination, in some cases, for up to eight years. Therefore, the current annual vaccination strategy should be re-evaluated. A rate of 9.7% of poor responders should be considered from an epidemiological perspective in order to minimize the risk of emergence of the disease.

Keywords: Rabies, Vaccination, Horses, Antibodies, Long-term Immunity

Biography: Dr. Marina Eyngor is the Head of the Rabies laboratory of Kimron Veterinary Institute (KVI) with over 30 years of experience. She specializes in the microbiology and diagnosis of infectious diseases. She has contributed extensively to veterinary diagnostics, mainly focusing on zoonotic diseases and developing optimized vaccination protocols for domestic animals. Diagnosing and preventing infectious diseases is crucial in safeguarding animal and public health.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Monica Acalovschi

University of Medicine and Pharmacy, Cluj-Napoca, Romania

The combined hepatocellular carcinoma–intrahepatic cholangiocarcinoma (cHCC–CCA) – a rare primary liver cancer

Abstract: Combined (mixed) hepatocellular carcinoma–intrahepatic cholangiocarcinoma (cHCC–CCA) is a rare primary liver cancer (about 1% of the primary hepatic tumors), and an independent entity sharing features of both hepatocellular carcinoma (HCC) and intrahepatic cholangiocarcinoma (iCCA). The combined tumor is an aggressive disease, with increasing incidence and a poor prognosis. The cells of origin of the iCCA are the cholangiocytes, the peribiliary glands, and the hepatocytes. The hepatic progenitor cells have the potential to differentiate into either hepatocytes or cholangiocytes depending on the damaged cell population in mixed tumors and represent the origin of cHCC-CCA. The cHCC-CCA has a steadily increasing incidence. The etiology of the combined tumor is that of both components. In the context of a better control of viral B and C infections, the increased risk of HCC and incident iCCA should probably be related to the worldwide increase in the prevalence of metabolic disorders (obesity, type II diabetes mellitus) and NAFLD. Primary prevention of obesity and diabetes treatment could be essential for reducing the incidence of liver cancer. The interest in this heterogeneous class of tumors, difficult to be diagnosed and with limited therapeutic options available, has been proved by the numerous publications in recent years, including including the recent Expert European Consensus Statement Cholangiocarcinoma 2020: the next horizon in mechanisms and management. Progress in molecular research, genetic biomarkers identification, diagnosis and staging are essential for the development of efficient treatment of these tumors. It is still unclear whether conventional treatments for HCCs, including surgical resection, liver transplantation, locoregional therapy, or systemic agents, can also be used as treatment for cHCC-CCA. For cHCC-CCA there are still more questions than answers.

Key words: cholangiocellular carcinoma, hepatocellular carcinoma, incidence, diagnosis, staging

Biography: I am Em. professor gastroenterology / internal medicine at University Medicine & Pharmacy, Cluj-Napoca, Romania. PhD thesis Cluj-Napoca 1997. Research topics: gallstones, liver cirrhosis, hepatocellular carcinoma, cholangiocarcinoma. Main contributions: identification of the first genetic polymorphism conferring gallstone risk (Hepatology 2007); member EASL Clinical Practice Guidelines on Prevention, Diagnosis and Treatment of Gallstones (J Hepatol 2016). 2021: „Lifetime Recognition Award” for excellent long-term services to sciences from European Society of Biomedical Research on Alcoholism (ESBRA). I am Founder of Journal of Gastrointestinal and Liver Diseases, Honorary Member of the Romanian Academy of Medical Sciences and Corresponding Member of the Romanian Academy.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Zsuzsa Szondy

University of Debrecen, /Department of Basic Medical Sciences,
Faculty of Dentistry, Debrecen, Hungary

Adenosine receptors harmonize the degree of inflammation and the consequent tissue repair with the degree of injury

Abstract: Skeletal muscle regeneration is a complex process orchestrated by multiple interacting steps. An increasing number of reports indicate that inflammatory responses play a central role in linking initial muscle injury responses to timely muscle regeneration following injury. Adenosine has been known for a long time as an endogenously produced anti-inflammatory molecule that is generated from ATP released from the dying cells during tissue injury. It mediates its physiological effects via four types of adenosine receptors that respond to different concentrations of adenosine. From these, adenosine A₃ receptors (A₃Rs) are not expressed by the skeletal muscle, but are present on the surface of various inflammatory cells. In the present paper, the effect of the loss of A₃Rs was investigated on the regeneration of the tibialis anterior (TA) muscle in mice following cardiotoxin-induced injury. Here we report that regeneration of the skeletal muscle from A₃R^{-/-} mice is characterized by a stronger initial inflammatory response resulting in a larger number of transmigrating inflammatory cells to the injury site, faster clearance of cell debris, enhanced proliferation and faster differentiation of the satellite cells, and increased fusion of the generated myoblasts. This leads to accelerated skeletal muscle tissue repair and formation of larger myofibers. Bone marrow transplantation experiments revealed that the increased response of the tissue-resident cells to tissue injury is responsible for the observed phenomenon. Interestingly, similar results can be obtained by injecting an adenosine A₂B receptor agonist, while opposite in A₂AR^{-/-} mice. Altogether our data indicate that A₃Rs are negative, while A₂Rs are positive regulators of the injury-related regenerative inflammation, and consequently also that of the muscle fiber growth in the TA muscle.

Keywords: skeletal muscle, cardiotoxin-induced injury, adenosine receptors, tissue repair

Biography: Zsuzsa Szondy received her MD in 1983 in the University of Medical School of Debrecen. She continued her studies in Indiana and in Oxford University to receive her PhD in 1990. Since then she is employed by the University of Debrecen, Hungary, where she became a full professor in 2003. Her scientific interest is efferocytosis and its biological importance in the thymus, in the skeletal muscle and in the adipose tissue. She published around 90 papers. She was awarded with the prizes “Women in Science” (l’Oréal and UNESCO), Master Teacher (Ministry of Education, Hungary), and was elected to be member of the ECDO Academy.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Bingqing Hao and Karen A. Beningo

Wayne State University, Department of Biological Sciences, Detroit, USA

Basigin Binds to Calpain 4 for the Production of Traction Forces

Abstract: Traction force and mechanosensing (the ability to sense mechanical attributes of the environment) are used by a cell to modify migratory behavior. In previous studies we found that the calpain small subunit, calpain 4, regulates the production of traction force independent of its proteolytic holoenzyme. An active protease is formed when calpain4 and calcium bind to either of its catalytic partners, calpain 1 and 2. To further understand how traction force is regulated, we used two-hybrid analysis to identify more components of the traction pathway. We were surprised to discover that basigin, an integral membrane protein and an inducer of matrix-metalloprotease binds to calpain 4 in two-hybrid and pull-down assays. When basigin was silenced in MEF cells, traction force and adhesion strength was found to be defective. Consistent with *Capn4*^{-/-} MEF cells, the cells deficient in basigin responded to localized stimuli. Together these results implicate basigin in the pathway in which calpain 4 regulates traction force independent of the catalytic large subunits to control cell migration.

Keywords: Basigin, calpain, traction force, adhesion, mechanosensing, migration

Biography: Karen Beningo has completed her Ph.D. at the University of Michigan, Ann Arbor, USA and a NRSA Fellowship at the University of Massachusetts Medical School, Worcester, USA. She has presented papers in more than 20 national and international conferences including EMBO, AACR and ASCB. She has over 30 publications in national and international journals that have accumulated nearly 5000 citations. She is currently an Associate Professor of Biological Sciences at Wayne State University, USA and a member of the Karmanos Cancer Institute.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Bruno Alexis Morales Huaco, Joel Antonio Bernhardt,
Thiago Ribas Pereira, **Isabela Cristina Coelho da Cunha**

Universidade do Vale do Itajaí, Medicina, Itajaí, SC, Brazil

Endoscopic Findings in Patients Who Underwent Bariatric Surgery

Abstract: Esophagogastroduodenoscopy (EGD) findings are known causes of morbidity, especially in patients with obesity. As most bariatric surgery procedures involve some intervention on the stomach, it is important to know the organ's pre- and postoperative anatomical condition. This study seeks to create an anthropometric profile and analyze the prevalence of gastrointestinal findings in the pre- and postoperative periods of bariatric surgery. This study used data from 1019 patients who underwent bariatric surgery by vertical gastrectomy or Roux-en-Y gastric bypass techniques and had preoperative EGD results, collected from a reference hospital in Vale do Itajaí-SC, and the findings assessed were as follows: hiatal hernia, esophagitis, gastritis, gastric ulcer, esophageal varices, duodenitis, duodenal ulcer, and positive urease tests. In the results, 73% of the patients were female; the mean Body Mass Index (BMI) was 41.88 kg/m² in the preoperative period and 27.99 kg/m² at the 1-year postoperative time. In the preoperative EGD, 73.3% of patients presented abnormalities, primarily gastritis and a positive urease test. Postoperatively, only 20.6% of patients showed abnormalities, with findings generally improving depending on the surgical technique applied. The most common postoperative abnormalities were esophagitis, a positive urease test, and gastritis.

Key words: Endoscopy; Bariatric surgery; Obesity

Biography: Torres-Landa S, Kannan U, Guajardo I, Pickett-Blakely OE, Dempsey DT, Williams NN, Dumon KR. Surgical management of obesity. *Minerva Chir.* 2018 Feb;73(1):41-54.

