ABSTRACT BOOK

RESEARCH CONNECTS

# NEUROSCIENCE & PEDIATRICS-2025

April 07-08, 2025 | Valencia, Spain

GLOBAL SUMMIT ON
NEUROSCIENCE AND NEUROLOGICAL DISORDERS

&

GLOBAL SUMMIT ON
PEDIATRICS AND CHILD HEALTH CARE

# FOREWORD

**Dear Colleagues,**

It is our pleasure to extend a warm invitation to all scientists, academicians, young researchers, business delegates, and students from around the globe to participate in the Global Summit on Neuroscience and Neurological Disorders (NEUROSCIENCE2025) and the Global Summit on Pediatrics and Child Health Care 2025 (PEDIATRICS2025), scheduled to take place in Valencia, Spain from April 07-08, 2025.

NEUROSCIENCE2025 & PEDIATRICS2025 will provide a platform to explore recent research and cutting-edge technologies, attracting a diverse and enthusiastic audience of young and talented researchers, business delegates, and student communities.

The primary objective of NEUROSCIENCE2025 & PEDIATRICS2025 is to bring together, a multidisciplinary gathering of scientists and engineers from across the globe to share and exchange groundbreaking ideas in the fields of Neuroscience and Neurological Disorders, as well as Pediatrics and Child Health Care. The summit aims to foster high-quality research and international collaboration, facilitating discussions and presentations that are globally competitive and highlighting recent notable achievements in these fields.

We're looking forward to an excellent meeting with scientists from different countries around the world and sharing new and exciting results in Neuroscience and Neurological Disorders & Pediatrics and Child Health Care.

# COMMITTEE

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| | |
|---|---|
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# *Day 1*
# *ABSTRACTS*

# Associations Between Alzheimer's Disease and Obesity:- Clinical Trials of NA-831 for Alzherimer's and NA-931 for the Treatment of Obesity

**Lloyd L Tran**
*Chairman & CEO - Biomed Industries, USA*

## Abstract:

**Background:**
NA-831 is a novel drug candidate with neuroprotective, neurogenic, and memory-enhancing properties for the treatment of Alzheimer's Disease(AD).NA-931, analog of NA-831,targets IGF-1, GLP-1, and GIP pathways to treat obesity.

**Methods and Results:**
NA-831forAlzheimer'sDisease:

InaPhase2randomizedclinicaltrial, 112 participants with mild or moderate AD receivedeither NA-831 or placebo. Patients with mild cognitive impairment (MCI) received 10 mg/day, and those with mild to moderate AD received 30 mg/day. Inclusion criteria followed NIA-AA clinical standards, with MMSE scores ≥22 for MCI and 17–21 for mild to moderate AD.

After 24 weeks, NA-831 significantly improved cognition in AD patients, with an average ADAS-Cog-13 score improvement of 4.1 points compared to placebo ($p = 0.001$). Additionally, 78% of patients showed clinical improvement on the CIBIC-Plus scale ($p = 0.01$). NA-831 was well tolerated at 30mg/day. Among 56 patients on NA-831, 66% of those with diabetes reported 17–23% weight loss over sixmonths, compared to only 7% of the place bo group reporting 3–5% loss. No serious adverse events were noted.

**NA-931 for Obesity:**

In a Phase 1 multiple ascending dose (MAD) study, NA-931 demonstrated dose-dependent weight reduction over 28days. Participants receiving150mg/day experienced upto 6.8%weight loss, or 5.1% more than placebo ($p < 0.001$). An 8-week open-label extension followed, totaling 12 weeks of treatment. Participants maintained significant weight loss, with reductions up to 12.7% (10.4% over placebo).

**Safety and Tolerability:**

Across both study periods, NA-931 was well tolerated. During the 28-day trial, mild nausea occurred in 8.3% of participants at the highest dose, with diarrhea in8.3%;overall incidence was 3.7%. In the 12-week extension, nausea was reported in 16.6% at the highest dose, and diarrhea in 8.3%. No vomiting was observed.



**Conclusion:**

The clinical outcomes of NA-831 and NA-931 suggest a potential link between Alzheimer's disease and metabolic disorders like diabetes and obesity. While these findings are promising, further research is needed to determine whether this association is causal.

## Biography:

Dr. Tran is the Chairman and Chief Executive Officer of Biomed Industries, Inc., a leading biotechnology company dedicated to developing breakthrough treatments for neurodegenerative and metabolic diseases. Dr. Tran has over 30 years of experience in pharmaceutical research and development, specializing in treatments for neurodegenerative diseases, metabolic disorders, and infectious diseases. He began his career as a scientist at G.D. Searle (later acquired by Monsanto) and Pfizer before serving as Director of Research & Development at Controlled Release Technology, Inc. Dr. Tran served as the Chief Scientific Officer for Biomed Pharmaceutical, Inc, and NeuroActiva, Inc. which was acquired by Biomed Industries, Inc. A pioneer in Alzheimer's disease research, Dr. Tran was the first to identify the role of neurogenesis in

its treatment. He holds multiple U.S. and international patents covering drugs targeting Alzheimer's disease, major depressive disorder, stroke, Rett syndrome, obesity, and Metabolic dysfunction-associated steatohepatitis (MASH). Dr. Tran has also contributed to global health initiatives, collaborating with Nobel laureate Dr. Tu Youyou in the development of Artemether for malaria treatment. Artemether plus lumefantrine (AL) is now approved in the U.S. and 86 countries worldwide. Additionally, he is the inventor of the MICROS Infusion System, which has been approved for marketing in the U.S. Beyond his scientific contributions, Dr. Tran serves as the Committee Chair of the Alzheimer's International Society and has played a key role in advancing Alzheimer's research. He holds a B.Sc. (Honours) in Chemistry from the University of Otago and a Ph.D. in Medicinal Chemistry from the University of Wellington, New Zealand.

# The social and economic benefits of lung ultrasound monitoring in guiding the management of neonatal lung diseases

**Jing Liu**[1,2]
*1. Department of Neonatology and NICU,Beijing Obstetrics and Gynecology Hospital, Capital Medical University. Beijing 100043, CHINA*

## Abstract:

**Background:** Lung diseases that used to be diagnosed by chest X-ray (CXR), can now be diagnosed by ultrasound with higher accuracy and reliability. Therefore, lung ultrasound (LUS) is becoming more and more popular recently. From March2017, CXR has been completely replaced by LUS for neonatal lung disease diagnosis in our NICU, which not only makes the infants avoid of the radiation damage, but also reduces hemisdiagnosis and improves their outcomes.

**Objective:** To compare the effect of managing neonatal lung disease with LUS or CXR monitoring on health outcomes and cost-effectiveness.

**Methods:** The data obtained from the NICU of our Hospital were used as the study group because LUS has completely replaced CXR in managing newborn lung disease in the hospital from March2017 to February 2022.The primary outcomes of this study were the misdiagnosis rate of respiratory distress syndrome (RDS), the using status of mechanical ventilation, the incidence rate of bronchopulmonary dysplasia (BPD) and survival rate in hospitalized infants. The secondary outcomes included the use pulmonary surfactant (PS), and the mortality rate of severe diseases (such as pneumothorax, pulmonary hemorrhage and RDS, etc.).

**Results:** Managing neonatal lung disease with LUS monitoring may enable the following effects:The frequency of ventilator use was reduced by 40.2%, the duration of mechanical

ventilation was reduced by 67.5%, and the frequency of ventilator weaning failure was totally avoided. A misdiagnosis rate of 30% for RDS was avoided.The dosage of PS was significantly reduced by 50% to 75%. No BPD occurred in the LUS-based care group for 5 years. The fatality rates of RDS, pneumothorax and pulmonary hemorrhage decreased by 100%. The poor prognosis rate of VLBW infants decreased by 85%, and the total mortality rate of hospitalized infants decreased by 90%. Therefore, the cost of LUS-based care saved inevitably.

