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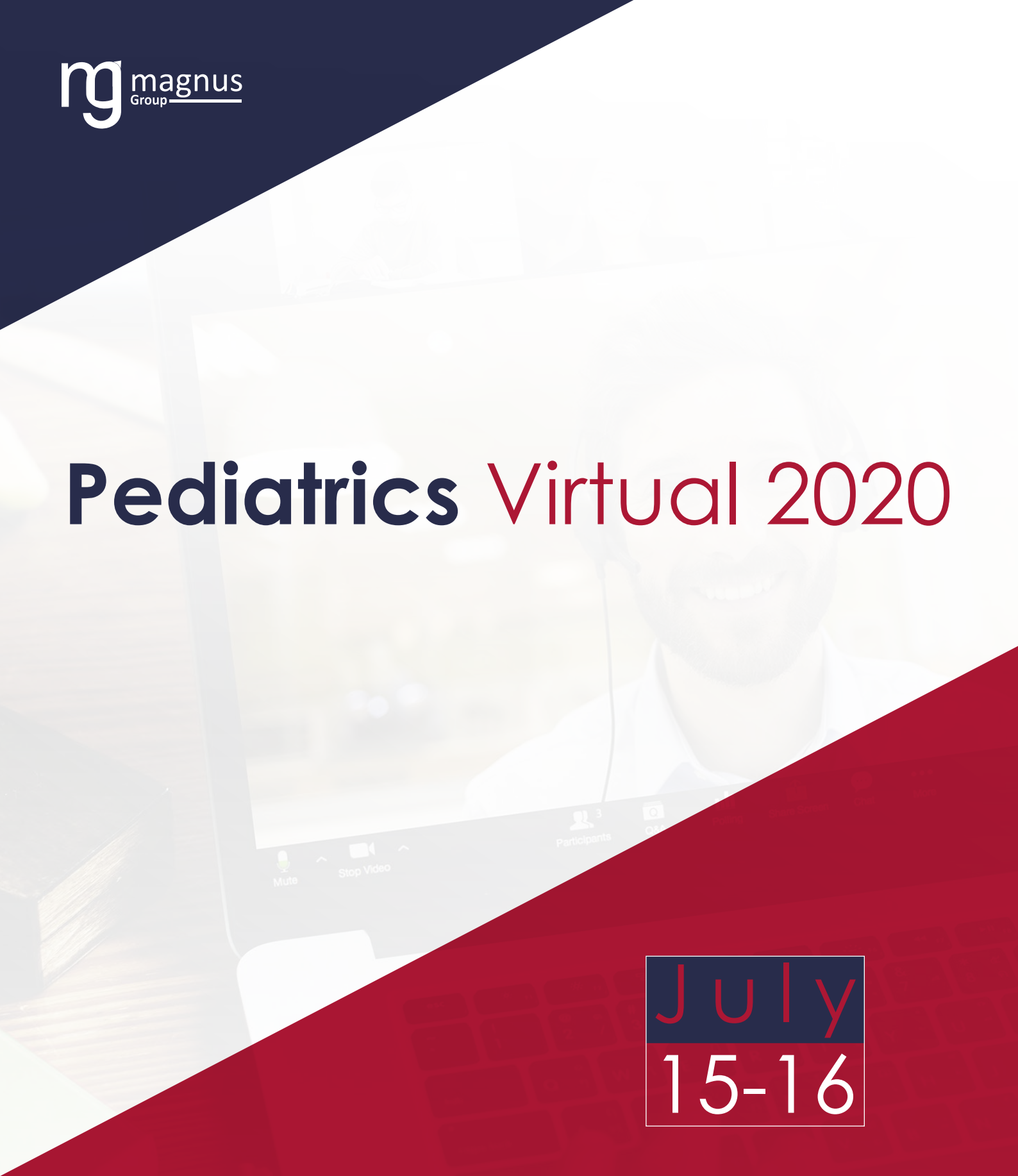
# Pediatrics Virtual 2020




July
15-16

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# PEDIATRICS VIRTUAL 2020

JULY 15-16, 2020

**Theme:**

Boosting Recent Advances in Pediatrics and Neonatology

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# *About* MAGNUS GROUP

**Magnus Group (MG)** is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

# *About* Pediatrics Virtual 2020

**PEDIATRICS VIRTUAL 2020** will bring all the participants an opportunity to explore the recent advancements and developments in the field of Personalized and Pediatrics. Webinar consists of talks to ensure an intense interaction amongst the researchers present at the webinar. Pediatrics Virtual 2020 consists of talks to ensure an intense interaction amongst the researchers, leading Scientists, Academicians, and Specialists & medical professionals coming from all over the world in the field of Pediatrics.

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# KEYNOTE FORUM

# PEDIATRICS VIRTUAL 2020

JULY 15-16, 2020

**Pawel Rosikiewicz**
GenomSys, Switzerland

## Pediatrics using whole genome sequencing

The first full sequence of the human genome was published in 2003, with a cost of approximately 1 billion USD to produce. Currently, next generation sequencing techniques (NGS) allow whole genome sequencing (WGS) for as little as 450 USD or lower in just a few days. Unlike classical genetic tests or gene panels, WGS allows discovering a wide range of genetic disorders without prior diagnosis of the patient needed for selection of potential target genes, test types and providers.

Moreover, it is estimated that classical genetic tests fail to provide molecular diagnosis in up to 50% of patients' cases, and thus, new tests must be made, rapidly increasing the time of diagnosis for the patients and the costs for the heathcare system. For these reasons, some clinics already use WGS as the first tier genetic test for patients with undiagnosed or ambiguous symptoms. Subsequently, classical genetic tests may be used to validate important results.

National genomic initiatives are also using WGS techniques and helping democratizing Pediatrics. It is estimated that by 2025, over 60 million whole human genomes will be sequenced over the world throughout those initiatives, with UK, USA and European initiatives leading the pace.

There are however, challenges associated with the use of WGS in clinical diagnostics. First, the analysis of WGS data may be time consuming and difficult. Secondly, incorporating WGS into clinical care requires standard and transparent procedures for data analysis, storage and quality management.

Finally, more data from different Human populations are required to confidently identify variants associated with different disorders and to fully use the potential of WGS in clinical diagnostics.

In our talk, we will present the lessons learned while establishing WGS analysis pipelines for clinical diagnostics, and how complex regulatory landscape may help or slow down the process of implementing WGS into diagnostic care.

**Audience Take Away:**

- What are the benefits and challenges in using WGS in diagnostic care
- Why is WGS emerging as the standard genomic information for diagnostic care?
- What are the upcoming regulations to be aware of in genomic clinical diagnostics?

### Biography

Pawel Rosikiewicz has 16 years of experience in Molecular Biology and Data Science. He studied and worked in several top Polish, French, and Swiss Academic Institutions, including Swiss Institute of Bioinformatics, and the Polish Academy of Science as molecular biologist, biostatistician, and software developer. At the same time, he provided consulting services to biotech- companies on NGS, large scale microorganism production and bio-data collection and management.
Trained in Business and holder of a Master's degree, Raphael Bernard has built a strong knowledge and expertise of the B2B field along over 12 years of managing experience of various marketing departments. His main competencies regroup envisioning market needs, building go-to-market strategies, communication plans and core business teams for international top-ranked innovative startups in the technology field.

**Steven M. Donn, MD, FAAP**
University of Michigan Medicine, USA

## Pharmacologic management of bronchopulmonary dysplasia: Equipoise in the era of evidence?

Bronchopulmonary dysplasia (BPD) is the leading cause of longterm respiratory disability among prematurely born infants and is a significant contributor to life-long neurodevelopmental problems. Affected infants are often exposed to a myriad of pharmacologic agents. In the neonatal intensive care unit. Many of these drugs are off label and have limited efficacy and significant toxicity. They include diuretics, bronchodilators, and agents to treat presumed gastro-esophageal reflux. This presentation will summarize the pulmonary injury sequence and the epidemiology of BPD. Various pharmacologic agents will be reviewed and evidence will be presented to balance their efficacy and safety. The presentation will conclude with a glimpse into evolving treatments.

**Audience Take Away:**

- BPD is a multifactorial disease. It will likely require a multifactorial approach to therapy.
- Knowledge about efficacy and safety are paramount to therapeutic decision making. This knowledge is essential to determine the risk:benefit ratio and to individualize therapy to a baby's specific pathophysiology. It will help the clinician realize the need for carefully designed clinical trials to build a robust evidence base and modify the approach to infants with BPD.Does this provide a practical solution to a problem that could simplify or make a designer's job more efficient?