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INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Izabela Malysz-Cymborska

University of Warmia and Mazury, School of Medicine,
Department of Neurosurgery, Olsztyn, Poland

Complexity of damage-associated molecular pattern molecules (DAMPs) expression profile in porcine brain affected by ischemic stroke

Abstract: Ischemic stroke is one of leading causes of death worldwide. Cerebral ischemia resulting from infarction of one of the arteries supplying the brain leads to a cascade of inflammatory reactions initiated by increased release of danger/damage-associated molecular patterns (DAMPs), which, acting through receptors on microglia and astrocytes, induce increased cytokine production and infiltration of immune cells from the periphery. The aim of our study was to determine the relationship between different DAMPs in the porcine brain after ischemic stroke and to evaluate the time points of inflammatory reactions. We determined increased expression of proinflammatory cytokine genes: IL1A and IL1B, TNF α 6 h after stroke induction. This indicates an intense and strong inflammatory reaction in the hyperacute phase of ischemic stroke, which is most likely related to the passive release of DAMPs by necroptotic neuronal cells. Increased expression of HMGB1, TLR4 and NF κ B1 was observed in the subacute phase, one week after stroke onset. This may be related to the ongoing inflammation and the recruitment of immune cells, as well as to the beginning of vascular remodeling in the affected area. In turn, a increased expression of CD39 and CD73 genes one week after cerebral ischemia in pigs and the consequent elevation in extracellular adenosine attenuate the inflammatory response, playing a neuroprotective role. In summary, our studies have for the first time determined and systematized the importance and complexity of DAMP action after cerebral ischemia in pigs and highlighted their dual role. The complexity of their action is particularly visible at the beginning of the subacute phase, where – according to the results of our studies – the inflammatory reaction, initiation of angiogenesis and partial neuroprotection can occur simultaneously.

Keywords: Stroke, Animal model, DAMPs, Pig, Brain

Biography: Izabela Małysz-Cymborska has been an associate professor at the Department of Neurosurgery at the Faculty of Medicine of the University of Warmia and Mazury in Olsztyn since 2022. She obtained her PhD at the Institute of the Polish Academy of Sciences in Olsztyn in 2015. For almost a decade, her work has focused on modeling neurological disorders in small and large animals, including ALS, stroke or GBM. She introduced an innovative method of culturing stem cells in a 3D system using alginate hydrogels, enabling their imaging in magnetic resonance imaging. She describes herself briefly as a scientist by passion, a biologist by choice.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Abdul Wakeel Umar 1,4,*, Naveed Ahmad² and Ming Xu^{1,3,*}, Jong Chan Park⁴, Tengfang Linga⁵, Stephen Beungtae Ryu^{4,6,*}

1. BNU-HKUST Laboratory of Green Innovation, Advanced Institute of Natural Sciences, Beijing Normal University at Zhuhai (BNUZ), Zhuhai 519087, China
2. Joint Center for Single Cell Biology, Shanghai Collaborative Innovation Center of Agri-Seeds, School of Agriculture and Biology, Shanghai Jiao Tong University, Shanghai 200240, China
3. Guangdong-Hong Kong Joint Laboratory for Carbon Neutrality, Jiangmen Laboratory of Carbon Science and Technology, Jiangmen 529199, China
4. Plant Systems Engineering Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea
5. R&D center, Our Bio Ltd., Daejeon 34186, Republic of Korea
6. Department of Biosystems and Bioengineering, KRIBB School of Biotechnology, University of Science and Technology (UST), Daejeon, Republic of Korea

Advancing In Vitro Natural Rubber Synthesis via Cell-Free Systems

Abstract: Natural rubber (NR), vital for over 40,000 products, is projected to reach \$68.5 billion in demand by 2026. Traditionally sourced from *Hevea brasiliensis* latex, NR production is hindered by low productivity, slow growth, environmental limits, and pathogen susceptibility. Recent advances in in vitro NR synthesis using recombinant proteins in bacterial, yeast, plant, and cell-free systems have provided significant insights, yet fully replicating NR production remains challenging. A major achievement includes synthesizing large cis-polyisoprene chains by reconstituting the HRT1-HRBP-REF complex on washed rubber particles (WRPs). However, substituting WRPs with nanodiscs has only produced small chains, indicating further research is needed. A promising approach involves isolating the rubber transferase (RTase) complex using natural membrane lipids, or “natural nanodiscs,” and reconstituting it on liposomes. These refined techniques offer potential solutions to current challenges in understanding and replicating the RTase complex's role in NR synthesis. This research is relevant to the “International Conference on Cell Science and Regenerative Medicine” as it demonstrates the innovative use of cell science to create functional biological materials outside traditional cellular systems, aligning with regenerative medicine's goals.

Keywords: Cell-Free Protein Synthesis, Cis-prenyltransferase, Membrane Proteins, Rubber Transferase

Biography: Dr. Abdul Wakeel Umar is a biotechnology and molecular biology expert with a Ph.D. from Zhejiang University, China, and an MPhil from Quaid-I-Azam University, Pakistan. He is currently an Associate Distinguished Research Fellow at Beijing Normal University. Dr. Umar has served as a Brain Pool Invited Scientist at Korea Research Institute of Bioscience and Biotechnology and an Outstanding Postdoctoral Fellow at Henan University. His expertise includes hormonal crosstalk, secondary metabolite biosynthesis, and plant tissue culture. He has received prestigious grants and published extensively in peer-reviewed journals, showcasing his dedication to scientific research.

INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE



Naira Dekhil & Helmi Mardassi

Unit of Typing & Genetics of Mycobacteria, Laboratory of Molecular Microbiology, Vaccinology, and Biotechnology Development, Institut Pasteur de Tunis, Université de Tunis El Manar, Tunis, Tunisia

Successful expansion of MDR-TB Clones in Northern Tunisia

Abstract: We carried out a whole genome sequencing (WGS)-based investigation on the emergence of a major multidrug-resistant tuberculosis (MDR-TB) outbreak in Tunisia caused by a lineage 4 (L4) *Mycobacterium tuberculosis* strain. Unlike the largest L4 MDR-TB outbreak that occurred in Argentina, the outbreak described herein evolved in a context strictly negative for HIV infection. To understand how MDR-TB strains emerge and spread, we explored the transmission dynamics of the *M. tuberculosis* Haarlem genotype in Northern Tunisia, where it caused a major outbreak affecting 48 individuals between 2001 and 2011. We ensured full coverage of the study region by analyzing all 250 *M. tuberculosis* clinical isolates displaying the Haarlem spoligotype signature. Using 24-loci MIRU-VNTR (multiple interspersed repetitive unit-variable-number tandem repeat) and WGS for 121 phylogenetically relevant isolates, we uncovered a high transmission rate among Haarlem isolates (83%) and identified a new minor MDR-TB cluster. Despite genetic divergence between the MDR-TB clusters, they evolved from a common drug-susceptible progenitor, most likely originating in 1886 (CI95% 1804-1927). Our findings provide evidence for the prominent role of incarcerated individuals in the onset of the outbreak and its spillover into the general population. By around 2008, the outbreak had progressed towards extensively drug-resistant TB (XDR-TB). In summary, our study highlights that even in the absence of HIV co-infection, the prison environment significantly contributes to the generation and transmission of highly transmissible M/XDR *M. tuberculosis* clones. These findings link the overall MDR-TB epidemics in Northern Tunisia to a single progenitor clone, a result that is both epidemiologically and fundamentally noteworthy.

Keywords: *M. tuberculosis*; MDR; Tunisia; L4.1.2.1; Incarceration

Biography: Dr. DEKHIL Naira is a postdoctoral researcher at the Institut Pasteur de Tunis, where she works in the Mycobacterial Typing and Genetics unit. She earned her PhD with a focus on the comparative and functional genomics of antibiotic-resistant strains of *Mycobacterium tuberculosis*, the causative agent of human tuberculosis (TB). Since 2017, she has been dedicated to the phylodynamic analysis of *M. tuberculosis* strains, contributing significantly to the understanding of their evolution and transmission. Dr. DEKHIL Naira is also an active member of Clinical Investigation Center at Institut Pasteur de Tunis.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Angelina Edna Quintas^{a, c, f}, Cláudia Camila Dias^d, Adis Del Carmen Cogle^e, Lemuel Cordeiro^f, António Sarmiento^{b, c}

^aMEDCIDS, Department of Community Medicine, Information and Health Decision Sciences, Faculty of Medicine of the University of Porto, Porto, Portugal.

^bCHUSJ, Infectious Diseases Service at the University Hospital Center of São João, Porto, Portugal.

^cCINTESIS@RISE-Center for Health Technology and Services Research (CINTESIS) & Health Research Network Associated Laboratory (RISE), Faculty of Medicine, University of Porto, Porto, Portugal.

^dMEDCIDS, Department of Community Medicine, Information and Health Decision Sciences, Faculty of Medicine of the University of Porto, Porto, Portugal.

^eDepartment of Hematology, Clínica Girassol, Luanda, Angola.

^fDepartment of Education Office, Clínica Girassol, Luanda, Angola.

Seroprevalence of viral transfusion transmissible infections (HBsAg, anti-HCV, anti-HIV, Syphilis) and coinfection among healthy volunteer blood donors during 5-years in Luanda, Angola

Abstract: The transmission of diseases by blood products continues to be a worldwide health problem, especially in Africa. Seroprevalence rates of the Hepatitis B virus (HBV), Hepatitis C virus (HCV), Human Immunodeficiency Virus (HIV), Syphilis, and Coinfection in Angola are poorly documented. This study aims to identify the seroprevalence of markers with positive results for Hepatitis B, C, HIV, Syphilis, and Coinfection in blood donors.