**Conclusions:** Diagnosing and managing neonatal lung diseases with LUS monitoring have significant benefits, this technology should be widely promoted and applied around the world.

**Keywords:** lung ultrasound, lung disease, newborn infants, chest X-ray, outcome- effectiveness or cost-effectiveness, health authorities.



## Biography:

Prof.Dr.Jing Liu is a Distinguished Neonatologist and the Leader at the Department of Neonatology and NICU,Beijing Obstetrics and Gynecology Hospital, Capital Medical University, the Neonatal Lung Ultrasound Training Center and Neonatal Critical Ultrasound Training Center In China. He is good at neonatal intensive critical care, neonatal brain ultrasound and lung ultrasound. More than recent 13 years, Dr.Liujing mainly focused on neonatal lung ultrasound research. Since March 2017, the chest X-ray has been completely replaced by lung ultrasound to diagnoses lung diseases in his NICU, this is the first department that using ultrasound completely replacing of X-ray diagnosing of neonatal lung diseases.

His academic positions include the Executive chairman of the Society of Pediatrics, Asia-Pacific Health Association;the Associate Chairman of the Division of Critical Ultrasound, Pediatric Society of Asia-Pacific Health Association; the Executive chairman of Asian-European Research Society for Pediatric and Neonatal Critical Ultrasound (AERS-PaNCU), the Associate Chairman of Chinese Neonatologist Association and the Associate Chairman of Beijing

Neonatologist Association, etc. Dr.Liujing has published more than 360 papers, over 13 books and Chapters in Books, and has won 15 awards for science and technology of the government of China.

# Deep Learning Assisted Cardioembolic Stroke Classification on MRI

**Prasan Kumar Sahoo**
*Chang Gung University, Taiwan*

## Biography:

Prasan Kumar Sahoo is a Professor in the Department of Information Engineering, Chang Gung University, Taiwan, Director of Artificial Intelligence & Big Data Computing Lab and has been Adjunct Research Fellow in the Department of Neurology, Department of Colon and Rectum Cancer and Department of Cardiology, Linkou Chang Gung Memorial Hospital, Taiwan. He has been listed as the "World's Top 2% Scientists" both with career-long and Single Year Impacts consecutively for 4 years released by Stanford University. He has received the Excellent PhD Thesis award for advising the work on cancer research and has received Top 5%Special Research Talent Awardfromthe Ministry of Science and Technology, Taiwan, consecutively for the past 5 years. He is Editor of Elsevier's JNCA. He has served as Keynote speaker in several international conferences.

# Postoperative Emergency Delirium in Children: Risks and Strategies at Mitigation

**Keira Mason**
*Boston Children's Hospital, USA*

## Biography:

KEIRA P Mason is an associate professor of Anesthesia at Boston Children's Hospital. She was director of radiology anesthesia and sedation for 15 years. She has edited five textbooks on pediatric Sedation and target controlled infusions. She has written over 100 papers.

# Bridging the Gap between Early Detection of Autism Prodrome in Infants;Assessment and Intervention

*Author and Co-author names*
**Alonim, H1,2., Lieberman I. 3, Tayar, D.1,4, Scheingesicht, G.1**,
*1The Mifne Center, for Treatment, Research and Training, Israel*
*2Bar Ilan University, School of Social Science, Israel*
*3Bar Ilan University, Department of Sociology & and Anthropology, Israel*
*4Ministry of Health, Israel*

## Abstract



The worldwide prevalence of autism points out of 2% of the population. Very early intervention may minimize the severity of the phenotypic presentation of autism during infancy when neural connections are being developed. However, intervention is contingent upon a diagnosis of autism – which in most developed countries occurs above the age of 24 months – resulting in missing a critical therapeutic opportunity for early intervention. This study aimed to detect the prodromal variables at a very early stages during the first year of life, that may characterize significant risk for the later development of autism, in order to propose therapeutic strategies during this window of opportunities. The study examined 110 infants from various countries diagnosed with autism at age 2-3 years. Analysis was conducted of home videos recorded during the infants' first year of life. Data was collated and analysed in terms of individual variables and combinations of variables. Eight prodromal variables were exhibited among 89% of the infants participating in this study. Cluster analysis of combinations of variables was significant. The results of this study indicate that detecting the prodrome of autism depends primarily on the ability to identify various combinations of indicative symptoms. The variables elicited by this study provide the basis for an early assessment scale for prodromal variables associated with autism, which is applied clinically for infants between 5-15 months. This presentation is aimed to raise awareness of early detection, and will be accompanied by videos. Effective

application of the screening scale is of utility in bridging the divide between early assessment and intervention, for infants at high risk for autism during the very early neurodevelopmental stages.

## Biography of presenting author

Dr. Hanna A. Alonim, is an expert and researcher in the autism spectrum in infancy. Founder and Head of the Mifne Center Israel, for Treatment, Training, and Research, since 1987. Head of the Therapists' Training School for Autism at the Bar Ilan University.She developed the ESPASSI © screening scale for the detection of autism prodrome in the first year of life. Dr. Alonim is a committee member of the WHO ICF Core Set for ASD, Stockholm 2016.

# Stemming the Tide on the Mental Health Trauma of AUD and Violence

**Winston Price, MD, FACPE**
*Philadelphia College of Osteopathic Medicine; VCASTI International;*

## Abstract

Abstract (upto 500 words):Alcohol use disorder (AUD) often co-occurs with other mental health disorders, either simultaneously or sequentially.1 The prevalence of anxiety, depression, and other psychiatric disorders is much higher among persons with AUD compared to the general population.

By far, the most common mental health conditions that co-occur with AUD are depressive disorders, anxiety disorders, trauma- and stress-related disorders, other substance use disorders, and sleep disorders.2–4

Furthermore, psychotic disorders such as schizophrenia often co-occur with AUD and should be recognized and addressed during AUD treatment. Despite numerous efforts by government, academia, and advocacy organizations, dangerous overconsumption of alcohol remains a major health and safety issue affecting young adult college students on campuses across the nation. The intersectionality between AUD and violence is alarming and gun violence5 in American continues to erode our communities and has become the leading cause of death for individuals 0-24 years of age.

Brief tools are available to help non-specialists assess for AUD and screen for common co-occurring mental health conditions. Moreover, AUD and psychiatric disorders may exacerbate each other, thereby producing poorer outcomes. Hence, individuals with co-occurring AUD

and psychiatric disorders tend to return to using alcohol more frequently, as well as experience more severe psychiatric symptoms.13 Without adequate treatment, this pattern may result in higher rates of hospitalization and suicide.14

Using brief assessment tools in primary care settings can stratify clients using the Four Quadrant Model of Care.

**Keywords:** Substance Use Disorders; Gun Violence; Underage Drinking; Mental Health

## Biography:

Winston Price, M.D., FAAP is a board-certified pediatrician and past president of the National Medical Association Winston completed his MD from Cornell University Medical College and completed residency at the Weill-Cornell Medical Center-Sloan Kettering Medical Center in NYC. He serves as President& Chair for the National African American Drug Policy Coalition. He is an Associate Professor of Pediatrics at the Philadelphia College of Osteopathic Medicine- SGA Campus.

# Clinical Trials of NA-831 for the Treatment of Alzheimer's Disease and NA-901 for Major Depressive Disorder: Supporting the Neurogenesis Hypothesis

**Lloyd L Tran**
*Chairman & CEO - Biomed Industries, USA*

## Abstract:

**Background:**

Adult Hippocampal Neurogenesis (AHN) persists into late life and is detectable in Alzheimer's disease(AD) patients, though significantly reduced compared to healthy individuals. Impairment of AHN contributes to memory loss and cognitive decline in AD and Mild Cognitive Impairment (MCI) and plays a critical role in mood regulation. Disruption of AHN is implicated in the pathophysiology of both AD and Major Depressive Disorder (MDD).