### Biography

Steven M. Donn, MD, FAAP received his M.D. degree from Tulane University. He completed a Pediatrics residency at the University of Vermont and a fellowship in Neonatal-Perinatal Medicine at the University of Michigan. He has been on the faculty of the University of Michigan Medical School since 1980 and is presently a Professor Emeritus. He has published more than 200 medical articles, 250 book chapters, and has written or edited 35 books and specialty journals. He is a member of numerous professional organizations, including the AAP, SPR, APS, and ESPR

**Sergey Suchkov**
Sechenov University, Russia

## Personalized and Pediatrics as a unique healthcare model to be set up via genomics-based innovations, Big data resources and translational applications to secure the human wellness and biosafety

A new systems approach to diseased states and wellness result in a new branch in the healthcare services, namely, personalized and Pediatrics (PPM). To achieve the implementation of PPM concept, it is necessary to create a fundamentally new strategy based upon the subclinical recognition of biomarkers of hidden abnormalities long before the disease clinically manifests itself. Each decision-maker values the impact of their decision to use PPM on their own budget and well-being, which may not necessarily be optimal for society as a whole. It would be extremely useful to integrate data harvesting from different databanks for applications such as prediction and personalization of further treatment to thus provide more tailored measures for the patients resulting in improved patient outcomes, reduced adverse events, and more cost effective use of the latest health care resources including diagnostic (companion ones), preventive and therapeutic (targeted molecular and cellular) etc. A lack of medical guidelines has been identified by responders as the predominant barrier for adoption, indicating a need for the development of best practices and guidelines to support the implementation of PPM! Implementation of PPM requires a lot before the current model "physician-patient" could be gradually displaced by a new model "medical advisor-healthy person-at-risk". This is the reason for developing global scientific, clinical, social, and educational projects in the area of PPM to elicit the content of the new branch.

### Biography

Sergey Suchkov was born in the City of Astrakhan, Russia, in a family of dynasty medical doctors. In 1980, graduated from Astrakhan State Medical University and was awarded with MD. In 1985, Suchkov maintained his PhD as a PhD student of the I.M. Sechenov Moscow Medical Academy and Institute of Medical Enzymology. In 2001, Suchkov maintained his Doctor Degree at the National Institute of Immunology, Russia.

From 1989 through 1995, Dr Suchkov was being a Head of the Lab of Clinical Immunology, Helmholtz Eye Research Institute in Moscow. From 1995 through 2004 - a Chair of the Dept for Clinical Immunology, Moscow Clinical Research Institute (MONIKI). In 1993-1996, Dr Suchkov was a Secretary-in-Chief of the Editorial Board, Biomedical Science, an international journal published jointly by the USSR Academy of Sciences and the Royal Society of Chemistry, UK.

**Rajiv R. Mohan**
University of Missouri, USA

## Precision nanomedicine for treating blindness and restoring vision

Loss of vision from corneal scars/fibrosis appearance after ocular trauma, injury or infection affects 1.5 million Americans each year. Presently, corneal scarring a leading cause of global blindness and impair vision in about 4% of the U.S. population. Corneal transplant surgery remains a standard of care to restore vision. Gene therapy is a novel approach to treat corneal blindness. We tested the potential of single and 2-gene combination therapy to treat corneal scarring in vivo in a preclinical setting. Corneal scarring was produced by alkali-wounding in New Zealand White rabbits, and gene therapy was administered via topical application of vector using our customized delivery technique. Ocular health and success of gene therapy were evaluated using clinical eye exams and imaging with slitlamp-microscope, stereo-microscope, optical coherence tomography, tonometry, pachymetry, HRT3-RCM microscope, Modified MacDonald-Shadduck test, qRT-PCR, immunofluorescence, and TUNEL assays. Rabbit eye that received gene therapy showed remarkable treatment of corneal scar in live rabbits in vivo (Fantes scale was 0.6 in treated eyes compared to 3.3 in non-treated eyes; $p < 0.001$). Molecular investigations demonstrated significantly reduced mRNA levels of profibrotic genes: α-SMA (3.2-fold; $p < 0.01$), fibronectin (2.3-fold, $p < 0.01$), collagen-I (2.1-fold, $p < 0.01$), collagen-III (1.6-fold, $p < 0.01$), and collagen-IV (1.9-fold, $p < 0.01$) compared to the no-therapy given corneas. Further, gene-therapy given corneas showed significantly reduced opaque cells (myofibroblasts) compared to the no-therapy controls (83%; $p<0.001$). No clinically relevant ocular toxicity was observed in eyes that received gene therapy. Precision combinatory gene therapy optimized in our lab has potential to treat blindness and restore vision in vivo without side effects.

### Biography

Dr. Rajiv Mohan is Professor and Endowed Chair of Ophthalmology at the University of Missouri and Research Career Scientist at the Truman VA Hospital Columbia, Missouri, USA. His lab is developing Pediatrics approaches for various blinding diseases. Dr. Mohan is a corneal disease expert with a track record of research mentoring. He has authored >140 journal articles, >10 book chapters, >400 abstracts; received numerous prestigious awards including from the world's largest eye society, ARVO. Dr. Mohan serves on the editorial boards of >20 journals, organized/chaired >100 sessions, and delivered >75 lectures globally in over 30 countries.

**Gamal Al-Saied[a,c], * Talal Al-Malki[b], Mohamed Ayoub[c], Tharwat Hussain[a,c], Riyad Thabet[c], Ahmed Gamal[a], Ziyad AlNefaie[c] , Khader AlQarnic[c], Waleed AlThobaitic[c] ,Abdul Aziz Almalkic[c], Faris Habib[c]**

[a]College of Medicine, Al-Azhar University, Cairo, Egypt

[b]Al-Taif University, Taif-KSA, Saudi Arabia

[c]King Abdul Aziz Specialist Hospital, Taif-KSA, Saudi Arabia

# Unusual cause of small-bowel obstructions in infants: A warning letter to the parents

Foreign body ingestion is a common problem in the pediatric age group. Infants and young children explore objects by putting them in the mouth. Decorative crystal balls swell when they come in contact with water or water containing solutions. This may result in grave complications. Herein, we report on an unusual cause of small-bowel obstructions in three infants due to ingestion of decorative crystal ball.

**The audience should know that:**

Some foreign bodies can be harmful and require immediate intervention. In case of crystal gel ball ingestion, immediate endoscopic retrieval is recommended if the patient presents immediately after ingestion. Parent's awareness through media is required to abandon decorative crystal gel balls in houses and where children can ingest these toxic materials

## Biography

Professor Gamal Al-Saied graduated in 1986 from Al-Azhar University with Bachelor's Degree in medicine and surgery with general grade very good with honor. Internship in 1987. Pediatric surgery Resident from 1989 till 1992. Master's Degree (MSc) pediatric surgery in 1991. Demonstrator of pediatric surgery in 1992, Assistant lecturer in 1993. Medical Doctorate degree (MD) in 1998. Lecturer of pediatric surgery in 1998. Assistant professor of pediatric surgery in 2004. Fellowship of European Board In 2008, Glasgow, Scotland. Full professor of pediatric surgery in 2009. 30 international publications. Chairman of sessions in international conferences. Editor in chief of many international journals.

**Emine Begum Gencer-Oncul[1], Duygu Duman[2], Fatma Tuba Eminoglu[3], Suleyman Aktuna[4], Mustafa Turker Duman[5]**

[1]Ankara University Biotechnology Institute, Ankara, Turkey

[2]Ankara University Faculty of Health Sciences Department of Audiology, Ankara, Turkey

[3]Ankara University Faculty of Medicine Department of Pediatric Metabolism, Ankara, Turkey

[4]Yuksek Ihtisas University Faculty of Medicine Department of Medical Genetics, Ankara, Turkey

[5]Ankara University Faculty of Science Department of Biology, Divison of Molecular Biology, Ankara, Turkey

## Importance of mtDNA mutations in patients with Leigh syndrome

Mitochondrial diseases are a clinically heterogeneous group of rare hereditary disorders characterized by abnormal oxidative phosphorylation and result in mitochondria dysfunction. The most common clinical presentation of MD in children is a progressive neurodegenerative disorder known as Leigh syndrome (LS). LS prevalence is thought to be 1 per 40,000 live births. Mutations in nDNA genes are mostly responsible for LS which shows early clinical findings, on the other hand, a small part of LS are caused by abnormalities in mtDNA. In this study, we screened mtDNA genes using Next-Generation-Sequencing and confirmed with Sanger Sequencing in the patients who are considered to have LS from Ankara University Faculty of Department of Pediatric Metabolism Clinic. The aim of the study was to determine the mtDNA mutations' effect in these patients and on the clinical spectrum, to investigate common mtDNA mutations or genes in Turkey which can be related to LS. In the study, six different variants in 5 patients were identified from a total of 7 patients examined. According to the CentoGene-ACMG database, two of the identified variants were Class 1, two were Class 2 and two were Class 3. As a result of the study, two patients' genetic causative mutation were determined with previously reported mutations. Various bioinformatic programmes were also used to investigate these mutations. Two variants were identified for the first time in literature and other two variants, previously reported but with uncertain pathogenic effect, are thought to be associated with LS. Five out of seven (about 70%) patients with suspected LS were detected as mtDNA causative. It is thought that in patients with LS pre-diagnosis, mtDNA screening should be among the primary clinical tests and Complex I, V genes encoded by mtDNA should be taken into consideration.