A retrospective study was conducted using a database of positive serological markers for these infections and coinfection in 2734 blood donors traced from 2011 to 2016 in Luanda, Angola. The Chi-Square test (χ^2) or Fisher's exact test was used to evaluate serological positivity and donors' characteristics. A p-value < 0.05 was considered statistically significant. 2734 blood donors aged 18 to 64 (median age 32+9) were screened from 2011 to 2016. 73.9 % of the donors were positive for one Transfusion-Transmitted Infection (TTI), and 5.9 % showed evidence of multiple infections. The overall seroprevalence rate was 50.2 % (1373) for HBV, 20 % (436) for Syphilis, 7 % (191) for HIV, 5.1 % (140) for HCV, and 5.8 % for coinfecting donors. 2467 (90 %) were men, and 267 (10 %) were women. We identified 118 (5.8 %) coinfecting donors. Of those, 40 (33.9 %) simultaneously presented Hepatitis B virus surface antigen (HBsAg)/Syphilis, 24 (20.3 %) HBsAg/HIV, 22 (18.6 %) HBsAg/HCV, 20 (16.9 %) HIV/Syphilis, 8 (6.8 %) HCV/Syphilis, and 4 (3.4 %) HIV/HCV.

A high transfusion-transmissible infection prevalence was found compared to some countries in Sub-Saharan Africa. Therefore, intensifying the screening for these transfusion-transmitted infections in blood donors is critical to ensure blood safety. **Keywords:** Transfusion-transmissible infection; Seroprevalence; Blood donors; África.

Biography: Degree in Medicine from the Faculty of Medicine of the University of Coimbra. Specialist in Infectious Diseases, São João Hospital Centre, Faculty of Medicine of the University of Porto. Hospital Assistant Medical Doctor of Infectious Diseases at Clínica Girassol, Luanda, Angola. Researcher at the Center for Health Technology and Service Research (CINTESIS), Porto, Portugal. PhD Student in Clinical and Health Service Research at the Faculty of Medicine of the University of Porto, Portugal (FMUP).

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Kazuhiro Matsuo and Satoru Mizuno

Institute for Vaccine Research and Development (IVReD),
Hokkaido University, Sapporo, Japan

Culture filtrate proteins from *Mycobacterium bovis* BCG act as adjuvants for cytotoxic T lymphocyte induction

Abstract: *Mycobacterium bovis* bacilli Calmette-Guérin (BCG) is a licensed vaccine against tuberculosis (TB). Although this bacterium has been used as an effective vaccine against infant TB for a long time, its efficacy in adult pulmonary TB has been limited. This has rendered it ineffective in the global fight against TB. It requires live bacteria to be effective, possibly because actively secreted proteins play a critical role in inducing anti-TB immunity. BCG also functions as an effective adjuvant. Moreover, the effects of BCG components as adjuvants are not comparable with those of live BCG, which is practically used in cancer immunotherapy. However, the role of the secreted proteins in anticancer immunity remains unclear. To understand mycobacterial secreted proteins' function, we investigated immuneresponses to BCG culture filtrate proteins (CFP).

Although purified protein derivatives did not induce antigen-specific CD8⁺ T cell, CFP strongly induced both antigen-specific CD4⁺ and CD8⁺ T cells, which may be functional cytotoxic T lymphocytes (CTLs). In this study, we clearly demonstrated that CFP acts as an adjuvant for CTL induction against specific co-administered proteins and propose CFP as a new protein adjuvant. The CTL response shows potent anticancer effects in mice. A detailed mechanism analysis is required to better understand the CTL adjuvanticity of the CFP. However, CFP is a mixture of >100 proteins. Therefore, the verification of CTL adjuvanticity for each protein and identification of the "key protein" warrant further study. Several candidate proteins were obtained as active components which showed enhancement of ovalbumin-specific CTL induction. These proteins could be developed as a novel CTL adjuvant for production of vaccines against various infectious diseases and cancers where antigen-specific CTL function is involved.

Keywords: BCG, culture filtrate proteins, CTL, anti-cancer immunity

Biography: I started mycobacterial research in 1986 and first I cloned alpha antigen (antigen 85B) gene from BCG (J. Bacteriol., 1988). Based on it, I established a foreign antigen secretion system in BCG vaccine strain (Infect. Immun., 1990). This was the first report on a recombinant BCG secreting exogenous antigen. By using this system, I have been working on anti-HIV vaccine development since 1994, and developed a prime-boost vaccine using BCG and vaccinia vectors (J. Virol., 2005, J. Virol., 2021). Currently, I'm working on anti-TB vaccine development using the CFP adjuvant (Front. Immunol., 2023) in IVReD, Hokkaido University.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Sheng Ding, Jingqing Zeng, Zhaohui Deng

Shanghai Children's Medical Center, National Children's Medical Center (Shanghai), Shanghai Jiao Tong University School of Medicine, Shanghai 200127, China

Difficult Management of Pancreatic Pseudocyst Drainage in a 4-year-old Child

Abstract: Background A 4-year-old boy with acute lymphoblastic leukemia developed recurrent pancreatitis and pancreatic pseudocyst formation following asparaginase chemotherapy. Six months after stent drainage of the pancreatic duct, CT revealed progressive enlargement of the pseudocyst, compressing the gastric lumen.

Objective: The objective was to explore the methods and effectiveness of selecting appropriate puncture sites and successfully draining pancreatic pseudocysts in pediatric patients, particularly those with narrow digestive tract lumens.

Methods: Due to the small gastric lumen, the junction of the esophagus and cardia was selected for puncture. A dilation catheter was used to expand the puncture tract, and two double-pigtail stents was planned to be placed through the esophagus. However, the first stent failed to release properly due to esophageal compression and limited space, slipping into the pseudocyst cavity. Using a gastroscope with a transparent cap for puncture site identification, foreign body forceps were used under fluoroscopic guidance to retrieve the stent, and it was replaced with a curved transnasal pancreaticobiliary drain.

Results: CT re-examination one week post-procedure showed significant reduction of the pseudocyst. Endoscopic ultrasonography two weeks post-procedure revealed complete drainage of the cystic fluid. The transnasal pancreatic drain was removed without complications, and pancreatic enzyme levels returned to normal.

Conclusion: Narrow digestive tract lumens in pediatric patients pose challenges for endoscopic treatment. This case demonstrates that puncture and drainage at the esophagogastric junction are feasible in special cases, though it suggests that external drainage might be more appropriate for puncture sites near the esophagus.

Biography: Attending Physician, Department of Gastroenterology, Shanghai Children's Medical Center, National Children's Medical Center (Shanghai)

- Specializes in the diagnosis and treatment of pediatric biliary and pancreatic diseases
- Performed over 300 pediatric ERCP procedures
- Member of the World Chinese Pediatricians Association

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Wei Chong, Hao Chen, Leping Li

Shandong Provincial Hospital Affiliated to Shandong First Medical University, Department of Gastrointestinal Surgery, Jinan, China

Molecular characterization and clinical relevance of Metabolic Signature Subtypes in Gastric cancer

Abstract: Recent studies highlighted the clinicopathologic importance of tumor metabolic reprogramming in delineating molecular attributes and therapeutic potentials. However, the comprehensive metabolic characteristics in gastric cancer (GC) have not been comprehensively recognized. Here, metabolic signature-based clustering analysis identifies three subtypes (termed as MSC1, MSC2, MSC3) with distinct molecular and clinical features: MSC1 showed better prognosis and upregulation of the tricarboxylic acid (TCA) cycle and lipid metabolism, combined with frequent TP53 and RHOA mutation; MSC2 had moderate prognosis and elevated nucleotide and amino acid metabolism, enriched by intestinal histology and mismatch repair deficient (dMMR); and MSC3 exhibited poor prognosis and enhanced glycan and energy metabolism, accompanied by diffuse histology and frequent CDH1 mutation. The Shandong Provincial Hospital (SDPH) in-house dataset with matched transcriptomic, metabolomic, and spatial-metabolomic analysis also validated these findings. We also constructed a metabolic subtype-related prognosis genes (MSPG) scoring model to quantify the metabolic risk activity of individual tumors, where a low score is associated with glycosaminoglycan biosynthesis, and worse prognosis. Intriguingly, the cuproptosis signaling is positively correlated with MSPG-score in GC. Immunotherapy analyses indicate that tumors with low MSPG-score and MSC3 subtype are responsible for worse clinical response to immune check-point inhibitors (ICI) therapy. In conclusion, comprehensive recognition of the metabolite signature can enhance the understanding of diversity and heterogeneity in GC.

Keywords: Gastric cancer, Metabolic signature, Prognostic, Metabolic subtype

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Rohith Kodali

All India Institute of Medical Sciences, India

Comparison of Open and Laparoscopic assisted Pancreaticoduodenectomy for periampullary carcinoma – A Propensity score-matched analysis

Abstract:

Background & Aim: The safety and efficacy of total laparoscopic pancreaticoduodenectomy (TLPD) for patients with periampullary carcinoma is still a matter of debate with the major concern being clinically relevant post-operative pancreatic fistula (POPF). Despite the surgeon's experience pancreatojejunostomy performed laparoscopically could not match with the open technique regarding needle handling and precision of performing anastomosis which showed an increased rate of POPF in TLPD. Laparoscopic-assisted pancreaticoduodenectomy (LAPD), a hybrid procedure combining laparoscopic resection and reconstruction with a small incision may be an alternative selection. The present study aims to compare short-term outcomes and oncological efficacy between LAPD and Open pancreaticoduodenectomy (OPD).