NA-831 and its analog NA-901 are novel small-molecule drug candidates that demonstrate neuro protection, promote neurogenesis, and enhance memory. Both are orally administered and readily cross the blood-brain barrier.

**Methods and Results:**

**Phase2 Clinical Trials for Alzheimer's Disease:**

NA-831was evaluated in a randomized trial involving112 patients with MCI, mild, ormoderate AD. Participants received either NA-831 or placebo: MCI patients received 10 mg/day, while mild-to-moderate AD patients received 30 mg/day for 24 weeks. Eligibility was based on NIA- AA clinical criteria, CDR scores, and MMSE ranges (≥22 for MCI, 17–21 for AD).

NA-831 treatment showed a statistically significant improvement in cognitive function. The ADAS-Cog-13 score improved by an average of 4.1 points versus placebo ($p = 0.001$; ITT). Additionally, 78% of patients showed clinical improvement based on the CIBIC-Plus assessment ($p = 0.01$; ITT). NA-831 was well tolerated at 30 mg/day with no serious adverse events.

**Phase1B Clinical Trials for Major Depressive Disorder(MDD):**

A randomized, double-blind, placebo-controlled Phase 1B trial assessed the safety and efficacy of NA-831 in 32 adults with MDD over six weeks. Two fixed doses (20 and 40 mg/day) were compared to placebo, with venlafaxine XR as an active reference. Both NA-831 doses demonstrated significant reductions in depressive symptoms, witha□7-pointmeandifference-on the MADRS scale versus placebo. This corresponds to a clinically meaningful 32.5% unit increase in response rate, double the average seen with currently approved antidepressants. Common side effects were mild headache and dry mouth.

**Conclusion:**

These findings support the neurogenesis hypothesis in the treatment of AD and MDD. NA-831 shows promise as a well-tolerated and effective or al therapy. Biomed is currently advancing NA- 831 and NA-901 into Phase 2B and Phase 3 clinical trials for both indications.

## Biography:

Dr. Tran is the Chairman and Chief Executive Officer of Biomed Industries, Inc., a leading biotechnology company dedicated to developing breakthrough treatments for neurodegenerative and metabolic diseases. Dr. Tran has over 30 years of experience in pharmaceutical research and development, specializing in treatments for neurodegenerative diseases, metabolic disorders, and infectious diseases. He began his career as a scientist at G.D. Searle (later acquired by Monsanto) and Pfizer before serving as Director of Research & Development at Controlled Release Technology, Inc. Dr. Tran served as the Chief Scientific Officer for Biomed Pharmaceutical, Inc, and NeuroActiva, Inc. which was acquired by Biomed Industries, Inc. A pioneer in Alzheimer's disease research, Dr. Tran was the first to identify the role of neurogenesis in its treatment. He holds multiple U.S. and international patents covering drugs targeting Alzheimer's disease, major depressive disorder, stroke, Rett syndrome, obesity, and Metabolic dysfunction-associated steatohepatitis (MASH). Dr. Tran has also contributed to global health initiatives, collaborating with Nobel laureate Dr. Tu Youyou in the development of Artemether

for malaria treatment. Artemether plus lumefantrine (AL) is now approved in the U.S. and 86 countries worldwide. Additionally, he is the inventor of the MICROS Infusion System, which has been approved for marketing in the U.S. Beyond his scientific contributions, Dr. Tran serves as the Committee Chair of the Alzheimer's International Society and has played a key role in advancing Alzheimer's research. He holds a B.Sc. (Honours) in Chemistry from the University of Otago and a Ph.D. in Medicinal Chemistry from the University of Wellington, New Zealand.

# The Importance of Nutrigenetics and Microbiota in Child Health: From Phenotype to Genotype

**Gulsen Meral**
*Epigenetic Coaching Company, United Kingdom*

## Abstract:

The completion of the Human Genome Project in 2003 marked a significant milestone in understanding the impact of genetic variations on human health. This breakthrough has paved the way for precision medicine, also known as 4P medicine (predictive, preventive, personalized, and participatory), which aims to determine personal health risks and manage chronic diseases more effectively. Unlike traditional approaches that apply the same treatments to everyone, precision medicine considers individual phenotypic, genotypic, and environmental factors. Translating nutrigenetic and nutrigenomic research into multidisciplinary clinical practice remains one of the most challenging aspects of this field. However, it is becoming increasingly clear that integrating data regarding genotype and phenotype, and using nutrition, lifestyle, and supplements tailored to an individual's genetics, will significantly enhance clinical success. The integration of nutrigenetics and microbiota into child health represents a significant advancement in personalized medicine. By understanding the unique genetic and microbial makeup of each child, healthcare providers can tailor interventions that promote optimal growth, development, and long-term health. This approach not only addresses current health concerns but also sets the foundation for a healthier future, emphasizing the importance of personalized care from phenotype to genotype. The combination of precision medicine principles with nutrigenetic and microbiota insights offers a promising pathway to enhancing child health outcomes through personalized and evidence-based strategies.

**Keywords:** Phenotype; Genotype; Nutrigenetics.

## Biography:

Associate Professor Gülsen Meral graduated from Istanbul University Cerrahpaşa School of Medicine in 1994. She became a specialist in paediatrics in 2001 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 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.

# The Clinical Value of Multi-Organ Hemodynamics Combined with Lung Ultrasound in Patent Ductus Arteriosus Management

**Min Bao,** Jinghui Guo, Aimei Cao, Bo Liu, Chunhua Zheng
*Division of Cardiology, Capital Institute of Pediatrics, Beijing, China*

## Abstract:

**Objective**: Patent ductus arteriosus (PDA), characterized by the failure of postnatal closure of the fetal ductus arteriosus, is a common congenital cardiac anomaly in neonates. Hemodynamically significant PDA causes systemic circulatory disturbances, including pulmonary overflow (potentially leading to pulmonary edema and cardiac overload) and compromised perfusion to vital organs. Traditional surgical indications primarily focus on ductal size and shunt direction. This study aims to evaluate multi-organ hemodynamic alterations and pulmonary congestion using systemic Doppler ultrasonography combined with lung ultrasound (LUS) to optimize intervention timing for persistent PDA.

**Methods:** A retrospective case-control study was conducted at the Capital Institute of Pediatrics from January to December 2024, involving 30 neonates with PDA and 30 matched controls. Echocardiography was used to assess PDA characteristics. Doppler parameters of the anterior cerebral artery (ACA), superior mesenteric artery (SMA), and renal artery were measured, including peak systolic velocity (Vs), end-diastolic velocity (Vd), and resistance index (RI). Concurrently, a standardized LUS scoring system (range 0-18) was applied to quantify pulmonary edema.

**Results:** The median PDA size was about 2.8 mm (IQR 2.1-3.5). Compared to controls, the PDA group had exhibited prolonged mechanical ventilation (median 14 vs. 7 days, $p=0.005$) and hospitalization ($32 \pm 6$ vs. $21 \pm 5$ days, $p<0.01$),significant cerebral hemodynamic disturbances: reduced ACA Vd ($4.5 \pm 1.8$ vs. $8.3 \pm 1.2$ cm/s, $p<0.01$), elevated ACA RI ($0.92 \pm 0.07$

vs. 0.78 ± 0.05, p<0.01), with 2 cases showing reversed diastolic flow and 5 cases with absent flow. Impaired mesenteric perfusion was also decreased SMA Vd (2.1 ± 0.9 vs. 3.8 ± 1.1 cm/s, p<0.05) and elevated SMA RI (0.89 ± 0.06 vs. 0.72 ± 0.05, p<0.01) in PDA group. And the renal vascular resistance was increased ( 0.85 ± 0.08 vs. 0.67 ± 0.06 (p<0.01) Higher LUS scores was also founded (11.5 ± 2.1 vs. 6.3 ± 1.8, p<0.001) .