**Audience Take Away:**

- The audience who are in Pediatric Genetic field will learn how important to screen mtDNA firstly, in order to exclude mtDNA related mutations in LS
- Bioinformatic programmes can be used to investigate new variants
- Important mtDNA genes in LS
- Possible new mutations that are thought to be related with LS

### Biography

Dr. E. Begum Gencer-Oncul graduated as a biologist in 2012 from Gazi University, Turkey. She then started Ankara University Biotechnology Institute and gained her MSc in 2014. Meanwhile she started to work as a researcher at Ankara University Faculty of Medicine Cord Blood Bank. Upon her interest in Genetics and Rare Disease field, then she started his PhD thesis project at Ankara University Faculty of Medicine Division of Genetics Department of Pediatrics and she received her PhD degree on March 2019. She has taken part 6 different projects. Her research interests are based on stem cell and rare diseases field.

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# SPEAKERS

# PEDIATRICS VIRTUAL 2020

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## Design of turn off/on fluorescent probes for imaging carbonylation in cancer

Ozlem Dilek[3]*, Hazel Erkan[1] and Dilek Telci[2]

[1]Gottfried Schatz Research Center for Cell Signaling, Metabolism and Aging, Department of Biophysics, Medical University of Graz, Neue Stiftingtalstrasse 6/4 8010 Graz, Austria
[2]Department of Biotechnology, Yeditepe University, Istanbul, Turkey
[3]Department of Chemistry, University of District of Columbia, Washington, DC, USA

Bioorthogonal chemistry is frequently used to study biomolecules selectively inside cells. Novel fluorescent probes have been used to tag biomolecules site-selectively on molecular basis so that clinicians can able to manage potential challenges faced in clinical practice for early diagnosis and treatment of tumors further. We designed a small molecule, 2Hydrazine-5nitrophenol which incorporates with the carbonyl moiety of biomolecules through click reaction to form a fluorescent hydrazone product inside cells, therefore we can able to monitor biomolecule carbonylation in various cancer cell lines. In terms of fluorescence perspective, our non-fluorescent synthesized chemical probe can make fast covalent binding with carbonyl moieties at neutral pH to form a stable product leading to spectroscopic alteration in live cells. Microscopic and fluorometric analyses were used to analyze the exogenous and endogenous ROS induced carbonylation profile in human dermal fibroblasts along with A498 primary site and ACHN metastatic site renal cell carcinoma (RRC) cell lines. Confocal image analysis, UV-vis and spectrofluorometric measurements were also performed to characterize the bioorthogonal hydrazine reactions. Our results showed that carbonylation level that differs in response to exogenous and endogenous stress in healthy and cancer cells, can be monitored by the newly synthesized chemical probe. When cells were exogenously ROS induced, A498 cell line demonstrated higher carbonylation level than the ACHN cells. The results we reported introduce a new approach for understanding the critical importance of chemical small molecule probes that can enhance new diagnostic methods in cancer.

**Audience Take Away:**

- It will give new insights for future fluorescence based diagnostic approaches
- It will introduce new fluorescent probe synthesis and its applications in cancer
- It will demonstrate how novel small molecules can selectively target certain functional groups in biomolecules in live cells.

**Biography**

Dr. Dilek studied B.Sc. and M.Sc. in Chemistry at the Middle East Technical University, Ankara, Turkey. She then completed her Ph.D. in Chemistry/Chemical Biology at SUNY-Binghamton, USA. After two years postdoctoral studies at Cornell University and SUNY institutions, she joined Istanbul Altinbas University, Medical School in 2013 and got her tenure. She returned to USA in 2017 and worked as a faculty in Husson University and University of St Joseph. She recently joined as a faculty to University of District of Columbia, Washington, DC. She has published more than 15 research articles, book chapters and presented in more than 35 national and international conferences.

## Bridge-building between chromosomes: Preventing chromatin breakage in cytokinesis

Dr George Zachos

Department of Biology, University of Crete, Heraklion, Greece

In the presence of chromatin bridges, cells delay completion of cytokinesis (abscission) and retain actin patches at the base of the intercellular canal to prevent chromosome breakage. However, the molecular mechanisms involved are incompletely understood. In the present study, we show that the Cdc-like kinases (Clks) 1, 2 and 3 phosphorylate human Aurora B kinase at the conserved serine-331 at the midbody to promote Aurora B activation and delay abscission. We also show that the DNA damage kinase Chk1 phosphorylates the actin remodeling kinase Src at serine-51 to fully induce Src catalytic activity; in turn, phosphorylated Src promotes formation of actin patches and stabilizes chromatin bridges. These results describe mechanisms that protect genome integrity by preventing chromatin bridge breakage in cytokinesis.

**Audience Take Away:**

- Chromatin bridges
- Mechanisms that maintain genome integrity in cytokinesis
- Abscission checkpoint
- Cell signaling of actin patches formation

**Biography**

George Zachos completed his PhD at the University of Crete in 1997. He then received postdoctoral training in the Beatson Institute for Cancer Research, Glasgow, U.K. before moving, in 2008, to the Department of Biology, University of Crete, Heraklion, Greece as an Assistant Professor in Cell Biology. In 2015, he became Associate Professor and continues to hold this position today. Discoveries from the Zachos lab have identified mechasnisms that regulate the fidelity of chromosome segregation in mitotic cell division in higher eukaryotic cells. He has published 37 papers in leading scientific journals and his work has received ~2,000 citations.

# Nuclear inverse polarity papillary lesion without myoepithelial cells in the breast

Shinya Tajima MD, PhD[1]*, Nobuhiko Matsumoto MD[1], Saeko Naruki MD, PhD[1], Masatomo Doi MD, PhD[1], Akira Endo MD, PhD[1], Motohiro Chosokabe MD[1], Keiko Kishimoto MD, PhD[2], Koichiro Tsugawa MD, PhD[3], Junki Koike, Prof[1]

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[2]Department of Radiology, St. Marianna University School of Medicine, Kawasaki city, Kanagawa prefecture, Japan

[3]Department of Breast and Endocrine Surgery, St. Marianna University School of Medicine, Kawasaki city, Kanagawa prefecture, Japan.

Here, in relation to Intraductal papilloma (IDP), we would like to present new concept of two papillary lesions at a glance IDP. In the past, lacking myoepithelial cells is thought to be invasion and means malignancy. However, lacking of myoepithelial cells is not necessarily indicate malignancy in our cases. Two cases of 68- (Case1) and 44-year-old (Case2) female are presented. They have abnormality in the breast. And they came to our hospital for further examination and treatment. Radiologically, malignancy could not completely excluded. Then, breast excision was performed. Previous report indicate apocrine papillary lesions lacking myoepithelial cells however benign. In our cases, histologically, both cases revealed papillary neoplastic lesions lined by fibrovascular core and nuclear inverse-polarity without atypia. Loss of myoepithelial cells was observed by HE, p63, and calponin. Previous report indicate CK5/6, ER, p63 and MUC3 are important for distinguishing between papillary lesions according to the differential index (based on Allred score) of ([ER total score] + [MUC3 total score])/([CK5/6 total score] + [p63 total score] + 1). Based on this analysis, our 2 cases had benign lesions. However, based on immunopositivity for cell-cycle marker Cyclin-D1, Case1 was negative, and Case2 was about 70% weak positive. Additionally, the Ki-67 index was <1% in both cases, and no evidence of disease was observed minimum 62 months of follow-up for both cases, despite lack of additional treatment. Thus, we propose that lack of myoepithelial cells in papillary lesions do not necessarily indicate malignancy and are thought to be at the most uncertain malignant potential in pathologically, however clinically benign. Because of our cases of the name "Nuclear inverse polarity papillary lesion lacking myoepithelial cells" is too long and their distinctiveness, someone calls these lesions as "Tajima tumor".