Methods: The data of patients who underwent LAPD or OPD for periampullary carcinoma at All India Institute of Medical Sciences, Patna, India from July 2019 to August 2022 were analyzed. Thirty LAPD were performed and were compared with 30 OPD after 1:1 propensity score matching. Demographic data, intraoperative and postoperative data (30-day), and pathological data have been compared.

Results: A total of 93 patients were included in the study, 30 patients underwent LAPD, and 62 patients underwent OPD. After propensity-matched scoring 30 patients in the LAPD group and 30 in the OPD group were included in the matched cohort. No difference was observed in demographics between the two groups. Regarding the operative procedure, operative time was more with the LAPD group vs OPD group 463.8 (± 40.94) vs 356.29 (± 40.3) (P value < 0.001). There was a significant difference between the length of the incision (6 vs 17 cm), postoperative pain (VAS Score 5 vs 7), the start of early oral intake (5 vs 6 days), and the length of hospital stay (8 vs 10 days) in the LAPD group (P value < 0.001). The two groups did not see any difference between blood loss, ICU care stay, short-term complications, lymph node retrieval, pathological outcome, R0 resection, and early (30-day mortality).

Conclusion: LAPD has the same safety, technical feasibility, and short-term oncological efficacy compared with OPD.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Nilay Solanki

Ramanbhai Patel College of Pharmacy, Department of Pharmacology,
Charotar University of Science and Technology, CHARUSAT Campus,
Changa, Gujarat, India

Targeted Modulation of TNF- α and Adiponectin via Ginger and Sea Buckthorn Microemulsion: A Novel Approach for Nonalcoholic Fatty Liver Disease

Abstract:

Introduction: Nonalcoholic fatty liver disease (NAFLD) is a rapidly progressing liver disorder, primarily driven by excessive lipid accumulation and inflammation. Multiple factors contribute to its pathogenesis, and several therapeutic agents are under clinical evaluation. Ginger is known for its protective effects on the liver, heart, and lungs, while sea buckthorn fruit oil is utilized in the treatment of obesity and cholesterol management. This study investigates the efficacy of a microemulsion combining ginger and sea buckthorn fruit oil (MGS) in the management of NAFLD. **Methodology:** Adult male Wistar rats were divided into two groups based on diet: a standard chow diet group and a high fat-fructose (HFF) diet group, the latter receiving the diet for six weeks. Rats in the HFF group were treated with a standardized MGS formulation. The study adhered to CPCSEA guidelines and was approved by the Institutional Animal Ethics Committee (IAEC). **Results:** Rats treated with MGS showed significantly reduced serum SGOT and SGPT levels compared to the disease control (DC) group, indicating liver tissue recovery. Additionally, MGS significantly lowered cholesterol, triglycerides, and LDL levels in comparison to DC rats. MGS also markedly suppressed TNF-alpha signaling, a key driver of hepatic damage. Furthermore, adiponectin (ADP), which plays a role in lipid and glucose metabolism and is associated with weight regulation, was significantly reduced in MGS-treated rats. **Conclusion:** These findings suggest that MGS could be a potential therapeutic option for the early management of NAFLD when combined with dietary and lifestyle modifications.

Keywords: Nonalcoholic fatty liver disease (NAFLD), Ginger, Sea buckthorn fruit oil, Microemulsion, TNF-alpha signalling, Adiponectin

Biography: Dr. Nilay Solanki is an Associate Professor at Ramanbhai Patel College of Pharmacy, CHARUSAT Campus, India. He had completed his Ph.D. in 2016 from CHARUSAT University. Dr. Nilay has over 16 years of academic, research, administrative and leadership experience in the field of Pharmaceutical sciences & Pharmacology. His expertise is in the area of clinical research and preclinical animal model development of various disease conditions, with a special emphasis on diabetes, cancer, NAFLD, obesity, neurodegeneration, etc. He also works in the clinical research area such as pharmacoepidemiology, pharmacogenomics, and health-related quality of life assessment for various disease conditions. Dr. Nilay has several collaborations with multispecialty hospitals in Gujarat, where major clinical studies were conducted. Dr. Nilay has published over 50 research, review papers & book chapters in Scopus and Web of Science-listed high-impact factor journals with Q1, Q2, Q3 quartiles. He has also completed multiple consultancy projects. He had received various awards at national conferences and CHARUSAT research paper awards for five consecutive years. He had also provided his services as a resource person at national and international conferences in India. He is also associated as a reviewer and editor in national and international journals.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Mauro Bernardi, M.D.

University of Bologna - Italy

Effective albumin – A novel paradigm in the management of decompensated liver cirrhosis

Abstract: Albumin, the most abundant serum protein in human plasma, possesses several functions that make it a pleiotropic molecule. Indeed, due to its prolonged half-life and osmotic effects, albumin accounts for 70%–75% of the plasma oncotic pressure and modulates fluid distribution among the body's compartments. Besides the oncotic properties, albumin exerts several other functions, among which antioxidation plays a preeminent role. Furthermore, it can bind, store, transport, solubilize, and detoxify many endogenous and exogenous substances, including drugs, hormones, prostaglandin E2, nitric oxide, and pathogen and danger molecular patterns (PAMPs; DAMPs). Immunomodulation, endothelial protection, and influence on platelet aggregation and acid-base balance conclude this essential list. It is noteworthy that while human albumin is widely used as a plasma expander in several clinical conditions, there are no indications for its use to correct specific abnormalities, very frequent in many clinical settings, that might be counteracted by the non-oncotic properties. This shortcoming is relevant because in many diseases, including liver cirrhosis, the albumin molecule undergoes severe molecular alterations that ultimately lead to non-oncotic properties failure. The result is that the integer, fully functional albumin, the effective albumin, can be dramatically reduced. Thus, targets of the clinical use of human albumin should include restoring the circulating amount of effective albumin. Another often neglected aspect is that commercial human albumin presents various posttranslational modifications. As a result, the albumin molecule is far from being fully functional. Thus, efforts to improve the molecular integrity of commercial albumin should be a target to be achieved by manufacturers.

Biography: Mauro Bernardi is Professor Emeritus of Internal Medicine at Bologna University. He was director of the Postgraduate School of Internal Medicine and the Department of Internal Medicine and Hepatology. He chaired the Bologna University Research Observatory and the Bologna University Bioethics Committee. He served as treasurer of the European Association for the Study of the Liver, and vice-chairman of the European Consortium for the Study of Chronic Liver Failure. His main research field is Hepatology (cirrhosis, portal hypertension, and related complications). In 2015 received the Distinguished Service Award from the Italian Association for the Study of the Liver.

GLOBAL CONGRESS ON FOOD AND NUTRITION



George Alexander van Aken

Insight Food inside, The Netherlands

Combining in-vitro and in-silico digestion modelling to improve the predictive power for in-vivo behavior

Abstract: In-vitro food digestion studies are indispensable for providing valuable information about the potential digestibility, absorption and bioavailability of food material. However, a major limitation of in-vitro digestion studies is that they do not account for the dynamic interactions and physiological feedback mechanisms that occur in a living organism. The reality of in-vivo digestion involves the coordination of various organs, including the stomach, intestine, liver, pancreas, and the microbiome. To take these physiological effects into account, a mechanistic computer model for food digestion has been developed on the basis of the complexity of the multitude of chemical and physiological processes in the alimentary tract known from the literature. This model allows fast simulation of digestion and absorption processes relevant for sequences of complete meals for normal adults, including the effects of food texture, interaction between macronutrients, the effect of digestion inhibitors, speed of consumption, and meal order on physiological outcomes such as blood sugar excursions, hunger and satiety. Through adjusted parameterization the model can be adapted for target groups in the population and individualized nutrition. In this way the model may also serve as a digital twin for personalized nutrition. The model has been used to explain in-vivo physiological outcomes of the consumption of a variety of food compositions, predict in-vivo outcomes of new food formulations and has been used to guide new in-vivo experimental studies and to extrapolate the results to altered food compositions and physiological differentiation. However, as a shortcoming it does not yet include microbiome modelling. Its application will be illustrated with a few examples.

Keywords: computer modelling of digestion, digestion physiology

Biography: Dr. George Alexander van Aken is a senior food scientist, with broad expertise in food composition and structure and the functionality in relation to sensory perception and health. He has conducted contract research projects for various food companies and projects at NIZO food research and seconded to Top Institute Food and Nutrition has led fundamental research projects in food structuring, sensory perception, satiation and health. He is currently employed at Royal Cosun, leading the Centre of Expertise of Food Functionality and Health. For the in-silico digestion modelling he initiated his own enterprise insight FOOD inside.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Sanz Pablos, Jaime¹; Cabezas López, Elena^{1,2}; Miró Matos, María¹; López Carrasco, Irene¹; Montero Pastor Nerea¹; Moratalla Bartolomé, Enrique^{1,2}.

1 Department of Gynecology, Division of female Pelvic Medicine and Reconstructive surgery, Hospitales Madrid (HM), Madrid, Spain.

2 Department of Gynecology, Division of endoscopic gynecology, Hospital Ramón y Cajal, Madrid, Spain.

Mesh excision secondary to spondylodiscitis after colposacropexy graft rejection. Step by step video

Abstract:

Aim of the video / Introduction: Spondylodiscitis secondary to colposacropexy is an extremely rare entity. Infection and mesh rejection are the main causes. Removal of the mesh is essential for patient's recovery and it could be a very challenging surgical procedure.