**Conclusion:** Persistent PDA induces pathological redistribution of systemic blood flow, leading to multi-organ hypoperfusion and pulmonary congestion. We propose early intervention when ≥3 hemodynamic abnormalities coexist, regardless of PDA size.

**Keywords**: Patent ductus arteriosus; Multi-organ hemodynamics; Lung ultrasound scoring

**Limitations:** As a single-center observational study, further multicenter randomized trials are needed to validate the long-term neurodevelopmental outcomes associated with this assessment protocol.



## Biography:

Dr. Min Bao is the Associate Chief Physician of Pediatric Cardiac Ultrasound at the Capital Institute of Pediatrics in Beijing, China. With a doctorate in Clinical Medicine from Tsinghua University, Dr. Bao has over 15 years of experience in pediatric cardiology, specializing in congenital heart diseases, pediatric arrhythmias, and advanced echocardiography techniques. Her work includes cardiac ultrasound, coronary ultrasound, and interventional therapies for congenital heart defects.

Dr. Bao has contributed significantly to the field through her numerous publications in leading journals, particularly on the impact of fetal hemodynamics and ultrasound diagnostics in pediatric cardiology. Her expertise is recognized globally, having trained at institutions such as Toronto Sick Kids Hospital and Anzhen Hospital in Beijing. Dr. Bao's passion for advancing pediatric cardiac care and her innovative research make her a respected leader in her field.

# Short- and Long-term Neuroprotective Effect of a Novel Purine Derivative Drug in Severe Hypoxia Ischemia Related Brain Injury

**Amalia Tsintzou** (Roseline Poirier, Auriane Maïza, Justine Merlevede, Fawzi Boumezbeur, Sébastien Mériaux, Xiaodi Chen, Clémence Disdier, Barbara Stonestreet and Aloïse Mabondzo)
*University Paris Saclay, France*



## Abstract:

Hypoxic-ischemic encephalopathy (HIE) is a major cause of morbidity and mortality in newborns resulting in motor and cognitive impairment [1–3]. Therapeutic hypothermia is the only approved treatment for HIE, but it is only partially effective [4]. There are currently no pharmacological agents available to treat HIE in newborns. Therefore, it is essential to develop alternative and/or adjunctive novel therapeutic agents to attenuate the sequela resulting from HIE. Inflammation, neurovascular unit (NVU) damage as well as mitochondrial dysfunctions are key contributors to the pathophysiology of HI-related brain injury that all represent exciting potential targets for therapeutic intervention [5]. We sought to develop a novel pharmacological agent based on an innovative trisubstituted purine derivative, BRT_002, which potentially could target multiple biological systems and compartments within the central nervous system (CNS) and attenuate HI-related injury in the neonatal brain. We previously determined that BRT_002 improves neurovascular functions, mitochondrial function, and reduced neuroinflammation after neonatal moderate HI . In this study, the neuroprotective effect of BRT_002 has been assessed in a neonatal rat Rice Vannucci model of severe HI at post-natal day 7 (P7). The model consists of a permanent right carotid ligation followed by an exposition to a hypoxic atmosphere (8% oxygen) for 150 min to generate a severe HI brain injury. Sham and HI exposed P7 rats received BRT_002 (30 mg/kg, immediately, 24, and 48 h after HI) or placebo. Three groups (sham, HI + placebo and HI + BRT_002) underwent motor tests (Righting Reflex

(P7-P10), the Ambulation test (P8-P10), the Grid test (P14-P16), and the Wire test (P14-P16)) to evaluate early effects. The data highlighted a motor deficit due to HI with a sex-specific response and an improvement with the BRT_002 treatment. The long-term effect on memory of the BRT_002 was assessed by the Novel Object Recognition (NOR) test (P28-29). Results revealed memory impairment in the "HI + placebo" group and restoration with BRT_002 treatment in males. Finally, spatial learning was evaluated by the Morris Water Maze (MWM) (P28-P34) showing an HI-induced spatial learning impairment and a significant improvement with the treatment in both sexes. Finally, the animals underwent MRI scans to evaluate the extent of the brain injury with and without BRT_002 treatment. The findings confirm that BRT_002 provides short- and long-term neuroprotection against HI in neonate rats improving their motor and cognitive HI-induced deficits. In conclusion, the study presents encouraging preclinical findings that could potentially serve as a basis for phase I clinical trials.

**Keywords:** Neonatal Hypoxia-Ischemia; Purine Derivatives; Brain injury; Behaviour

## Biography:

I am a second-year PhD student working on "The Blood-Brain Barrier Regulation of the Different Brain Structures in Neonatal Hypoxia-Ischemia: evaluation of a purine derivative drug effect" at the Paris-Saclay University – CEA. I have obtained a Bachelor's Degree in Cellular Biology and Physiology at the Toulouse III - Paul Sabatier University. During my Bachelor's Degree I conducted two internships. The first one was done during my second year at the Pasteur Institut working on the nicotinic receptors. The second internship was held at the end of my senior year at the Uppsala University in Sweden with the Erasmus+ program, where I worked on the Central Nervous System of the zebrafish. Then, I pursued an International Master's Degree in the Development of Drugs and Health Products at the Paris Saclay University. I did both of my master's internships at the CEA-Paris Saclay University at the Vascular Unit and Therapeutic Innovation Laboratory, where I worked on the administration route of a Purine Derivative to treat Neonatal Hypoxia-Ischemia Encephalopathy and then on the behavioral deficits that this brain injury induced in the neonatal rat brain.

# The Melanocortin 4 Receptor (MC4R) and Kir7.1 Interaction: A Novel Target for Obesity Management

**Alys Peisley** (Ciria C. Hernandez, Naima S. Dahir, Laura Koepping, Ashleigh Raczkowski, Min Su, Masoud Ghamari-Langroudi, Xinrui Ji, Luis E. Gimenez, and Roger D. Cone)
*University of Michigan, USA*



## Abstract:

The inward rectifier potassium channel Kir7.1 has emerged as a promising target for obesity management due to its unique interaction with the melanocortin-4 receptor (MC4R) in hypothalamic circuits controlling energy balance. The melanocortin-4 receptor (MC4R), expressed in the hypothalamus, plays a central role in regulating appetite and energy expenditure. Its activation by α-melanocyte stimulating hormone (α-MSH) leads to decreased food intake and increased energy expenditure. Conversely, the inverse agonist Agouti-related peptide (AgRP) promotes feeding. Recent studies have unveiled a novel G-protein-independent signaling paradigm wherein MC4R directly modulates Kir7.1 activity.

Our research demonstrates that pharmacological inhibition of Kir7.1 by the small molecule ML418 activates MC4R neurons in the paraventricular nucleus of the hypothalamus, resulting in decreased food intake and weight loss in mice. These effects were found to be dependent on Kir7.1 expression in MC4R neurons, as confirmed through experiments using mice with selective deletion of Kcnj13 (the gene encoding Kir7.1) from MC4R-expressing cells. The bidirectional regulation of Kir7.1 by MC4R ligands offers a nuanced approach to modulating neuronal activity where α-MSH binding to MC4R leads to closure of Kir7.1 channels, resulting in neuronal depolarization and where AgRP binding to MC4R promotes opening of Kir7.1 channels, causing hyperpolarization. This direct coupling between MC4R and Kir7.1 allows for precise control of neuronal excitability in response to melanocortin signaling.

This study presents the first structures of human Kir7.1 in various conformational states, providing crucial insights into its gating mechanism and pharmacological modulation. These structural data reveal that ML418 acts as a potent blocker of Kir7.1 by binding in the inner vestibule beneath the selectivity filter. The structural and functional insights gained from this study highlight Kir7.1 as a novel and promising target for obesity management. By directly targeting Kir7.1, it may be possible to modulate MC4R signaling without the need for traditional G-protein-coupled receptor agonists or antagonists. These structural insights can guide the optimization of compounds like ML418 and the discovery of novel therapeutic agents targeting the MC4R-Kir7.1 signaling axis. This research not only elucidates a unique signaling mechanism in hypothalamic energy balance regulation but also presents Kir7.1 as a compelling target for obesity treatment. The structural and functional characterization of Kir7.1 opens new avenues for therapeutic intervention and provides a strong rationale for further exploration of Kir7.1-targeted approaches in obesity management.