**Audience Take Away:**

- Lacking of myoepithelial cells in the breast does not necessarily indicate invasion and malignancy. Some cases are benign even lack of myoepithelial cells. Hence if you meet the breast lesions lacking myoepithelial cells, please consider this presentation, and do not easily diagnose malignancy.
- If you meet the lesion without myoepithelial cells in the breast, do not simply consider that is invasion and malignancy. Our cases indicate lacking of myoepithelial cells is not always malignancy and benign lesions are existed although without myoepithelial cells. We think that it might exist middle stage between intraductal lesion and invasive lesion. In the future, the report of breast lesions lacking myoepithelial cells which behave as benign will be increase if pathologists read thoroughly in our cases. And the Differential Index using MUC3, CyclinD1 and Ki-67 immunostainings are useful tool for discriminating between benign and malignant lesion in the breast.

**Biography**

Shinya Tajima,MD,PhD. The man was born in Saitama prefecture near Tokyo. He graduated from Keio University School of Medicine, before working in Department of Pathology at the same institution. I received PhD in Radiologic-Pathology from St. Marianna University Graduate School of Medicine, Japan. He is currently working at the Department of Pathology and Radiology of this latter institution. His research interests are breast pathology and radiology. And he is a finder of so-called "Tajima tumor".

# Lung ultrasound completely replacing of chest X-ray to diagnose neonatal pulmonary diseases: The feasibility and necessity

Jing Liu

Beijing Chaoyang District Maternal and Child Healthcare Hospital, China

We would like to explain whether or not lung ultrasound (LUS) can replace chest x-ray to diagnose neonatal lung diseases and should be routinely used in NICUs.

Ultrasound can diagnose every kind of common neonatal lung diseases (NLDs): A variety of NLDs that can be diagnosed by CXR can be clearly and differentially diagnosed by LUS now. NLDs, including RDS, MAS, pneumonia, pneumothorax, atelectasis, lung bleeding and pleural effusion, all have their own characteristic ultrasound imaging features.

Lung ultrasound is more sensitive, accurate, and reliable for diagnosing pneumothorax than chest X-ray: 1)LUS has higher sensitivity for the diagnosis of atelectasis and can reveal "occult atelectasis" : According to our study, the LUS can find 100% atelectasis, whereas CXR could detect only approximately 75% of atelectasis.2)Ultrasound can accurately diagnose and identify pseudo atelectasis: In clinical practices, there were some patients diagnosed as atelectasis by CXR on admission, but in fact they were not, so for these so called "atelectasis, we named them as term pseudoatelectasis.3)The sensitivity and accuracy of ultrasound diagnosis of pneumothorax are superior to those of CXR: The ultrasound diagnosis of pneumothorax is very sensitive and specific, both a meta-analysis and a prospective controlled study had showed that the LUS was more accurate than chest radiography for detection of pneumothorax.4)The sensitivity and accuracy of ultrasound diagnosis of pneumonia are superior to CXR: A systematic review and meta-analysis about LUS in diagnosing adult pneumonia revealed that both the sensitivity and specificity for the diagnosis of pneumonia using LUS were 94% and 96%, respectively. Our long-term clinical practice and experience also confirmed that LUS might replace CXRs for diseasing pneumonia. 5) Ultrasound is accurate and reliable for the diagnosis and identification of RDS and TTN: In clinical practice, TTN is often treated as RDS with a misdiagnosis rate as high as 62% -77%, which may lead to a series of serious adverse consequences. However, LUS can clearly differentiate RDS from TTN, thus avoiding misdiagnosis and mistreatment.

Lung ultrasound can accurately reveal the etiology of long-term oxygen dependence in premature infants: Long-term oxygen dependence is a common problem in preterm infants, especially in those with GA <32 weeks. LUS not only helps to clarify and identify the causes of oxygen dependence but also helps guide treatment, improve the prognosis of patients and avoid misdiagnosis of BPD .

Application in our clinical practice: From March 2017,LUS has been routinely performed in our hospital to replace CRX for the diagnosis and differential diagnosis of NLDs; thus, hospitalized pediatric patients can avoid undergoing CRX for NLDs.

Why the traditional chest X-ray is not a good method for the diagnosis of NLDs: First, the position of the infant and the direction of the of the radiation beam might hinder the detection of the focus of injury in some areas, such as deep areas in the lungs or the posterior lungs. As we all know, the adults or children are in the postero-anterior position while the newborn infants are in the antero-posterior position when taken CRX. Second, the radiation beam might not be sufficiently strong to detect tiny areas of the lung injury. Third, spontaneous breathing or mechanical ventilation might result in chest radiographic images obtained during expiration. While LUS can detect small areas of atelectasis in almost any part of the lungs, regardless of the patient's position.

Conclusions: Therefore, for clinicians with sufficient experience, experience, well understanding and mastery of LUS, use of ultrasound instead of CRX as the preferred method for NLDs is not only necessary but also feasible. This work was supported by the Social Development Projects, Beijing Chaoyang District Bureau of Science, Technology and Information (CYSF1922)

**Audience Take Away:**

- LUS can diagnose all kinds of neonatal common lung diseases.
- LUS is more accurate and reliable in diagnosing neonatal lung diseases than chest X-ray.
- It is necessary that using LUS replacing of CRX to diagnose NLDs.

**Biography**

Prof. Dr. Jing Liu is the Director of Department of Neonatology and NICU, Beijing Chaoyang District Maternal and Child Health Care Hospital. He is good at neonatal intensive critical care, neonatal brain ultrasound. Recent 10 years, he focused on neonatal lung ultrasound research, in his NICU, the lung ultrasound has completely replaced the chest X-ray to diagnoses neonatal lung diseases for 3 years.His academic positions include the Associate Chairman of Chinese Neonatologist Association and the Editorial members of more than 30 Chinese and English Journals. Dr. Liujing has published more than 300 papers, over 12 books and Chapters in Books.

## Multi-Analyte guided treatment in personalized therapy of advanced cancers

Sewanti Limaye[1*], Prashant Kumar[2], Rajan Datar[3]

[1]Department of Medical Oncology, Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute, Mumbai, Maharashtra, India
[2]Institute of Bioinformatics, International Technology Park, Bangalore, India
[3]Datar Cancer Genetics Ltd., F-8 D-Road, Ambad, Nasik, Maharashtra, India

Anti-cancer treatments beyond Standard of Care (SoC) therapy is considered off-label and is mostly devoid of guidelines. Such treatments are referred to as Physicians Choice Treatments (PCT), are inevitably prescribed to patients arbitrarily without substantial data, and are known to have inferior outcomes. We propose multi-analyte tumor profiling to reveal latent vulnerabilities in advanced refractory cancers which can be used to design safe and efficacious personalized combination regimens. In this presentation we present our work from the cohort of patients that we have treated with this approach. The study supports the rationale that multi-analyte tumor profiling can provide treating clinicians with relevant de novo evidence, which can guide selection of appropriate patient-specific combination regimens with meaningful response rates, lower risk of failure and manageable toxicity profiles.

**Audience Take Away:**

- The audience will be able to learn how various different methods were used to design therapy for advanced cancers in a resource limited setting in absence of adequate clinical trials
- This method is illustrative in translating cancer genomics from bench to bedside. Combination therapies to treat cancers are evolving. However, most trials are single pathway driven. In this presentation I illustrate how one could combine multi-analyte testing to design a specific treatment for a patient and utilize already approved drugs in a label- agnostic way to treat advanced and heavily pretreated patients.

**Biography**

Dr. Limaye received her medical degree with honors from Jawahar Lal Nehru Medical College, Bhagalpur, India and did her residency in Internal Medicine from New York University in 2006. She did her fellowship in Hematology& Medical Oncology from Albert Einstein University, NY in 2009 and Masters in Patient Oriented Research (Cancer Genomics and Biostatistics) from Mailman School of Public Health, Columbia University, NY. Dr. Limaye has worked as an Attending in Medical Oncology and at the Phase I - Early Drug Development Center - Dana Farber Cancer Institute/Brigham and Women's Hospital, Harvard Medical School, Boston, USA in 2009 and as Attending in Medical Oncology and Assistant Professor of Medicine, Columbia University Medical Center/New York Presbyterian Hospital, New York-USA. She now works at Kokilaben Hospital, Mumbai, India as the Director of Clinical and Translational Oncology Research and Consultant in Medical Oncology.