Case/methods: A 72-year-old woman presenting with severe low back pain in the context of a recent colposacropexy. Magnetic resonance imaging is performed and spondylodiscitis secondary to prolapse correction surgery with mesh is suspected. In order to ensure an adequate recovery, removal of the mesh is required.

Step by step video: The aim of the video is to show a mesh rejection and describe step by step how a mesh excision should be performed.

Conclusions: Spondylodiscitis secondary to colposacropexy should be suspected when the patient starts with moderate lumbar pain and is not correctly controlled with first level analgesia. Infection or mesh rejection should be considered. Mesh rejection should be suspected when patient does not improve after antibiotics. Complete removal of the mesh is needed in order to ensure patient's recovery.

Key words: Spondylodiscitis; mesh; colposacropexy; prolapse.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Cioca Flavius

“Victor Babes” University of Medicine and Pharmacy Timisoara,
Romania

Comparative Analysis of COVID-19 Outcomes in Type 1 and 2 Type 2 Diabetes: A Three-Year Retrospective Study

Abstract:

Background and Objectives: This comprehensive retrospective study assesses COVID-19 outcomes in type 1 and type 2 diabetes patients across three years, focusing on how these outcomes varied with the evolving pandemic and changes in diabetes management. The study aims to determine if COVID-19 outcomes, including severity, ICU admission rates, duration of hospitalization, and mortality, are significantly different between these diabetic subtypes. **Materials and Methods:** The study analysed data from patients admitted to the Victor Babes Hospital for Infectious Diseases and Pulmonology with confirmed COVID-19 and pre-existing diabetes, from the years 2020, 2021, and 2022. **Results:** Among 486 patients (200 without diabetes, 62 with T1DM, 224 with T2DM), T2DM patients showed notably higher severity, with 33.5% experiencing severe cases, compared to 25.8% in T1DM. Mortality rates were 11.6% in T2DM and 8.1% in T1DM. T2DM patients had longer hospital stays (11.6 ± 7.0 days) compared to T1DM (9.1 ± 5.8 days) and were more likely to require ICU admission (OR: 2.24) and mechanical ventilation (OR: 2.46). Hyperglycaemia at admission was significantly higher in diabetic groups, particularly in T2DM (178.3 ± 34.7 mg/dL) compared to T1DM (164.8 ± 39.6 mg/dL). **Conclusions:** The study reveals a discernible difference in COVID-19 outcomes between T1DM and T2DM, with T2DM patients having longer hospital admissions, mechanical ventilation necessities, and mortality risks.

Keywords: Diabetes Mellitus; COVID-19; SARS-CoV-2.

Biography: Dr. Flavius Cioca is assistant professor for informatics and biostatistics at Timisoara “Victor Babes” University of Medicine and Pharmacy. He also works as an occupational medicine specialist for his private practice, Aptimed Clinic and at Timisoara Railway Hospital. Between 2020 and 2022 was the Executive Manager for Timis County Public Health Directorate and coordinated COVID-19 response in western Romania. Previously, he had different management roles for major players in Romanian Private Healthcare Sector, including MedLife and Regina Maria. Dr. Flavius Cioca began his activity working as a medical representative for CSC Pharmaceuticals and as a Sales Manager for Novo Nordisk.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Michał Gośliński

Nicolaus Copernicus University in Toruń, Poland

Application of Manuka honey in treatment patients with GERD

Abstract: Gastroesophageal reflux disease (GERD) is one of the most common diseases in world population and has systematically increase in Western countries over recent years. The treatment of GERD includes pharmacological and non-pharmacological therapies.

Honey is a natural product with health-promoting properties. Recent studies show that Manuka honey, which comes from New Zealand and Australia, stand out from other traditional honeys. This product is characterized by potent antibacterial, antioxidant and anti-inflammatory effects. This is due to the presence of various bioactive compounds (e.g. polyphenols, particularly flavonoids and phenolic acids) and high content of methylglyoxal (MGO), which in other honeys is in trace amount. Taking into account the unique ingredients and health benefits of Manuka honey, it is considered as medicinal honey and allows to use it for medical purposes, e.g. acceleration of wound healing or reduction of inflammation of gastrointestinal mucosa (reduction gastroenteritis).

Thus, the aim of research was the application of Manuka honey in treatment patients with GERD.

The study was conducted on a group of patients, which consumed Manuka honey or placebo for a period of 4 weeks. The gastroscopy and histology have been made twice, i.e. before and after experiment. Furthermore, the symptoms reports and nutritional interviews has been collected.

The endoscopical examination showed that in Manuka group the improvement was 73.3%. In the sub-groups of oesophagitis-A and oesophagitis-B it was 81.8%, and 50%, respectively. However, in Placebo group, the general improvement rate was much lower. The results have been confirmed in the histopathological examination. Moreover, it is worth noticing, that in sub-group declaring non-medication, the improvement was only for patients consuming Manuka honey. Changes of symptoms in subjective assessment of patients were evaluated after 2 and 4 weeks. The improvement rate in Manuka group was 86.7% and 100%, while in Placebo group it was only 26.7% and 40%, respectively.

Manuka honey seems to be effective in GERD, which have been confirmed by subjective feelings of patients and by endoscopic and histopathologic examination. We concluded that consumption of Manuka honey combined with proper diet and drugs (proton-pump inhibitors) could be a triple therapy regimen for GERD. Our research is a pilot study before administration of Manuka honey to larger population. The results are promising and may facilitate the quality of life of patients with GERD, e.g. relieving heartburn and regurgitation.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



**Chrysovalantis Voutouria^{b,#}, C. Corey Hardinc[#],
Vivek Naranbhaid^{e,f}, Mohammad R. Nikmaneshia,
Melin J. Khandekarh, Justin F Gainord, Lance L. Munna^{*},
Rakesh K. Jaina^{*} and Triantafyllos Stylianopoulos^b,**

^a Edwin L Steele Laboratories, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, MA

^b Cancer Biophysics Laboratory, Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus

^c Department of Pulmonary and Critical Care Medicine, Massachusetts General Hospital and Harvard Medical School, Boston, MA

^d Massachusetts General Hospital Cancer Center, Division of Hematology/Oncology, Department of Medicine, Massachusetts General Hospital, Boston, MA

^e Dana-Farber Cancer Institute, Boston, MA

^f Center for the AIDS Programme of Research in South Africa, Durban, South Africa

^h Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, MA

Mathematical modeling of booster vaccine efficacy for SARS-CoV-2 in healthy, cancer, and immunosuppressed patients

Abstract: This study develops a mechanistic mathematical model to evaluate the effectiveness of booster doses of SARS-CoV-2 vaccines in varying patient populations: healthy individuals, cancer patients, and immunosuppressed individuals. While current vaccines significantly reduce COVID-19 severity, immunocompromised individuals often experience reduced immunity, especially as antibody levels decline over time. Our model integrates viral dynamics, immune response, and booster dose impact, simulating scenarios for mRNA and vector vaccines under multiple conditions, including exposure to COVID-19 variants. By validating predictions with clinical data, we examined how booster timing influences immunity, comparing antibody and immune cell responses among different patient groups. Results indicate that booster doses effectively sustain antibody levels in healthy patients for extended periods but reveal a faster decline in cancer and immunosuppressed patients. For these high-risk groups, the model suggests tailored, more frequent booster intervals to maintain protective immunity levels. Furthermore, simulations reveal that variants with increased immune escape capabilities may pose significant infection risks, highlighting the importance of personalized booster strategies for vulnerable populations. The findings support targeted booster schedules and adaptation of booster formulations, aiming to enhance protection against emerging variants for at-risk groups. This model provides a foundation for optimizing vaccination protocols and developing adaptive immunization strategies for diverse patient needs.

Keywords: Booster vaccines, SARS-CoV-2, immune response, immunosuppressed, cancer, mathematical modeling

Biography: Dr. Chrysovalantis Voutouri is a researcher specializing in mathematical modeling of biological systems, with a focus on immunology and oncology. He holds a PhD from the University of Cyprus, where he developed expertise in systems biology, and completed postdoctoral training at Harvard Medical School and Massachusetts General Hospital. Dr. Voutouri is the founder and CEO of AnaBioSi-Data, a startup aimed at developing data-driven solutions for personalized cancer therapy. His recent work includes modeling SARS-CoV-2 vaccine efficacy across patient populations, contributing to adaptive immunization strategies for high-risk groups. He collaborates internationally to advance healthcare innovation through data and computational modeling.



WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES

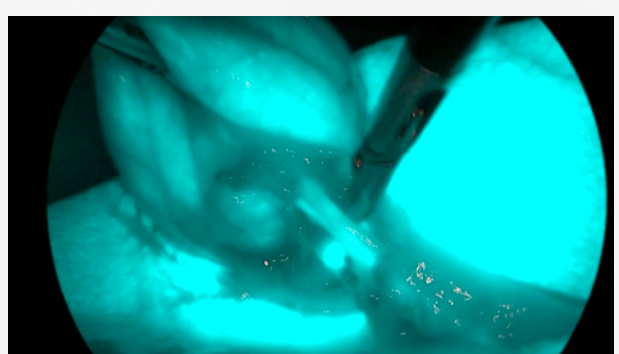
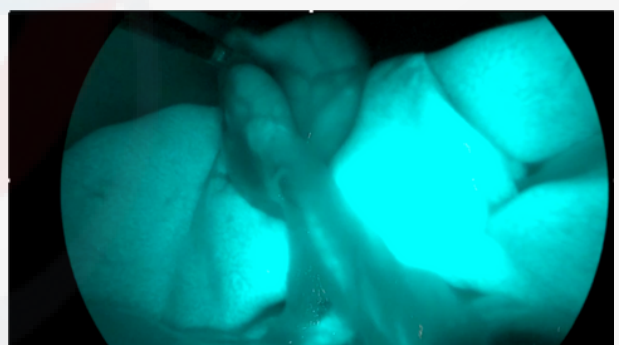
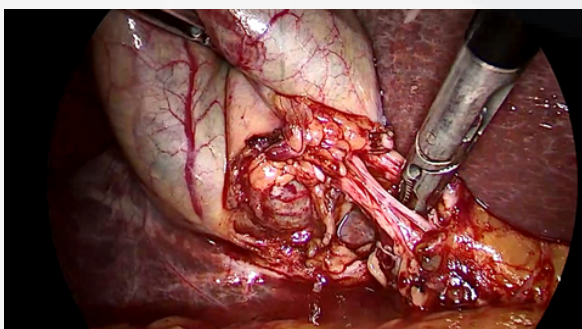
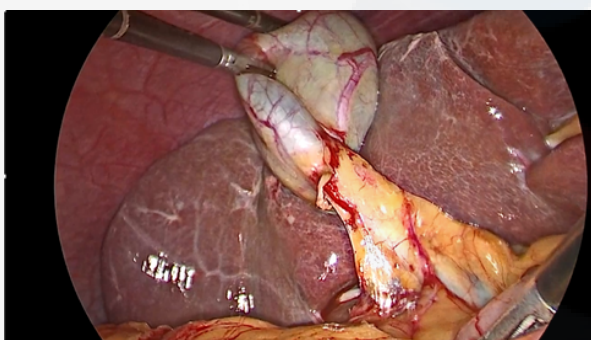


Orestis Ioannidis

4th Department of Surgery, Medical School, Aristotle University of Thessaloniki, General Hospital "George Papanikolaou", Thessaloniki, Greece

Use of indocyanine green fluorescence imaging in the extrahepatic biliary tract surgery

Abstract: Cholelithiasis presents in approximately 20 % of the total population, ranging between 10% and 30 %. It presents one of the most common causes for non malignant surgical treatment. The cornerstone therapy is laparoscopic cholecystectomy, urgent or elective. Laparoscopic cholecystectomy is nowadays the gold standard surgical treatment method, however bile duct injury occurred to as high as 0.4-3% of all laparoscopic cholecystectomies. The percentage has decreased significantly to 0.26-0.7% because of increased surgical experience and advances in laparoscopic imaging the past decade which have brought to light new achievements and new methods for better intraoperative visualization such as HD and 3D imaging system. However, bile duct injury remains a significant issue and indocyanine green fluorescence imaging, mainly cholangiography but also angiography, can further enhance the safety of laparoscopic cholecystectomy as it allows the earlier recognition of the cystic and common bile duct, even in several times before dissecting the Callot triangle. Fluorescence cholangiography could be an ideal method in order to improve bile tree anatomy identification and enhance prevention of iatrogenic injuries during laparoscopic cholecystectomies and also it could be helpful in young surgeons training because it provides enhanced intraoperative safety, but however this method does not replace CVS. Finally, our ongoing current study results comparing intravenous to direct administration of ICG in the gallbladder will be presented.



What will audience learn from your presentation?

- ICG fluorescence cholangiography can enhance the safety of laparoscopic cholecystectomy as it allows the earlier recognition of the cystic and common bile duct, even in several times before dissecting the Callot triangle
- The best timing and dosage of ICG administration in order to perform ICG cholangiography and angiography
- ICG fluoresce imaging doesn't replace the critical view of safety

Biography: Dr. Ioannidis is currently an Assistant Professor of Surgery in the Medical School of Aristotle University of Thessaloniki. He studied medicine in the Aristotle University of Thessaloniki and graduated at 2005. He received his MSC in "Medical Research Methodology" in 2008 from Aristotle University of Thessaloniki and in "Surgery of Liver, Biliary Tree and Pancreas" from the Democritus University of Thrace in 2016. He received his PhD degree in 2014 from the Aristotle University of Thessaloniki as valedictorian for his thesis "The effect of combined administration of omega-3 and omega-6 fatty acids in ulcerative colitis. Experimental study in rats." He is a General Surgeon with special interest in laparoscopic surgery and surgical oncology and also in surgical infections, acute care surgery, nutrition and ERAS and vascular access. He has received fellowships for EAES, ESSO, EPC, ESCP and ACS and has published more than 180 articles with more than 3000 citations and an H-index of 28

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



S. Hua¹, K. Benmezi¹, D. Desjardins¹, N. Dimant¹, N. Dereuddre-Bosquet¹, F. Relouzat¹, V. Avettand-Fenoël², A. Sáez-Cirión³, R. Le Grand¹, M. Cavarelli¹

¹Université Paris-Saclay, Inserm, CEA, Center for Immunology of Viral, Auto-immune, Hematological and Bacterial diseases (IMVA-HB/IDMIT), Fontenay-aux-Roses & Le Kremlin-Bicêtre, France.

²Université Paris Cité; INSERM, U1016; CNRS, UMR8104, Paris, France.

³Institut Pasteur, Université Paris Cité, Viral Reservoirs and Immune Control Unit, Paris, France.

Intestinal CX3CR1+ Macrophage Dysregulation Drives Immune Activation and Viral Persistence in Chronic SIV Infection: Implications for HIV-1 Cure Strategies

Abstract: Chronic HIV-1 and SIV infections are characterized by persistent immune activation and inflammation, despite antiretroviral therapy (ART). This study explores the role of intestinal CX3CR1+ macrophages (MΦs) in immune dysregulation during chronic SIV infection and their impact on HIV-1 persistence after antiretroviral treatment interruption (ATI).

Using a cohort of Cynomolgus macaques, we analyzed mucosal CX3CR1+ MΦs and T cell subsets during chronic SIV infection and post-ATI. Results revealed an accumulation of pro-inflammatory MΦs in infected animals, with positive correlations to viral load. Post-treatment controllers (PTCs) showed restored MΦ homeostasis, suggesting a potential role in viral control after therapy interruption.

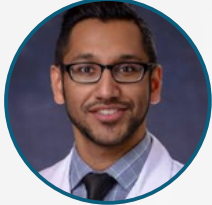
Additionally, chronic SIV infection led to significant shifts in mucosal T-cell populations. CD4+ T cells, especially Tregs, were depleted in the colonic mucosa of infected animals, with partial restoration observed in PTCs but not in non-controllers. Th1 CD4+ cells increased, while Th17 cells showed a trend toward reduction, correlating with the accumulation of pro-inflammatory MΦs. CD4+ T cells in infected and non-controller animals exhibited activation markers, including PD-1, HLA-DR, and Ki67. Activated neutrophils (CD66+CD32a+) also increased, correlating with pro-inflammatory MΦs and elevated fecal calprotectin, an indicator of intestinal damage.

These findings provide insights into the interplay between mucosal immune cell populations during chronic SIV infection, highlighting immune dysfunction and gut damage that may contribute to viral rebound post-ATI. Our study suggests that strategies to preserve or restore CX3CR1+ macrophage function are essential for advancing HIV cure research.

Keywords: HIV-1/SIV, immuneactivation, macrophages, post-treatment control

Biography: Dr. Mariangela Cavarelli, PhD, leads the “Intestinal Infection and Immunity” group and the “Serology technological platform” at IDMIT, CEA, France. Her research focuses on mucosal immune responses and transmission dynamics in infectious diseases, such as HIV/SIV, SARS-CoV-2, and Monkeypox. She contributes to developing prevention strategies and vaccines, with several key publications and collaborations in the field.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Rehan M. Farooqi

MedStar Montgomery Medical Center, USA

Mycophenolate-induced Colitis: A Case Report with Focused Review of Literature

Abstract: Mycophenolate mofetil (MMF) is an immunosuppressive medication used for the management of various autoimmune diseases, and patients with bone marrow and solid organ transplants. As an immunosuppressant, MMF can affect the entire gastrointestinal system leading to clinical complications ranging from esophagitis, gastroesophageal reflux disease, to enteritis and colitis. While nausea (29%), vomiting (23%), and constipation (38%) are common side effects of MMF, the most common side effect is diarrhea (50%-92%). In 98% of cases, resolution of diarrhea occurs within 20 days upon discontinuation of the MMF. Development of diarrhea due to enteritis and/or colitis can be difficult to recognize as only 2%-9% of patients on MMF develop these complications. No guidelines are available to guide clinicians in treating MMF-induced enterocolitis. We report a case of MMF-induced colitis diagnosed by colonoscopy and histopathology. Histopathologic findings of MMF injury include crypt architectural distortion and crypt cell apoptosis. This case illustrates the challenges encountered while managing MMF-induced colitis. After a focused literature review on MMF induced colitis, we came across use of oral steroids, intravenous steroids, and trials with biologic agents such as Infliximab. In our patient, we initiated use of intravenous (IV) Solumedrol which resulted in mild improvement in the diarrhea frequency. After five days of IV Solumedrol therapy, a repeat colonoscopy demonstrated evidence of complete healing of the small ulcerations and improvement in the large ulcerations, suggestive of overall endoscopic improvement. In conclusion, there remains unanswered questions as to why patients develop refractory colitis while on MMF, the benefits of steroids, the use of biologic therapy, and lastly the need for endoscopic reassessment for mucosal healing.