## Biography:

Dr. Alys A. Peisley, Ph.D., is an Assistant Research Scientist at the Life Sciences Institute, University of Michigan, where her work integrates advanced structural techniques with molecular biology insights. She earned her Ph.D. in Biochemistry and Molecular Biology from the University of Melbourne, Australia. She received her Ph.D. in Biochemistry and Molecular Biology from the University of Melbourne, Australia. During her postdoctoral work at Harvard Medical School, Dr. Peisley conducted pioneering investigations of innate immune receptors, particularly RIG-I and MDA5, focusing on their ATP-dependent functions in antiviral responses, advancing our understanding of innate immune responses.

Currently, Dr. Peisley's research has shifted towards elucidating the molecular details of ion channels, specifically the inward rectifier potassium channel Kir7.1. Her current focus on Kir7.1 stems from the growing recognition of its role in energy homeostasis and metabolic regulation through interactions with the melanocortin 4 receptor (MC4R), a key regulator of energy homeostasis. Her approach leverages cryogenic electron microscopy (cryo-EM) to

visualize the structural architecture of these protein complexes at near-atomic resolution. By combining cryo-EM with electrophysiological and pharmacological analyses, she is uncovering the binding sites and conformational changes associated with interaction with a small molecule compound that blocks that channel conduction pathway thus providing valuable insights into the structural basis for drug-target interactions. Ultimately, her work aims to pave the way for the development of new small molecule therapeutics for metabolic disorders.

# The Role of Ai in Nutrigenetics: Understanding How Genes and Nutrition Work Together

**Ipek Meral**
*Epigenetic Coaching Company, United Kingdom*

## Abstract:

Advancements in artificial intelligence(AI) are transforming the landscape of personalized nutrition, particularly with in the growing field of nutrigenetics. As we begin to understand the intricate interplay between genetic makeup and nutritional needs, AI has emerged as a powerful tool to interpret complex genomic data and translate it into actionable dietary insights. This presentation explore show AI-driven models can be used to analyze individual genetic profiles and predict metabolic responses to various nutrients, there by offering tailored nutritional strategies for disease prevention and health optimization—especially in pediatric populations.

Our epigenetic coaching team, composed of professionals from computer science, nutrition, and genetics, utilizes AI algorithms to integrate genetic data with environmental and dietary factors. Machine learning models identify patterns and associations that would be otherwise invisible through traditional statistical methods, enabling the development of predictive systems for nutritional sensitivities, deficiencies, and optimal nutrient intake.

In the pediatric context, early nutritional interventions based on genetic predispositions can have a significant impact on long-term health outcomes. By applying AI to epigenetic markers and nutrigenetic data, we can better understand how diet influences gene expression during critical stages of child development. This approach holds the potential to support personalized pediatric nutrition plans that align with each child's genetic blueprint, aiming to reduce the risk of chronic diseases such as obesity, diabetes and cardiovascular conditions later in life.

This interdisciplinary work underscores the necessity of integrating AI into pediatric nutrigenetics, offering a forward-looking perspective on precision healthcare for the next generation..

**Keywords:** Artificial Intelligence (AI); Epigenetic coaching; Pediatric populations; Cardiovascular conditions; Chronic diseases

## Biography:

I am Ipek Meral, a computer scientist and epigenetic coaching specialist currently pursuing an MSc in Advanced Computing at Birkbeck College, University of London. I hold a BSc in Computing Science from the University of East Anglia and have a strong passion for applying artificial intelligence in the fields of genetics, nutrition, and personalized healthcare.

As the Co-Founder of Epigenetic Coaching, I developed a digital platform that delivers personalized DNA-based health insights. My workbridges the gap between technology and biology, empowering individuals to make informed lifestyle choices through data- driven tools.

I’ve gained professional experience at SAP’s Intelligent Enterprise Institute and Solvia Digital Solutions, where I contributed to various projects. I’m also a speaker at international congresses and have co-founded the Nutrigenetics CEpigenetics Society. Fluent in English, Turkish and French, I am dedicated to driving innovation at the intersection of computing and healthcare.

# The Role of Nutrigenetic Testing in the Detoxification Process

**Gokcen Alper**
*Epigenetic Coaching Company, United Kingdom*

## Abstract:

Following the completion of the Human Genome Project, the study of DNA organization through advancements in molecular biology provided a deeper understanding of epigenetic factors such as histone modifications and DNA methylation. The 4P model(Predictive,Personalized,Preventive,and Participatory) plays a crucial role in personalized treatment approaches from an epigenetic perspective. Nutrigenetics examine show genetic polymorphisms influence an individual's response to nutrition, making the personalized approach a central component. By customizing interventions based on specific genetic variations, nutrigenetics ensures more effective treatment plans. Detoxification,the process by which the body eliminates harmful toxins is significantly impacted by genes involved in detoxification pathways. Phase 1 genes like CYP1A1 and CYP1A2, and Phase 2 genes such as GSTM1, GSTA1, and GSTP1, are key players in this process. The by-products of both Phase1 and Phase2 can be highly toxic. When these intermediate products accumulate,they can lead to diseases such as cancer. To address this, personalized strategies are designed based on genetic polymorphisms in these detoxification genes. For instance, individuals with the CYP1A2 polymorphism, known for faster enzyme activity, should avoid cruciferous vegetables like broccoli, which can further accelerate enzyme activity and increase toxic intermediate levels. Conversely,root vegetables like celery and parsley can inhibit these enzymes. Cruciferous vegetables, on the other hand, activate GST enzymes, which are vital for detoxification. Therefore, personalized nutrition, supplementation, and lifestyle choices tailored to an individual's genetic makeup arecritical. In this context, nutrigenetic testing plays a pivotal role in both predictive and preventive health strategies.

**Keywords:** Nutrigenetics; Detoxification genes; Personalized nutrition

## Biography:

2012-2016 I studied Molecular Biology and Genetics. Afterwards, I did my master's degree in Medical Biology. 2019-2022 I studied Nutrition and Dietetics. I work as a biologist. Molecular genetics, Epigenetic and Nutrigenetics are my scientific interests. I am involved in the research and development processes of personalized reports. I carried out the 'Tübitak 2209A Project 'Production of Deoxynucleoside triphosphates (dNTP) using Deoxynucleoside monophosphates in the laboratory (environmentally friendly, economical and bioprocess)' and 'Investigation of the Relationship Between Idiopathic Male Infertility and Seminal Plasma HSP90-ALFA Protein Level' projects. 8th Hippocrates Congress 'The Relationship of Nutrition with Immune System and Some Diseases, 2nd International Epigenetic Congress -Creating panels for the personalized clinical utilisation of nutrigenetics tests (epigenetic nutrition and supplement use based on nutrigenetic testing) -Effect of quercetin on some detoxification genes -Evaluation of the effect of resveratrol's role in epigenetic mechanisms on health - Effects of sulforaphane on epigenetic mechanisms -Effects of coffee and coffee components on gut microbiota modulation. Reviews in Medical and Health Science Methodology, Research and Practice.