## Snoring sound features are associated with carotid artery status in patients with obstructive sleep apnea

Hai-Hua Chuang

Linkou Chang-Gung Memorial Hospital, Taiwan

**Background and Objective:** Obstructive sleep apnea (OSA) is considered a contributing factor for carotid atherosclerosis. Our research team has published a series of studies on using snoring sounds as an objective and quantitative clinical parameter, rather than just a subjective symptom, in predicting disease severity, comorbidities, and treatment response. The aim of this cross-sectional study is to investigate the association between carotid artery status and disease severity and snoring in patients with OSA.

**Methods:** Fifty participants were recruited from Sleep Center of Chang Gung Memorial Hospital in Taiwan between May 2018 and March 2020. OSA severity was assessed with polysomnography. Snoring sounds were recorded, and snoring index, time, and snoring sound energy (SSE) were analyzed. Carotid artery status was evaluated with ultrasonography, and participants were subsequently divided into three subgroups: normal carotid arteries, thick carotid intima-media thickness (CIMT), and carotid atherosclerosis. Independent variables were examined for inter-group differences, correlations, and predictive values for carotid artery status.

**Results:** Demographic, anthropometric, symptom, and disease severity variables were similar across subgroups. Blood pressure (BP) was higher in the thick CIMT subgroup, and SSE%_400–496 Hz was higher in the patients with carotid atherosclerosis. After adjusting for conventional risk factors, neck circumference was positively associated with CIMT, and systolic BP, diastolic BP, and hypertension were positively associated with thick CIMT. SSE%_400-496 Hz was associated with CIMT, thick CIMT, carotid atherosclerosis, and overall carotid artery status with and without adjustments. High SSE%_400-496 Hz could predict thick CIMT (area under the curve [AUC] 0.69, $p = 0.03$; sensitivity 71%, specificity 67%) and carotid atherosclerosis (AUC 0.70, $p = 0.02$; sensitivity 84%, specificity 55%).

**Conclusions:** The severity of OSA as assessed with polysomnographic parameters was not related to carotid sonographic measurements. NC was independently and positively correlated with CIMT, and SSE%_400-496 Hz was associated with CIMT, thick CIMT, and carotid atherosclerosis. In addition to conventional cardiovascular risk factors, NC and portable non-invasive snoring sound analysis may be a rational approach to stratify the risk of carotid atherosclerosis in patients with OSA.

### Biography

Dr. Hai-Hua Chuang is a family physician with an expertise on weight management. She is an attending physician and assistant professor in Chang-Gung Memorial Hospital (Taipei & Linkou), the biggest medical center in Taiwan and also a visiting scholar at Obesity Institute and Genomic Medicine Institute of Geisinger Medical Center, Danville, Pennsylvania, USA.

The clinical service and research interests of Dr. Chuang are in the field of the epidemiology, health impacts, treatment, and preventive methods of obesity and related comorbidities. Dr. Chuang has also been conducting the largest workplace health promotion project for medical workers in Taiwan since 2013.

## Pediatric asthma: "Sunshine Vitamin" as an adjuvant therapy??

Fehmida Najmuddin

DR D Y Patil Hospital, Medical College and Research Centre, India

Bronchial Asthma is one of the major multifactorial non-communicable disease, globally being ranked 28th according to the disability adjusted life years. In our country India, according to the 2018 global report, amongst 1.31 billion populations the percentage of children with asthma is 6%. The most common cause of uncontrolled asthma is non-adherence to treatment, non-compliance and associated comorbidities along with either steroid unresponsiveness or due to economic burden associated with the disease treatment and follow-up. Any new intervention in diagnosis or therapy which will augment the treatment response thereby improving the classification would definitely be an area of interest to all the medical practitioners around the world. One such breakthrough is this wonder vitamin called Vitamin -D and in the past few years its role in various disorders from cancer, endocrinology, and systemic disorders to respiratory diseases is widely being studied. Vitamin D acts at the cellular level and can inhibit proliferation of airway smooth muscle and many pathways which are associated with airway remodelling which is one the major pathogenic factors involved in development of bronchial asthma. Its deficiency is associated with more severe asthma exacerbations due to increased production of inflammatory cytokines and proliferation. On the human airway smooth muscles, it can also inhibit the expressions of MMP-9 AND ADAM-33, both of which are the asthma susceptibility genes.

The main aims and objectives of this presentation would be to enlighten the medical fraternity about its role in paediatric asthma and how it helps in steroid responsiveness, better control and improvement in lung functions. I would also take you through the various studies including mine, which have shown its beneficial effect in paediatric asthma patients. A number of studies have been done by assessing the future development of wheeze in children if mothers have been antenatally administered with vitamin D as it helps in foetal lung maturation as well.

**Audience Take Away:**

- Vitamin D as an adjuvant/ or add on therapy to the inhaled medications given in asthma
- Will help in enhancing the steroid responsiveness in pediatric asthma patients resulting in better control and grading of asthma severity.
- Improvement in the pulmonary function test
- Further studies on larger population of pediatric asthma can be carried out by researchers and medical practitioners.

**Biography**

Dr. Fehmida Najmuddin, MBBS from Manipal University, Karnataka , India in 2007, MD Pediatrics in 2012 followed by fellowship in pediatric pulmonology in 2013 under my mentor Dr. Keya Rani Lahiri in Dr. D Y Patil University, Maharashtra, India. Since Past 7 years, we run a dedicated Pediatric Asthma and allergy clinic. I Have close to 18 publications in various national and international journals, and have worked on many aspects of pediatric asthma and allergic rhinitis including RCQOL, Inhaled therapy, Pulmonary function tests, Height and spirometry correlation. currently working on control classification of pediatric asthma. Currently working as an Assistant Professor and pediatric pulmonologist in Navi Mumbai, India

## Cancer and host immunity (microbiome)

Dr Ivana Haluskova
French Immunology Society, France

Gastrointestinal tract is crucial for many physiological processes in particular play an important role in inflammatory and immune reactions. Several internal and external factors can influence this population, and shifts in their composition, have been demonstrated to contribute and affect different diseases. During symbiosis several bacteria related to inflammation, one of the most necessary factors in carcinogenesis; it has been shown that some bacterial strains through deregulation of different signals/pathways may affect tumor development through the production of many factors.

Gut microbiota might be considered as a holistic hub point for cancer development: direct and indirect involvements have been studying in several neoplasms such as colon rectal cancer, hepatocellular carcinoma and breast cancer.

Immuno host response and resistance (microbiome) Microbiome is composed from 100.000 miliards of bacteria's. It forms protective barrier against pathogens (permeability) and interactive layer with inner host immune system and neuroendocrine System. It does play important role in development (training of host immune response), human health prevention.

There is an increasing scientific evidence of crosstalk between gut microbiota and cancer, its ability to modulate chemotherapy, radiotherapy and immunotherapy, and the possibility that the intestinal microbial is a new target for therapeutic approaches to improve the prognosis and quality of life of cancer patients and even prevent with accurate diagnostic escape from host immune surveillance.

Many alterantives are ongoing including combination with immunotherapy but personalized approach given genetic and immune specificities and biology of cancer are important. We try to modify the patient's microbiota in order to promote the immune response to reduce gastrointestinal toxicity, i.e. diarrhea in patients who are candidates for chemo and radiotherapy, but without some studies they have linked the use of accurate intervention at host microbiome in particularly immunosuppressed patients and some important side effects.

The use of diet and microbiota can be really interesting during cancer treatments to improve the possibility of tolerance, on the one hand, and response on the other but we must consider all alternative and complexity of individual approach (genetic, medical background, resistance to treatment, accurate diagnostic and intervention empowering host immune response, increasing immune surveillance and responsiveness to treatment.

The use of antibiotic intelligent fashion, microbiome as adjuvant, oncomimetics to inspire new way to tackle cancer (vaccines -likeoncomimeticbutmore) while considering accurate diagnostic,individual particularities are important and worth deeper understanding for best care of patients. Microbiome plays role in currently used immunotherapy and CAART based on scientific data.

**Biography**

Dr Ivana Haluskova Spent over 1115 years in senior position in pharma industry career in research and indus try and consultancy covering complex international projects from proof of concept to phase IV in Europe, Asia and US including the oncology domain as well as having worked in various other therapeutic areas including pediatrics, rare diseases, infectious diseases, vaccines and inflammation. French medical professional, and speaking French, English, Russian, Czech / Slovak and Italian. Gained medical, academia and industry experience in Europe, Israel but mainly in Asia and US including the

oncology domain as well as having worked in various other therapeutic areas including pediatrics, rare diseases, infectious diseases, vaccines and inflammation. Board certified in internal medicine, immunology and infectious diseases and graduated in the Slovak Republic. French Physician.