Key Words: Colitis, mycophenolate induced colitis, crypt cell apoptosis

Biography: My name is Rehan Farooqi, and I am currently a program director of Hospital Medicine at Medstar Montgomery Medical Center. I was born and raised in Dubai. I moved to Toronto where I got my high school diploma and completed bachelor's in science from University of Toronto before moving to the Caribbean for my medical school. During the last two years of medical school, I had the opportunity to rotate and travel to various states and experience different health care systems. I completed my residency and chief year from Medstar Health, Baltimore and became a hospitalist at MedStar.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Xiao-Liang Wang^{1,2}; Xiangfei He²; Tong Gao¹; Xinyu Zhou^{1, 2}; Zobeida Cruz-Monserrate³;
Allan Tsung^{1,2}; Jianjie Ma^{1,2, *}; **Chuanxi Cai^{1,2, *}**

¹Division of Surgical Sciences, Department of Surgery, University of Virginia Medical School, Charlottesville, VA 22903, USA.

²Department of Surgery, The Ohio State University Wexner Medical Center, Columbus, OH 43210, USA.

³Department of Internal Medicine, Division of Gastroenterology, Hepatology, and Nutrition, and The James Comprehensive Cancer Center, The Ohio State University Wexner Medical Center, Columbus, OH 43210, USA.

MG53 suppresses tumor growth via transcriptional inhibition of KIF11 in pancreatic cancer

Abstract: Pancreatic ductal adenocarcinoma (PDAC) poses a formidable challenge in oncology due to its limited treatment options and poor long-term survival rates. Our previous work identified MG53, a member of the tripartite motif family protein (TRIM72), as a key player in tissue repair with potential applications in regenerative medicine. Despite the focus on MG53's cytosolic functions, its nuclear role in suppressing pancreatic cancer remains unknown. Through orthotopic and subcutaneous transplantation studies in mice, we observed enhanced tumor growth in MG53-deficient mice compared to wild-type counterparts. The overexpression of KIF11, a motor protein crucial for cell mitosis regulation, has been linked to the aggressive proliferation of pancreatic cancer cells. Confocal imaging confirmed MG53's presence in the nucleus of human pancreatic cancer cells, while functional assays demonstrated its impact on KIF11 expression and subsequent cell proliferation. Mechanistically, we revealed MG53's transcriptional control over KIF11, leading to cell cycle arrest. Our findings position MG53 as a promising tumor suppressor in PDAC, offering a novel avenue for therapeutic intervention by regulating KIF11 expression.

Keywords: TRIM72; nuclear translocation; cell proliferation; syngeneic orthotopic transplantation

Biography: Dr. Chuanxi Cai was trained (PhD) in the Institute of Biophysics, Chinese Academy of Sciences (Beijing), and he joined Rutgers University in the USA as a postdoctoral Fellow and was awarded a postdoc fellowship by American Heart Association. He initiated the discovery of a muscle-specific protein named MG53 (TRIM72) in cell membrane repair. This important finding resulted in several landmark papers published in Nature Cell Biology, Science Translational Medicine, Nature Communication and Journal of Biological Chemistry. He then joined the Faculty of Medicine at the University of Louisville in Kentucky as an Assistant professor. He was recently recruited to the Department of Surgery at the University of Virginia as a tenured Associate Professor. The research in his lab mainly focusses on cancer research and myocardial repair with different animal models.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Valerie Gouon-Evans

Boston University Boston Medical Center, Center for Regenerative
Medicine, Boston, USA

VEGFA mRNA-LNP promotes biliary epithelial cell-to-hepatocyte conversion in acute and chronic liver diseases and reverses steatosis and fibrosis

Abstract: The liver is known for its remarkable regenerative ability through proliferation of hepatocytes. Yet, during chronic injury or severe hepatocyte death, proliferation of hepatocytes is exhausted. To overcome this hurdle, we propose vascular-endothelial-growth-factor A (VEGFA) as a therapeutic means to accelerate biliary epithelial cell (BEC)-to-hepatocyte conversion. Investigation in zebrafish establishes that blocking VEGF receptors abrogates BEC-driven liver repair, while VEGFA overexpression promotes it. Delivery of VEGFA via non-integrative and safe nucleoside-modified mRNA encapsulated into lipid-nanoparticles (mRNA-LNP) in acutely or chronically injured mouse livers induces robust BEC-to-hepatocyte conversion and elimination of steatosis and fibrosis. In human and murine diseased livers, we further identified VEGFA-receptor KDR-expressing BECs associated with KDR-expressing cell-derived hepatocytes. This defines KDR-expressing cells, most likely being BECs, as facultative progenitors. This study reveals unexpected therapeutic benefits of VEGFA delivered via nucleoside-modified mRNA-LNP, whose safety is widely validated with COVID-19 vaccines, for harnessing BEC-driven repair to potentially treat liver diseases.

Biography: Dr. Valerie Gouon-Evans is Associate Professor in the Center for Regenerative Medicine at Boston University, Boston Medical Center, Director of the Boston University Liver Biologist program, and Co-director of the Molecular and Translational Medicine PhD program. She has greatly contributed to the efficient generation of hepatocytes from mouse, human and macaque pluripotent stem cells by pioneering the use of BMP4 to induce hepatic specification. Currently, her research interests aim to harness liver regeneration using nucleoside-modified mRNA complexed to lipid nanoparticles, a technology that her lab has validated to induce transient expression of proteins in the liver to accelerate liver regeneration.

INTERNATIONAL SYMPOSIUM ON INFECTIOUS DISEASES AND VACCINES



Mario H. Rodríguez*, Eduardo D. Rodríguez-Aguilar, and Everardo Gutiérrez-Millán

Center for Infectious Disease Research, National Institute of Public Health
Cuernavaca, Morelos, Mexico

Accurate Recapitulation of Chikungunya Virus Complete Coding Sequence Phylogeny Using Variable Genome Regions for Genomic Surveillance

Abstract: Chikungunya virus (CHIKV) is transmitted by mosquito bites and causes chikungunya fever (CHIKF). CHIKV has a single-stranded RNA genome and belongs to a single serotype with three genotypes distinguished by their historical geographic distributions: West African, East/Central/South African, and Asian. The Asian lineage recently emerged in the Western Hemisphere and had rapid spread throughout the Caribbean and the American mainland. This spread was accompanied with accumulation of genetic variations in the CHIKV genome creating new virus lineages. Although whole-genome sequencing offers invaluable insights, its technical complexity and associated costs can hinder its widespread application in endemic regions. To address this challenge, we identified hypervariable regions within the CHIKV genome that could serve as effective alternatives for evolutionary studies. We analyzed 1,114 CHIKV complete genome sequences to identify regions with valuable phylogenetic signals. Datasets from Africa, Asia, and America were used to perform phylogenetic analyses on highly variable regions and concatenated sequences with different levels of variability. Complete coding sequence (CDS) trees served as references to assess how accurately each region reproduced the phylogeny, focusing on branch length, topological differences, and tree confidence. Our results revealed that concatenated highly variable regions accurately reconstructed CHIKV phylogeny, exhibiting statistically indistinguishable branch lengths and tree confidence compared to CDS. In addition, these regions adequately inferred the evolutionary relationships among CHIKV isolates from the American outbreak with similar results to the CDS. This finding suggests that highly variable regions can effectively capture the evolutionary relationships among CHIKV isolates, offering a simpler approach for future studies. This approach could be useful for large-scale surveillance efforts.

Keywords: Chikungunya virus; phylogeny; genomic surveillance.

Biography: Dr. Mario H. Rodriguez holds a medical degree, specialization in Internal Medicine and master's and PhD in Medical Parasitology. He is currently emeritus investigator at the Mexican National Institute of Public Health. His areas of research include the biology of vector-borne diseases, vector and parasite interactions, epidemiology, and control strategies. His research includes immune response of and triatomines. He also works on the genetic variation of dengue and chikungunya viruses and Zika virus distribution in Mexico, as well as the evaluation of Ecohealth strategies to control dengue with the active participation of municipalities and communities.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Ashley L Pyne, PhD, RDN,

University of Utah, Salt Lake City, Utah, United States

Food-Specific Antibodies Reflect Inflammation and Antigen Removal in Eosinophilic Esophagitis

Abstract: Food antigens commonly trigger eosinophilic esophagitis (EoE), and to date, there are no accurate tests to identify food triggers. Patients undergo empirical elimination diets that are burdensome, time-consuming, and costly, with varying ability to identify trigger foods. In recent studies, elevated food-specific IgG4 in serum has been associated with active disease and trigger foods in EoE. We developed a custom multiplex food-specific assay that measures antibody reactivity to multiple whole foods. Utilizing this assay, we found that secretions from the esophageal mucosa of patients with EoE have a distinct localized food-specific antibody repertoire. Here, we aimed to assess the antibody responses to top trigger foods in the esophageal secretions and serum of patients with EoE to determine if markers can differentiate disease activity and identify trigger foods. Food-specific IgA, IgG1, IgG4, IgM, and IgE antibodies were measured for top trigger foods (cow milk, wheat, egg, and soy) using Luminex MagPix. We found associations with food-specific IgA, IgG1, and IgG4 with active disease. Our results suggest that antibody reactivity levels have the potential to be used as a marker for EoE inflammation and food exposures with the prospective to inform tailored elimination diets to patients.

Keywords: Eosinophilic Esophagitis, Biomarker, Food Allergy, Antibody Repertoire, Diet

Biography: Ashley Pyne, PhD, RDN, CNSC, is a dietitian-researcher involved in clinical laboratory work focused on Eosinophilic Gastrointestinal Disorders (EGID). Working closely with patients as a dietitian inspired her interest in the mechanisms of diet. Her research focuses on investigating food-specific antibodies and inflammatory markers in eosinophilic esophagitis (EoE). She received a USDA National Institute of Food and Agriculture grant to research of food-specific antibodies in EoE. Dr. Pyne is passionate about understanding how diet affects inflammation in EGIDs and what markers or testing can be developed to manage the disease.