# The Role of Nutrigenetics in Precision Medicine

**Neval Burkay**
*Epigenetic Coaching Company, United Kingdom*

## Abstract:

Precision medicine is revolutionizing healthcare by shifting from generalized treatment approaches to personalized interventions tailored to an individual's genetic profile, lifestyle, and environmental factors. This approach aims to provide "the right treatment, to the right person at the right time for improved efficacy. Within this framework, nutrigenetics examine show genetic variations influence dietary responses, primarily focusing on single nucleotide polymorphisms (SNPs) that affect nutrient metabolism. A notable example is caffeine metabolism, regulated by the CYP1A2 gene. Individuals classified as fast metabolizes can safely consume more caffeine, where as slow metabolizes may experience adverse effects, necessitating reduced intake. Another application involves histamine intolerance, where AOC1 gene variations can decrease DAO enzyme activity, leading to symptoms such as headaches, skin reactions and digestive discomfort. Managing this condition often requires alow-histaminediet and DAO supplementation. Similarly, lactose in tolerance results from LCT gene variants that reduce lactase enzyme production, causing digestive issues that can be alleviated through dietary modifications or enzyme supplements. By leveraging genetic insights, healthcare providers can develop precise dietary recommendations, optimize nutrient intake, and minimize unnecessary supplementation. As nutrigenetics continues to evolve, further research on SNPs will enhance its role in precision medicine, paving the way for more effective, individualized nutrition strategies that promote better health outcomes.

## Biography:

I graduated with High Honors from the Department of Nutrition and Dietetics in June 2023. During my undergraduate education, I enrolled in a certificate program on Epigenetic Coaching, which marked the beginning of my involvement with the Epigenetic Coaching team. My strong interest in Epigenetics and Nutrigenetics has shaped my academic and professional aspirations, leading me to pursue advanced studies in this field.

Currently, I am pursuing a Master's degree in Nutrition and Dietetics at Akdeniz University, where I aim to deepen my expertise in this dynamic and evolving discipline. Alongside my academic journey, I serve as a trainer within the Epigenetic Coaching team, delivering lectures on key topics such as "Methylation Cycles" and "Nutrigenetics." Additionally, I contribute to the development of personalized reports, conduct research, and provide dietary counseling as part of my role as an epigenetic coach.

I am an active member of the Epigenetics and Nutrigenetics Organization and played a vital role in the organizing committee for the 2nd International Congress on Epigenetics, held in September 2023.

With a strong commitment to precision nutrition and epigenetics, I continue to expand my knowledge and professional contributions in both academic and clinical settings, striving to integrate personalized nutrition strategies into healthcare practices.

# How Childhood Nutrition Influences Long-Term Health by Altering Epigenetic Mechanisms

**Hulya Ozudogru**[1]
*Faculty of Pharmacy, Department of Biochemistry, Mersin University, Yenisehir Campus, Mersin, Turke.*

## Abstract:

Childhood nutrition plays a pivotal role in shaping long-term health outcomes, and recent studies have highlighted the critical role of epigenetic mechanisms in this process. Epigenetics refers to changes in gene expression that do not involve alterations in the underlying DNA sequence. These changes can be influenced by various environmental factors, including diet, and can have lasting effects on health and susceptibility to disease. This study explores how childhood nutrition impacts long-term health by altering epigenetic mechanisms, drawing on insights from multiple research papers. Epigenetic mechanisms such as DNA methylation, histone modification, and non-coding RNA regulation are crucial for controlling gene expression. These mechanisms determine when and where genes are expressed, and are highly sensitive to environmental influences. Although epigenetic information is inherited, it is reversible and can be affected by various environmental stimuli (epigenetic plasticity). These influences include behavior, diet, physical exercise, and exposure to environmental pollutants. During critical developmental periods such as early childhood, these mechanisms are particularly malleable, making them responsive to nutritional interventions. This plasticity highlights the potential of targeted lifestyle changes to promote health and prevent disease by modifying epigenetic patterns throughout an individual's life. Understanding the interplay between these environmental factors and epigenetic regulation can lead to innovative approaches in personalized medicine, where tailored interventions can optimize health outcomes based on an individual's unique genetic and epigenetic makeup. One of the most well-studied epigenetic mechanisms is DNA methylation, which involves the addition of methyl groups, typically at CpG sites, to DNA.

This process can silence or activate gene expression depending on the context. Nutrients, particularly those involved in one-carbon metabolism (e.g., folate, vitamin B12, and choline), provide the methyl groups necessary for DNA methylation. Deficiencies in these nutrients can lead to altered methylation patterns that may contribute to various health conditions. In contrast, diets rich in fruits, vegetables, whole grains, and lean proteins tend to promote beneficial epigenetic changes. They are frequently rich in antioxidants, fibers, and polyphenols, which have the potential to influence histone modification and DNA methylation, thereby potentially mitigating the risk of chronic diseases. Numerous studies have underscored the importance of optimizing dietary intake during critical developmental periods to improve health outcomes and prevent diseases.

**Keywords**: Genetic, Epigenetic, Chilhood, Nutritions.

## Biography

Hulya Ozudoğru graduated from Hacettepe University, Faculty of Science, Department of Biology in 2004. After graduation, she worked in the genetic laboratory until 2006. Then she worked as an embryologist in Adana, IVF centre for 5 years. In 2011, she established the IVF unit of a private hospital in Mersin. Meanwhile, in addition to her interest in science, she got a professional licence in sailing with her passion for the sea. At the same time, she became a CMAS 3-stars diver and witnessed the enormous world of underwater. Later, with the IVF experiences, she pursued a master's degree at Mersin University's Faculty of Medicine, Department of Histology and Embryology, in 2011. Before graduating, she worked as a volunteer lecturer at Sahlgrenska University Hospital IVF Clinic in Gothenburg, Sweden. During her master's studies, Hülya gained extensive experience in electron microscopy, tissue processing techniques, immunofluorescence methods, experimental animals, and cell culture. She started to work as a biologist at Mersin University Hospital in 2015. In the same year, she started oil painting and discovered the expressive power of colors. She continued her work experience by working with routine methods in various fields such as Biochemistry and Hematology. During

the pandemic, Hülya worked as a responsible biologist in the COVID-19 laboratory, conducting PCR studies. Meanwhile, she was interested in rowing sports in the port city of Mersin. After the laboratory experiences she was appointed as a lecturer at Mersin University Vocational School of Health Services in 2022. In 2024, she started her PhD programme at Mersin University, Faculty of Pharmacy, Department of Biochemistry and continues her academic career. During this process, she has started epigenetic coaching trainings that certified CPD Program from Dr. Gulsen Meral who is the founder of the Nutrigenetics and Epigenetics Association. Hulya continues to improve herself in the fields of Epigenetics, Nutrigenetics and Biochemistry. She still teaches her students actively in the fields of histology and biochemistry.

# *Day 2 ABSTRACTS*

# Multi-dimensional Feature Extraction of EEG Signal and Its Application in Stroke Classification

**Fenglian Li** (Teng Wang, Wenhui Jia, Xirui Liu, Fengyun Hu)
*Taiyuan University of Technology, China*

## Abstract:

The accurate classification of stroke types is crucial for timely and effective treatment, particularly in distinguishing between cerebral hemorrhage and cerebral infarction. This study achieved intelligent classification of stroke through EEG signal feature extraction and machine learning classification model. Addressing the issue that feature quality directly affects classification outcomes, we propose a multi-dimensional feature extraction method combining autocorrelation and complexity theory. The core of our approach is an improved multifractal detrended fluctuation analysis (MFDFA) based on optimized empirical mode decomposition to extract high-quality autocorrelation features. Furthermore, our research reveals that the fuzzy entropy ratio between the high-frequency and low-frequency bands in cerebral infarction signals is significantly lower than in cerebral hemorrhage signals. Based on this observation, we introduce a novel index, the Fuzzy Asymmetric Index (FAI), based on a constant Gaussian membership function. By integrating hierarchical fuzzy entropy, asymmetric entropy, and FAI, we achieve complex fusion features that excel in distinguishing between cerebral hemorrhage and cerebral infarction. Using a random forest algorithm with a constant Gaussian membership function for classification, our results show: accuracy of 99.33%, precision of 100%, sensitivity of 98.57%, specificity of 100%, an F1 score of 99.23%, and a Matthews correlation coefficient (MCC) of 98.73%. These findings demonstrate that combining autocorrelation and complexity features into multi-dimensional features has significant advantages in the classification of stroke EEG signals, providing crucial support for the development of intelligent diagnostic tools for brain diseases.