# Large-scale Epigenome-wide Human shRNA screen identifies candidates that confer resistance to BRAF inhibitors

Romi Gupta[1]*, Suresh Bugide[1], Douglas B Johnson[2], Michael Green[3], Narendra Wajapeyee

[1]Department of Biochemistry and Molecular Genetics, UAB, Birmingham, Alabama, USA
[2]Department of Medicine, Vanderbilt University Medical Centre, Nashville, Tennessee, USA
[3]Department of Molecular, Cell and Cancer Biology, UMASS, Worcester, Massachusetts, USA

Oncogenic mutations in the BRAF gene are found in 50% of melanomas and drive melanoma growth. Thus, BRAF kinase inhibitors (BRAFi), such as vemurafenib and dabrafenib alone or in combination with MEK inhibitors, have been developed and used for the treatment of BRAF-mutant metastatic melanoma in clinic. Although initial responses to BRAFi are generally favorable, acquired BRAFi resistance emerges rapidly, resulting in treatment failure. Acquired resistance to BRAF kinase inhibitors (BRAFi) is the primary cause for their limited clinical benefit. Although several mechanisms of acquired BRAFi resistance have been identified, the basis for acquired resistance remains unknown in over 40% of melanomas. Identifying additional novel mechanisms of acquired resistance to BRAFi may provide new opportunities to effectively treat BRAF-mutant melanoma.

Epigenetic alterations are shown to play an important role in the regulation of cancer cell growth and their response to targeted therapies. Therefore, to determine the role of epigenetic regulators in conferring resistance to BRAFi, we performed a large-scale, unbiased, epigenome-wide shRNA screen by targeting 363 known and predicted epigenetic regulators with 1862 shRNAs. Our screen identified Block of Proliferation 1 (BOP1) and Histone Acetyltransferase 1 (HAT1) as two key epigenetic regulators, whose loss resulted in resistance to BRAFi in both cell culture and in mice. In clinical samples of patient sample pairs, consisting of pre-treatment along with matched progressed BRAFi + MEKi-treated melanoma samples, we found that both HAT1 and BOP1 levels were downregulated in over 60% progressed samples in comparison with pre-treated samples. Mechanistically, we find that the loss of both BOP1 and HAT1 lead to increased MAPK signaling and BRAFi resistance. However, in case of BOP1 loss driven BRAFi resistance, increased MAPK signaling was as a result of down-regulation of the MAPK phosphatases DUSP4 and DUSP6 whereas in case of HAT1 loss driven BRAFi resistance increased MAPK signaling was due to increased insulin growth factor 1 receptor (IGF1R) signaling. Therefore, restoration of BRAFi sensitivity in BRAFi resistant melanoma cells with lower BOP1 levels can be induced via ERK inhibitors and in case of HAT1 loss can be achieved via both ERK and IGF1R inhibitor. Collectively, our results identify two novel epigenetic regulators whose loss results in activation of the MAPK pathway and BRAFi resistance. These results indicate that treatments with IGF1R and/or ERK1/2 inhibitors can enhance BRAFi efficacy to overcome the limitations associated with BRAFi and BRAFi + MEKi treatment.

**Audience Take Away:**

- Large-scale Epigenome-wide Human shRNA screen to identify novel regulators that determine treatment response in cancer.
- New epigenetic regulator that are involved in BRAF inhibitor resistance in melanoma.
- Clinically relevant mechanisms for acquired BRAFi resistance.
- Alternative strategies for the treatment of drug-resistant cancer cells and to counteract drug resistance.

**Biography**

Dr. Gupta did her BS in microbiology and MS biochemical technology in India. She further obtained her PhD from Max Planck Institute for Molecular Genetics, Berlin, Germany in the area of ribosome biology and protein translation. After that she moved to Yale University where she performed extensive studies on identification of new regulators of cancer growth and progression. Many of her studies are published in journals like eLife, PNAS, Cell Reports, Oncogene etc. Currently she is Assistant Professor in the UAB and Associate scientist at O'Neal Comprehensive Cancer Center at UAB.

## T-DM1 resistance and HER2 heterogenicity

Wen Jin Wu
Food and Drug Administration (FDA), USA

T-DM1 (also known as ado-trastuzumab emtansine) consists of a humanized anti-HER2 monoclonal antibody (trastuzumab) that is conjugated to a maytansinoid-derived cytotoxic agent (DM1) via a non-reducible thioether linker and is approved for the treatment of HER2-positive metastatic breast cancer that has progressed on trastuzumab plus chemotherapy treatment. Despite initial favorable outcomes, most patients treated with T-DM1 eventually develop T-DM1-resistant diseases, mechanisms of which remain elusive. Currently, there is no targeted therapy approved by FDA to treat T-DM1-resistant breast cancers. Breast cancers are a heterogeneous disease among different patients (intertumor heterogeneity) and individual tumor (intratumor heterogeneity). Intratumoral HER2 heterogeneity was reported in 16–36% of HER2-positive breast cancer and associated with poor survival in HER2-positive breast cancer. This finding implicates that a HER2-trgeted monoclonal antibody-based therapy, including antibody-drug conjugate such as T-DM1, may be insufficient to eradicate HER2-positive breast cancers with intratumoral HER2 heterogeneity. It is also important to understand whether cancer metastatic potentials of breast cancer with intratumoral HER2 heterogeneity are increased after these HER2-low cancer cells are exposed to the T-DM1. Our data suggest that HER2 heterogeneity contributes to T-DM1 resistance. While HER2-low breast cancer cells are not response to T-DM1 treatment, the cell invasion activity of these HER2-low breast cancer cells was significantly increased after these cells were exposed to T-DM1. These results provide critical information regarding the treatment of HER2-positive breast cancers with HER2 heterogeneity. Taken together, our study provides evidence demonstrating that proliferation and invasion activities of T-DM1-resistant breast cancer cells are regulated by different mechanisms and that T-DM1 treatment potentially increase metastatic potential of the breast cancer cells with intratumoral HER2 heterogeneity. Combination of T-DM1 with other therapy that can inhibit cancer cells expressing low levels of HER2 in HER2-positive breast cancer may be crucial to control cancer metastasis.

**What will audience learn from your presentation?**

- Cell proliferation and invasion are regulated differently in T-DM1-resistant breast cancer cells
- HER2 heterogeneity contributes to T-DM1 resistance of HER2-positive breast cancer
- T-DM1 treatment may increase metastatic potential of breast cancer cells expressing low levels of HER2
- Development of targeted therapy to overcome T-DM1 resistance is urgent

**Biography**

Dr. Wen Jin Wu is currently a Senior Investigator in Division of Biotechnology Review and Research I (DBRR1), Office of Biotechnology Products (OBP), Office of Pharmaceutical Quality (OPQ), Center for Drug Evaluation and Research (CDER), FDA. He earned his M.D. from Wannan Medical College in China. In 2002 he received his Ph.D. from Cornell University. After two years Research Associate supervised by Dr. Richard Cerione at Cornell University, he obtained the position of a Principal Investigator (PI) in OBP at FDA in 2004. In addition to his regulatory duty as a Product Quality Reviewer, Dr. Wu's laboratory at FDA investigates the roles of ErbB/HER family receptors in breast cancer progression, conducts physiochemical and biological characterization of HER2-targeted antibody therapeutics, including monoclonal antibodies, antibody-drug conjugates, and bispecific antibodies, and antibody engineering generating novel bispecific antibodies for the treatment of breast cancer. His laboratory also carries out the development of cell-based bioassays for bispecific antibodies. He has published many research papers in highly reputed journals, including mAbs, Scientific Reports, Journal of Biological Chemistry, Nature, Cell, Molecular Cancer Therapeutics, and Cancer Research, and has been invited to give talks in many national and international conferences.

## Radioiodine- The first and gold standard of targeted precision oncology

Barbara Hertz*

USA

Dr. Saul Hertz (1905-1950), conceived and developed the medical uses of radioiodine (RAI). He brought from bench to bedside the successful use of radioiodine (RAI) to diagnose and treat cancer. Thus was born the science of theragnostics used today for neuroendorine tumors and other forms of cancer. Dr. Hertz's work is the foundation of targeted precision oncology.