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Badr-Eddine Allal¹, Clara Quintas², Abdelkader Bounaama¹, Paula Fresco², Jorge Gonçalves², Bahia Djerdjouril

¹Laboratory of Cellular And Molecular Biology, University of Sciences And Technology Houari Boumediene

²Laboratory of Pharmacology, Faculty of Pharmacy, University of Porto

In Silico and In Vivo Investigations of SIRTUIN4: Implications for Tumor Suppression and Chemotherapy Resistance in Colorectal Cancer

Abstract:

Background: Identification of tumor suppressors in colorectal cancer (CRC) is crucial for developing effective treatments. SIRTUIN4 (SIRT4), a member of the sirtuin family of NAD⁺-dependent enzymes, has emerged as a potential tumor suppressor in various cancers. This study aims to investigate the involvement of SIRT4 colon adenocarcinoma (COAD and its potential implications for therapeutic strategies.

Methods: We first used a comprehensive bioinformatic approaches utilizing webtools based on The Cancer Genome Atlas (TCGA) database to analyze the mRNA expression and methylation profile of SIRT4 in COAD. Additionally, we examined the association of SIRT4 with drug resistance using the Genomics of Drug Sensitivity in Cancer (GDSC) database. Then, we conducted protein-protein interaction (PPI) analysis to identify potential SIRT4 targets. Furthermore, we validated the mRNA expression of SIRT4 in a translational model of 1,2-dimethylhydrazine (DMH)-induced COAD in mice administration.

Results: Bioinformatic analyzes revealed a hypermethylation of SIRT4 gene and its promoter, leading to a significant downregulation of SIRT4 mRNA in COAD patients. GDSC database evidenced that SIRT4 was associated with resistance to serine/threonine kinase inhibitors and histone deacetylase 6 (HDAC6) inhibitors. PPI analysis identified glutamate dehydrogenase 1 (GDH1), a key glutaminolysis enzyme in COAD, as a target inhibited by SIRT4. In vivo, DMH administration resulted in COAD development and confirmed the decreased SIRT4 expression. Although GDH1 mRNA levels remained unaffected, its biochemical activity was significantly reduced in DMH-treated mice. Conclusion: Altogether, our results suggest that SIRT4 functions as a tumor suppressor in COAD by inhibiting GDH1, an oncogene that plays controls glutamine metabolism in COAD. Furthermore, the association of SIRT4 with chemotherapy resistance highlights its potential as a therapeutic target.

Keywords: SIRT4, GDH1, 1,2-Dimethylhydrazine, HDAC6, TCGA

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Mohammed Al-Fehaid

Qassim University , Qassim , KSA

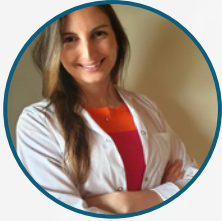
Laparoscopic cholecystectomy for giant gall stone

Abstract:

Cholelithiasis (gallstones) is the commonest biliary pathology in most of the Westernized societies. Gallstones larger than 5 cm in diameter are referred to as "giant gallstones." Only a small number of giant gallstones have been described in the literature, and they are rarely encountered. Laparoscopic cholecystectomy (LC) has become the gold standard for the treatment of symptomatic gallstones but it is very challenging to remove giant gallstones by LC especially in the emergency situations like acute cholecystitis. In this case report, One such 47-year-old male with a giant gallstone measuring 8.7 cm x 4.2 cm x 3.4 cm was safely and successfully managed laparoscopically in emergency settings and is presented due to its rarity.

Keywords: Laparoscopic cholecystectomy (LC); Cholelithiasis; Giant gallstone; Classical cholecystectomy, Umbilical port site

WORLD CONGRESS OF GASTROENTEROLOGY AND DIGESTIVE DISEASES



Catarina van der Elzen, Fátima Aires, Catarina Dias, Margarida Marques, Lígia Osório

Department of Radiation Oncology at Unidade Local de Saúde de São João,
Porto, Portugal

The impact of HIV and chronic immunosuppression on treatment response, toxicity and survival of patients with locally advanced anal canal cancer: a 16-year single-institucional analysis

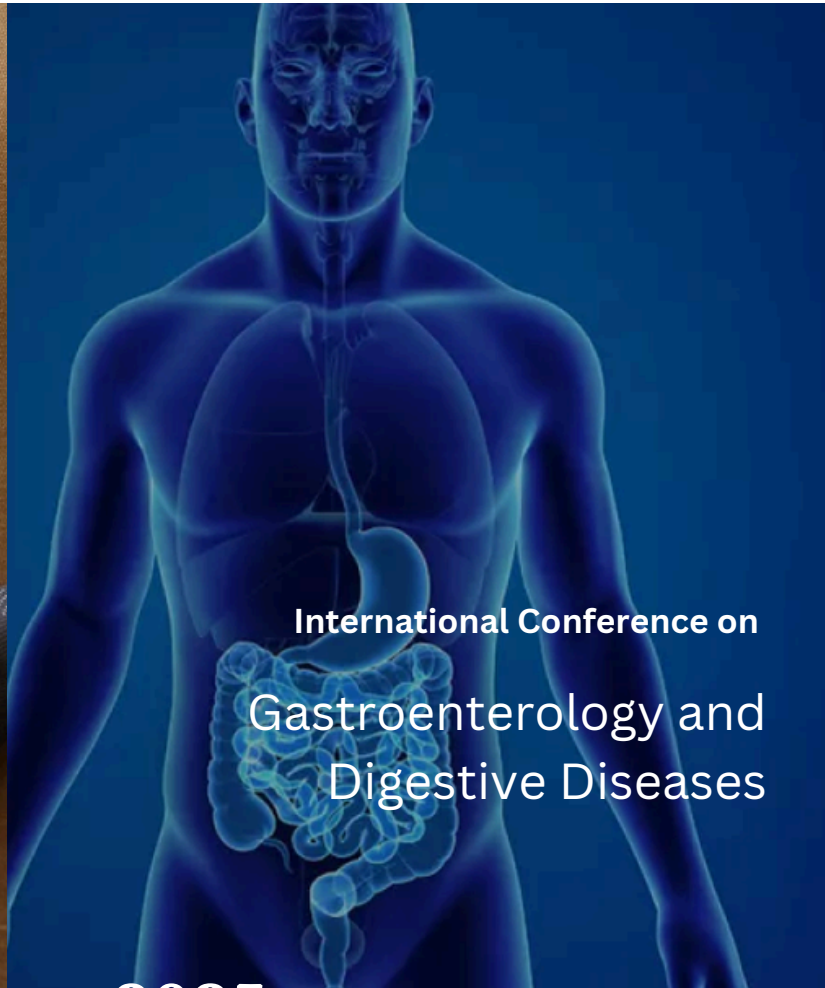
Abstract: Anal canal cancer (ACC) is an uncommon neoplasm, closely related to human papillomavirus infection (HPV). Coinfection with HIV and HPV predisposes development of ACC and, along with chronic immunosuppression (CI) is associated with greater toxicity and compromised response to chemoradiotherapy (CRT). The current standard-of-care treatment, for locally advanced stages, prioritizes CRT with a dose >50Gy associated with mitomycin C and fluoropyrimidines, aiming organ preservation, resulting in excellent oncological results. With the goal of understanding the impact of HPV/HIV/CI, a cohort of 65 patients diagnosed over a 16-year time period with locally advanced anal carcinoma who underwent CRT was collected and carefully characterized at the clinical, demographic, histopathologic and virologic levels. Overall, patients median age was 62 years, mostly female (64.6%) with ECOG PS0-1 of 92.3%; 5 stage I; 32 stage II and 28 stage III. Fourteen were HPV+, 14 were HIV+, 2 had ulcerative colitis and 1 had Sjögren's syndrome. All completed treatment. Skin toxicity was the most common with 80.6% presenting radiodermatitis \geq G2 at last week of treatment; 4.7% with G3-4 gastrointestinal toxicity and 54.7% with G1-2 genitourinary toxicity. At 4 years, the overall survival (OS), OS for immunocompetent and HIV/CI OS was 66.5%, 73.4% and 48.6% respectively. PFS, immunocompetent PFS and HIV/CI PFS was 95.4%, 96.2% and 87.5% respectively. The presence of HIV/CI didn't show an impact on OS, PFS or toxicity, however, was associated with a lower complete response to treatment ($p=0.04$). Taken together, our findings reveal relationship between the presence of HIV/CI and decreased complete response to treatment. Introduction of antiretroviral therapy may explain the better oncological control; on the other hand, conformal radiotherapy techniques seem to be correlated with lower toxicity observed.

Keywords: HPV; HIV; Chronic immunosuppression; Anal canal cancer

Biography: Catarina van der Elzen is an enthusiastic third-year radiation oncology resident at the Department of Radiation Oncology of Unidade Local de Saúde São João. Trained medical doctor at the Faculty of Medicine of the University of Coimbra, also accomplished a postgraduate degree on Human Sexuality at the Faculty of Medicine of the University of Lisbon. Member of the European Society for Medical Oncology and European Society for Radiotherapy and Oncology, she's author and co-author of several clinical researches carried out and presented at national and international congresses. Her research has focused on oncology, with a deep interest in digestive cancers.



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