**Keywords:** Stroke EEG signals; Autocorrelation features; Complexity features

## Biography:

Fenglian Li (Member, IEEE), is currently a professor and a doctorial tutor with TYUT, Taiyuan, Shanxi, China. She received the Ph.D. degree in electronic science and technology in June 2010 from TYUT, Taiyuan, China. As a visiting scholar, she studied in the major of computer science on Queensland University of Technology, Brisbane, Australia from September 2015 to September 2016. She has supervised the National Natural Science Foundation Project of China, the Chinese National Postdoctoral Project and two province research projects and so on. She has published more than 100 articles in the international Journals or conference proceedings. Her research interests include reinforcement learning, classification model over imbalanced data sets, and medical signal processing, especially in stroke, prediction of brain metastasis in non-small cell lung cancer, esophageal cancer and so on. She is an advanced member of Chinese Computer Federation (CCF), China. In 2015 and 2019, she won the second prize of Shanxi Province Science and Technology. She is an advanced visiting scholaron the University of Narrva from January to June 2025.

**Marco Carotenuto**
*University of Campania, Italy*

## Biography:

Professor Marco Carotenuto obtained a master's degree in medicine and surgery at the University of Campania 'Luigi Vanvitelli," Italy, in 2000. He became a specialist in child neuropsychiatry in 2005 after a long period of training in the United Kingdom. He also obtained a Ph.D. in Behavioral Sciences and Learning Disorders in 2008. In 2018, after further training at prestigious Italian research centres to delve deeper into diagnostic, therapeutic, and rehabilitative issues in developmental age, Dr. Carotenuto became a Professor of Child Neuropsychiatry and Director of the Child Neuropsychiatry Unit at the University of Campania 'Luigi Vanvitelli." Since 2022, he has been the president of the National Commission for Neurotherapy and Psychomotor Therapy in Developmental Age (TNPEE). Since 2022, he has been Director of the School of Specialization in Child Neuropsychiatry, University of Campania 'Luigi Vanvitelli." Dr. Carotenuto has authored more than 250 scientific journal articles.

His main areas of research interest include the diagnostic evaluation and therapeutic management of neurodevelopmental disorders, with particular attention to childhood autism, sleep disorders, pediatric headaches and epilepsies, and neurocognitive and behavioral rehabilitation in children.

# Neuroscience-guided Lifelong Learning and Sequence-RL Supports Practical and Edge Computing

**Hava Siegelmann**
*University of Massachusetts, USA*

## Abstract:

Today's intelligent technology is completely bounded to the data it was given in advance. It is unable to update, learn from failures, to generalize effectively, or to become more expert with more experience. The current basis for advanced deep learning is that it must be fed enormous quantities of data to be trained on in advance – with the hope that this large data will be applicable in most situations it encounters and suffice for it to survive for some time. Training on such huge data is vastly time consuming, resource intensive necessitates enormous energy use, so much so that AI training is now considered a major player in energy consumption and pollution even when compared to notorious sources of energy use like air travel.

Lifelong Learning is at the cutting edge of artificial intelligence. Building on neuroscience principles, it is encompassing computational methods that allow systems to learn in runtime applying this knowledge to new, unanticipated situations. L2M immediately removes the need for huge training datasets and vast energy expenditures; it reduces resource allocation in a working system; and perhaps most important, L2M systems are truly functional in real-world applications, where the AI must be grounded in the real environment, which is infinitely complex. Lifelong Learning Machines is the only practical path toward safe autonomy and reliable language technology.

In practicality, drones and other AI which work far from the cloud need to rely on their own resources, this is what is called edge computing. They operate under significant constraints, including limited computational power, energy capacity, and communication bandwidth. Re-

inforcement Learning fails to maintain optimal performance under such constraints. Building on a neurobiological principle, we introduce sequence AI algorithms that significantly improving compute and energy efficiency. Among the key features are rapid onboard responses and adaptability in dynamic environmental changes, robustness to missing inputs, minimization of sensor usage and the ability to use cheaper sensors to greater effect, as well as making possible the use of cheaper hardware while maintaining peak effectiveness.

## Biography:

Dr. Siegelmann is a Provost Professor of the University of Massachusetts, a Professor Computer Science, Core Member of the Neuroscience and Behavior Program, and Director of the Biologically Inspired Neural and Dynamical Systems (BINDS) Laboratory. She has been associated with MBZUAI as well.Siegelmann conducts interdisciplinaryresearch in next generationmachine learning, neural networks, intelligent machine-human collaboration, computational studies of the brain - with application to AI, data scienceand industrial/government /biomedical applications. Among her contributions are the Support Vector Clustering algorithm, delineating jet-lag mechanisms, identifyingbrain structure that leads to abstract thoughts, patented human-computer interaction for human-in-the-loop computing, and Lifelong Learning Machines.

Siegelmann served a DARPA PM: “L2M,” (lifelong learning machines) one of her key initiatives, inaugurated “third-wave AI,” pushing major design innovation and a dramatic increase in AI capability, as well as initiating the $2B AI-Next. Among other programs she designed are: “GARD” (guaranteeing AI robustness to deceptions) is leading to unique advancements in assuring AI robustness against attack. “CSL” focuses on collaborative secured learning, and “RED” reverse engineers’ deception. Other programs include advanced biomedical applications.

Siegelmann has been a visiting professor at MIT, Harvard University, the Weizmann Institute,

ETH, the Salk Institute, Mathematical Science Research Institute Berkeley, and the Newton Institute Cambridge University. She was the recipient of the Israel's Alon Fellowship of Excellence,the NSF-NIH Obama Presidential BRAIN Initiative award, the Donald O. Hebb Award of the International Neural Network Society (INNS); she is a fellow of both the IEEE Computational Intelligence Society and the INNS. Siegelmann is a recipient also of theDoD/DARPA Meritorious Public Service award.Dr. Siegelmann is a leader in increasing awareness of ethical AI via the IEEE. She isa founder and a chair of different international committees for supporting minorities and women in STEM.

# Neuroscience, ADHD and Online Terrorism: In what ways can ADHD create contextual vulnerabilities and risk?

**Rachel Worthington**
*Manchester Metropolitan University, UK*

## Abstract:

**Purpose:** This presentation will address how Attention Deficit Hyperactivity Disorder (ADHD) in adolescents and adults can contribute to contexts for online terrorism link in a small minority of individuals.

**Background:** ADHD is a neurodevelopmental disorder characterized by a dysfunctional pattern of inattention, hyperactivity, or impulsivity, leading to negative outcomes in social, academic and occupational contexts throughout an individual's life. Research has also shown that people with ADHD are at an increased risk of engaging in offending and it is estimated approximately 25% of prisoners meet the criteria for ADHD However, most people with ADHD do not commit offences and in offenders with ADHD, the ADHD in itself does not cause offending behaviour, rather, certain aspects of ADHD may contribute to both risk and resilience factors for offending behaviour.

Research has shown that problematic internet use and cyber-deviance may be more common in some people with ADHD. Cybercrime involves the use of computers, digital devices and/or the internet in order to offend. It is noted to be easier than offline offending due to the ways in which cyberspace contains open access to criminal activity through unregulated and uncensored sources. In addition, the internet is playing an increasingly prominent role in radicalisation processes for people convicted of extremism. Therefore, this presentation will review relevant literature and synthesise it with established clinical conceptualisations of ADHD and forensic conceptualisations of terrorism risk assessment.

**Methods:** A Systematic Review was performed according to the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Papers were screened for quality appraisal and risk of bias. 46 papers were deemed as meeting the final inclusion criteria.