## The artificial intelligence-assisted cytology diagnostic system in large-scale cervical cancer screening: A population-based Cohort study of 0.7 Million wome

Bojana Turic[2*], Heling BAO[1,3*], Xiaorong SUN[2*], Yi ZHANG[4], Baochuan PANG[5], Hua LI[2], Liang ZHOU[2], Fengpin WU[2], Dehua CAO[2], Jian WANG[2*], Linhong WANG[3]

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[5]Landing Artificial Intelligence Center for Pathological Diagnosis, Wuhan University, No. 299, Bayi Road, Luojiashan Street, Wuhan, 430000, CHINA.

**Background:** Adequate cytology is limited by insufficient cytologists in a large-scale cervical cancer screening. We aimed to develop an artificial intelligence (AI)-assisted cytology system in cervical cancer screening program. METHODS: We conducted a perspective cohort study within a population-based cervical cancer screening program for 0.7 million women, using a validated AI-assisted cytology system. For comparison, cytologists examined all slides classified by AI as abnormal and a randomly selected 10% of normal slides. Each woman with slides classified as abnormal by either AI-assisted or manual reading was diagnosed by colposcopy and biopsy. The outcomes were histologically confirmed cervical intraepithelial neoplasia grade 2 or worse (CIN2+).

**Results:** Finally, we recruited 703,103 women, of whom 98,549 were independently screened by AI and manual reading. The overall agreement rate between AI and manual reading was 94.7% (95% confidential interval [CI], 94.5%-94.8%), and kappa was 0.92 (0.91-0.92). The detection rates of CIN2+ increased with the severity of cytology abnormality performed by both AI and manual reading (p trend<0.001). General estimated equations showed that detection of CIN2+ among women with ASC-H or HSIL by AI were significantly higher than corresponding groups classified by cytologists (for ASC-H: odds ratio [OR]=1.22, 95%CI 1.11-1.34, p<0.001; for HSIL: OR=1.41, 1.28-1.55, p<0.001). AI-assisted cytology was 5.8% (3.0%-8.6%) more sensitive for detection of CIN2+ than manual reading with a slight reduction in specificity. CONCLUSIONS: AI-assisted cytology system could exclude most of normal cytology, and improve sensitivity with clinically equivalent specificity for detection of CIN2+ compared with manual cytology reading. Overall, the results support AI-based cytology system for the primary cervical cancer screening in large-scale population.

**Audience Take Away:**

- AI assisted cervical cancer screening is not yet used as a routine methodology in the screening laboratories. Our data shows that it can be used as a main screening tool (wherever cytology is used as a primary screen) or as a triage in cases where HPV is used as a primary screen.
- AI assisted screening is particularly useful for those laboratories that do not have sufficient support staff (Cytotechicinas or cytotechnologies) or pathologists.
- The accuracy of our model shows that all negative (majority of slides) cases can be easily separated from positive or suspicious cases.
- The method and implementation will be discussed

**Biography**

Dr. Bojana Turic completed her MD at the University Of Sarajevo, Bosnia and Herzegovina where she held the position of Assistant Professor of Medical Microbiology; She finished her fellowship in Medical microbiology at the University of Zagreb, Croatia.
Bojana was a part of the executive team at PMI labs; Vancouver based private spin off company from BC Cancer Agency, focused on early cancer detection. She led the company through all steps from a concept through significant clinical and regulatory She is currently an advisor to or is actively involved with various biotechnology companies in Vancouver Bojana is also VP of International Affairs at Landing Medical High Tech Co – a biotechnology and laboratory service company in China. She is a part of the executive team, helped a Company in establishing Quality control in their laboratories as well as expansion outside of China.

## New technologies of directional microphones for hearing aids

Xubao Zhang

Sonova Unitron, Canada

This paper describes new technologies of directional microphones for the practical hearing aids, referring to a front-delay direction microphone (DM), narrow beam DM, and minimum variance distortionless response (MVDR) beamformer. Each of the DM technologies was researched against weaknesses of those existing DMs, such as imperfection in low level noise, short suppression to adjacent interference, and failing to simultaneously perceive multiple target voices. In order to eliminate them, the conventional DM architectures have been innovated: the front-delay DM exchanged the elements' positions; the narrow beam DM employed binaural DMs to composite a relatively narrow lobe; the MVDR beamformer combined two types of processing in spatial and frequency domains; and the novel technologies are state-of-the-art beamformers for hearing aids. Based on some references related to the DM technologies and operation principles of the latest beamformers, we further researched the DM technologies, first proposed the implementing architectures, derived new gain equations of the relevant polar plots, accomplished the extensive experiments, and evaluated advantages and disadvantages of the DMs by the obtained evidences; then we confirmed that the new technologies could reach their expected goals. Meanwhile, we used the latest simulating software, Simulink of MatLab R2018b and audio edition software, SoundBooth, in our Lab computers.

**Biography**

Xubao Zhang received his doctorate in electronics from Xi'an Electronic Science and Technology University in China and was a postdoctoral fellow at McMaster University in Canada. He has been interested in hearing aid technology strategies and performance evaluation. He worked as EA and EMC engineer with Sonova Unitron in Canada, and also worked with Oticon Canada and Beltone Canada. And he worked as associate professor at EE department of this University in China for radar signal processing research. He is the author of one book and more than 40 articles.

## Methylating agents as rescue adjunct therapy to chemotherapeutic alkylating medications for improved outcomes in chronic lymphocytic leukemia: A case study

Bruce K. Kowiatek

Blue Ridge Community and Technical College, USA

Although the non-enzymatic methylation of cytidine (C) by S-adenosylmethionine (SAM) and methylcobalamin to 5-methylcytidine and its subsequent spontaneous deamination to thymidine (T) in DNA at physiologic pH and temperature has been implicated in some C to T point mutagenic cancers, cancers in general display a global hypomethylation of their DNA; SAM, therefore, sold as the over-the-counter (OTC) supplement SAM-e, as well as the OTC methylcobalamin precursor cyanocobalamin may still possibly play a role as potential rescue adjunct therapies in certain cancers, particularly those treated with alkylating chemotherapeutic agents used in chronic lymphocytic leukemia (CLL), much in the same way that folic acid is used as a rescue adjunct therapy when using antifolate chemotherapeutic agents. Clinical trials in support of this proposal were set to begin just prior to the COVID-19 pandemic but have been indefinitely postponed; however, an ongoing case study employing this methylation protocol is currently underway with its initial, highly promising results presented here for the first time.

## Patient-Centered Care: A model to healthcare quality

Rasmeh Al Huneiti
Ministry of Public Health , Qatar

Patient-centered care is an approach in healthcare delivery in which the healthcare providers partner with their patients to provide them with healthcare services that they need and expect according the best practice and in safe manner. In my presentation I will discuss the definition, components, principles and values of patient- Centered. I will echo on examples of patient -centered care, then I will conclude with impact of patients -centered care on quality of healthcare

**Audience Take Away:**

- Components of patient- Centered
- Principles and values of patient- Centered
- Impact of patients -centered care on quality of healthcare

**Biography**

Dr.Rasmeh AL- Huneiti is a Clinical Guidelines Specialist at the Ministry of Public Health, Healthcare Quality and Patient Safety Department, in state of Qatar. She is also a guest lecturer in Healthcare at Calgary University Qatar. Rasmeh holds a BSc in General Nursing from the University of Jordan. She has a PhD in Medical Education from Brunel University in the UK. Her post graduate qualifications include a Diploma in Primary Healthcare, MSc in General Nursing Education and International Diploma in HR Management.
As a reviewer and editing board member she contributed to several international conferences, peer reviewed
journals and her research work is published internationally. Since 2015 she has been serving as Adjunct Professor at Calgary University Qatar and as Guest Lecturer on Patient Safety and Healthcare Quality, and Healthcare Regulation for the master's Leadership in nursing program. Rasmeh is also a guest speaker for the Patient Safety and Change Management Community Medicine Residency Program. Rasmeh developed an E-learning Model for E-health Education in Developing Countries. She is a volunteer at the Qatar Red Crescent Society.

## Modeling disorders in animal models of different genetic backgrounds to accelerate Pediatrics

Andres D. Klein

Clínica Alemana Universidad del Desarrollo, Chile

We are all similar, but a bit different. These differences are partially due to variations in our genomes and are related to the heterogeneity of symptoms and responses to treatments that patients can show. Most studies in animal models are performed in one single strain with one manipulation. When the knowledge is applied to humans the results are not always reproducible, probably due to the lack of variability of the models studied. Instead, we perform population-based analyses, which allow us to study the contribution of combinations of thousands of variants at the same time, which is closer to what happens in humans (Klein, AD (Physiol Genomics 2017). We are uncovering gene networks underlying variation of the activity of lysosomal enzymes in mice. These modifier genes may help to design novel therapies for several disorders with lysosomal dysfunction. Furthermore, we are modelling diseases in several inbred yeast, flies, and mouse lines, analysing their phenotypic variability, and using it to map genes and to study their responses to drugs (Pediatrics). We are focusing on Gaucher and Niemann-Pick C diseases (Klein et al. Cell Rep 2016; Calderon & Klein Mol Gen Metabol 2018;), and Parkinson's disease (Klein & Mazzulli Brain 2018, Olivares et al. Trends in Mol Med 2019). In addition, we are studying families of patients bearing identical genetic mutations, but presenting with different disease severity, including asymptomatic people. We are particularly interested in uncovering the modifier genes of asymptomatic patients, since they have the molecular secrets to treat the symptomatic ones. In conclusion, we are using systems genetics strategies, where we integrate animal models and human clinical phenotypes with genetic data, transcriptomes, cell biology, and others to understand biology and design novel therapies customized for each patient.

**Audience Take Away:**

- Population-based studies are closer to human analyses because they study the contribution of thousands of variants at the same time.
- Understanding the genetic basis of phenotypic variability can help us to predict what subtype of disease a patient will develop and design customized therapies for each person based on their own biology.

**Biography**

Andrés D. Klein received his B.Sc in Biochemistry and his PhD in Cellular and Molecular Biology at the Pontificia Universidad Católica de Chile. Dr. Klein did a postdoc at Stanford University (2009-2011) and a second postdoc (2011-2015) at the Weizmann Institute of Science. Currently he directs the Center for Genetics and Genomics at the Universidad del Desarrollo in Chile. Prof. Klein was awarded with the young Chilean innovator prize by MIT technology reviews (2013), he was selected as one of the top 100 young. Chilean leaders (2013), and recently received the Pew Innovation Fund (2018), among other recognitions.

magnus Group

# POSTERS

# PEDIATRICS VIRTUAL 2020

JULY 15-16, 2020

# The intestinal permeability as a possible cause in promoting of the Autism

Menicagli Roberto[1], Limodio Marta[2]

[1]MD Researcher university Milan consultant, Italy

[2]Pharmaceutical Researcher ASSST Frosinone, Italy

**AIM:** Autism (ASD) is a neurological disorder that has either genetic or environmental components and includes changes of the intestinal microbiota... Some problem of the onset of autism is linked to a possible abnormal excitation of the metabolic cycles involved in neuronal transmissions. Recent hypothesis suggest, that, some phenomenons may occurred, as a consequence of altered intestinal permeability, with a consequential non correct metabolism of certain food. This metabolic process provides to form bio-active peptides into the gastrointestinal tract. Recent studies confirmed that casein form a compound , the beta casomorphin-7, that is an opioid like-peptide, Recent studies show that the production of these opioid like peptides are experimentally associated with autism These peptides pass through the encephalic barrier to bind the receptors and prevent their smooth function. The principal aspect in this phenomenon is an alteration of intestinal permeability for an imbalance of the intestinal mucins layer .The aim of this study it is to verify the presence of this possible misbalance and hypnotize as the same can promote the release of the opioid like peptides

**Materials Methods:** We analyzed the amount of intestinal MUC2 carried out, at this preliminary research stage, on stool samples of twelve ASD, and on as many healthy controls, with Mucin Assay Kit, to extract and fluorometrically determine the amount of mucin contained in the stool. The measurement of faecal mucin can be used as an indicator of intestinal barrier function. This kit makes use of fluorometrically detection to measure amount of mucin" the results are statistical analyzed with Mann Whithney U Test

**Results:** The results of the dosage of MUC 2 in ASD and healthy control, show that there is statistically difference between the two groups, and in particularly the average concentration of MUC 2 is slightly higher in ASD, see table 1

| **ASD** | **CONTROL** |
|---|---|
| Mucins (GaL NAc)mg/g feces | Mucins (GaL NAc)mg/g feces |
| 0.30 | 0.26 |
| 0.29 | 0.27 |
| 0.30 | 0.30 |
| 0.27 | 0.27 |
| 0.30 | 0.27 |
| 0.31 | 0.27 |
| 0.28 | 0.27 |
| 0.30 | 0.29 |
| 0.32 | 0.26 |
| 0.28 | 0.27 |
| 0.30 | 0.28 |
| 0.30 | 0.26 |

The U-value is 15.5. The critical value of U at $p < .05$ is 37. Therefore, the result is significant at $p < .05$...The z-score is 3.23316. The p-value is .00124. The result is significant at $p < .05$.

**Discussion:** This result, together with the fact, that numerous other studies show a marked increase in intestinal permeability, in ASD , can explain the defect in the metabolic pathways of certain foods to form the opioid like peptides This process obviously may occur when, for reasons not yet clear, these glycosylated proteins principally the transmembrane mucins increase in concentration, or the gel forming mucins MUC2 not sufficiently protect the epithelial mucosa and expose the terminal glycoside residue to the enzymatic action of the bacteria .We think that the second hypothesis in very probable in autism The results of this study confirm the hypothesis of a lack of defence of intestinal epithelial mucosa We hypnotized that this abnormality is the consequence of a mucins MUC2, (gel forming), under expression together , as in many bowl inflammatory process, there is a contemporary increases of tran-membrane mucins MUC1 which are, however, poorly glycosylated This prevents a regular link of the MUC2 to the MUC1 , so that the first ones are relying on themselves and join together with hydrogen bridge bonds. The result is the formation of an incorrect protective layer that has channels .The attack of the bacteria to the highly glycosylated MUC2 finally produces opioid like peptides We can represent the consequence of this phenomenon as can see in figure 1

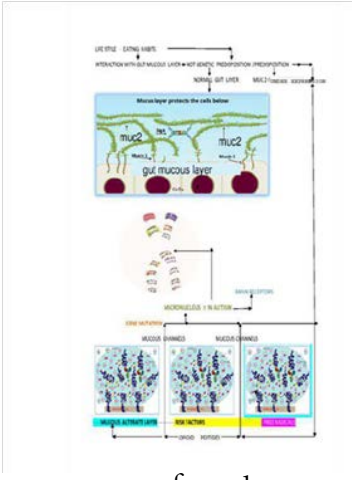


figure 1

**Conclusion**: Autism presents an intestinal macro biota's alterations to generate many neurotoxic compounds, the opioid like peptides Is present a intestinal mucous layer's alteration that promote this flow. We think that a possible solution for decrease the opioid like peptides effects ,without restore the intestinal layer ,by the reuptake of opioids's inhibition, with an appropriate diet and with the use of enzymatic products such as plant-based proteases that can start breaking down proteins while they are still in the stomach.

## Capivasertib potentiates radiotherapy efficacy in oral cancer

Yong Teng

Augusta University, USA

Radiotherapy (RT) is commonly used to treat oral squamous cell carcinoma (OSCC) which is characterized by a high rate of PI3K-AKT activation. Despite impressive initial clinical responses, a large proportion of patients with OSCC experience resistance to RT. Therefore, seeking effective treatment options to RT enhancement would be beneficial for radiation resistant cancer patients. Notably, elevated phosphorylation of both AKT and S6 was found exclusively in radiation resistant OSCC cells following irradiation exposure. Capivasertib, a selective and potent AKT inhibitor, enhanced the cytotoxicity of IR in a panel of OSCC cell lines in vitro and attenuated the decay of the DNA damage markers (such as γH2AX and pKAP1) in response to IR. Moreover, capivasertib resensitized the radio-resistant OSCC cells to IR. The value of this work also stems from the fact that highly specific and efficient tumor-targeted nanoparticle-associated capivasertib, in combination with IR, led to superior effects on tumor repression compared with monotherapy, either in 3D culture system or in an orthotopic mouse model of tongue tumor. These data demonstrate that inactivation of AKT-S6 pathway can sensitize OSCC cells to IR, providing a strong rationale for the use of novel AKT inhibitors in the future to improve local control in RT.

**Biography**

Dr. Teng is an Assistant Professor at Augusta University and a member of Georgia Cancer Center. The main research activity in his lab is to understand and reverse mechanisms of cancer metastasis and metabolism, and to develop highly effective anticancer modalities using nanoparticles and stapled peptides. He has been the PI on multiple DOD and NIH grants, and authored over 100 articles and book chapters. In addition, he serves as Associate Editor-in-Chief or Editorial Board Member for many reputed journals (e.g. Journal of Experimental and Clinical Cancer Research, Frontiers in Oncology, Cancer Management and Research).

# PARTICIPANTS LIST


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