**Findings**: ADHD was noted to act as a vulnerability factor for problematic internet use, internet addiction, cyber-deviancy, digital media use and gaming disorder. Mechanisms which contributed towards online risk behaviour in people with ADHD included:impulsivity; hyperactivity; social competence; neurological coping; hostility; and mental health problems.

**Conclusion**: The role played by ADHD in contextualising risk in online terrorist offenders is an under-researched area that has increasing clinical and operational relevance as terrorism becomes increasingly digital. The existent evidence on ADHD and offending and that on ADHD and problematic online behaviour lack any reference to online terrorism offenders. Clinical hypotheses are presented to begin to fill this gap, which synthesise the existent literature with clinical knowledge of ADHD and forensic knowledge of online terrorism risk assessment. It is hypothesised that a number of features associated with ADHD may shape vulnerability and risk to online terrorist offending, by creating push factors or strengthening the pull of online terrorist activity. These include core symptoms of ADHD as well as secondary features associated with or arising from ADHD. The ways in which each symptom and secondary feature of ADHD can create push and pull for online terrorism will be discussed. The implications of the literature and theoretical-clinical models for risk assessment and reduction will also be explored, with suggestions for further research.

## Biography:

Dr Rachel Worthington is a HCPC Registered Forensic Psychologist, Chartered Psychologist, and a full member of the Division of Forensic Psychology, including holding Associate Fellow status.  She is also a Chartered Scientist.

She has worked for over 20 years in prisons and forensic psychiatric hospitals undertaking risk assessments and therapy for clients engaging in offending behaviour who presented with mental illness, personality disorder, complex PTSD, acquired brain injury and neurodevelopmental disorders including ADHD and Autism. She is trained in diagnostic assessment tools for these conditions and completed a MEd in Adult Autism, a PG Cert in ADHD,as well as Level 7 Sensory Integration Foundations and Neuroscience. She also set up the first Psychologically Informed Environment (PIE) for adults with autism and undertook research in relation to self-harm, harmful sexual behaviour and aggression for clients with autism.

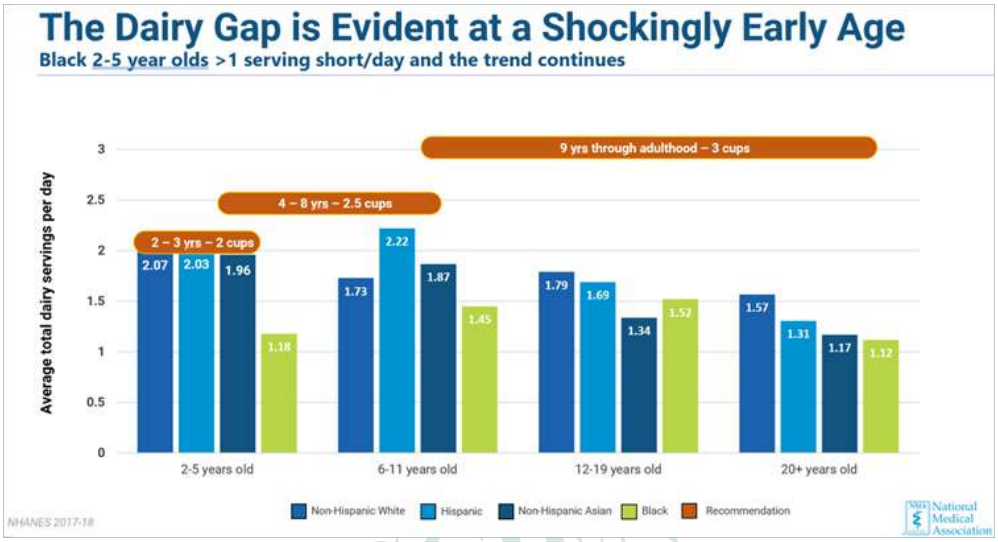
# The Role of Dairy Food Intake for Improving the Health Among Black Americans Across the Life Continuum: Evidence-Based Recommendations for Improving Patient Health

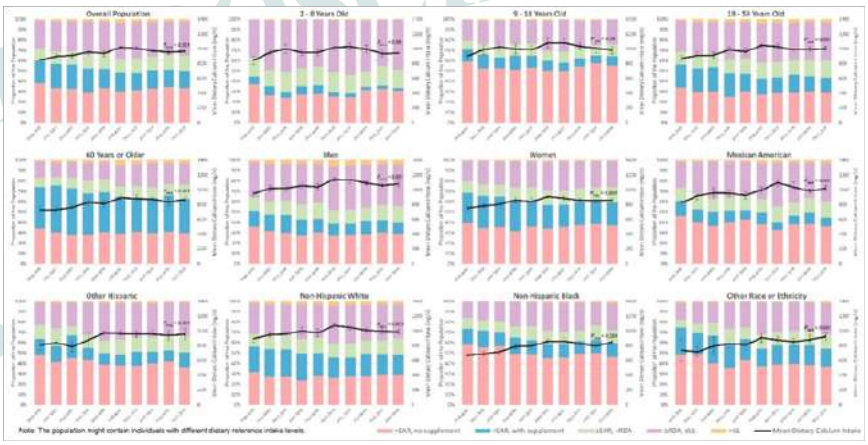
**Winston Price**[1]
*1Department of Pediatrics, Philadelphia College of Osteopathic Medicine, Moultrie-31768, USA*



## Abstract:

The National Medical Association (NMA) and its partners have produced multiple reports on the value of including adequate milk and dairy foods in the diets of Black Americans. The recent Supplement [1] highlights the impact that inadequate consumption of dairy foods (Fig 1) and nutrients has on chronic disease risks. Past publications [2] have also provided evidence-based recommendations for the proper diagnosis and management of lactose intolerance. This new series of evidence focuses on dairy's role in improving nutrition and health among Black Americans across the life course and covers an extensive amount of new research that highlights additional health disparities and provides further evidence-based strategies for the management of lactose intolerance. Much like the 2020-2025 Dietary Guidelines for Americans (DGA), this work utilizes a life course approach to better address dairy intake on health outcomes for different ages and life stages: 1) pregnancy, fetal development, and lactation, 2) infants, toddlers, and young children, 3) older children and adolescents, 4) adults, and 5) and geriatric populations. The overview will highlight key findings and recommendations from the supplement papers. Similar finding regarding calcium intake deficiencies3 were found in the NHANES survey (fig 2) and these deficits further exacerbate health disparities for certain populations [3].



**Keywords:** Lactose Intolerance; Dietary Guidelines; Malnutrition; Premature Birth; Essential Nutrients; Food Insecurity

## Biography

Winston Price, M.D., FAAP is a board-certified pediatrician and past president of the National Medical Association Winston completed his MD from Cornell University Medical College and completed residency at the Weill-Cornell Medical Center-Sloan Kettering Medical Center in NYC. He serves as President& Chair for the National African American Drug Policy Coalition. He is an Associate Professor of Pediatrics at the Philadelphia College of Osteopathic Medicine- SGA Campus.

# Long-Term Health Outcomes for Children Born Through IVF

**Yolanda Cabello**
*Assisted Reproduction Consultant. Madrid, Spain*

## Abstract:

Children conceived viain vitro fertilization (IVF) generally exhibit long-term health outcomes comparable to those of naturally conceived peers, though certain areas warrant attention. Research indicates a slightly elevated risk of cerebral palsy and neurodevelopmental delays in IVF offspring, primarily linked to factors like prematurity and low birth weight rather than the IVF procedure itself. Cognitive development, school performance, and social functioning typically align with those of naturally conceived children.

Physically, some studies suggest that some IVF-conceived individuals may experience higher instances of elevated blood pressure, increased fasting glucose levels, greater body fat composition, and early bone age advancement. The causality of these associations remains unclear, with potential links to IVF procedures, parental genetics, or environmental factors.

Mentally and emotionally, IVF offspring generally demonstrate outcomes similar to their naturally conceived counterparts. However, there's tentative evidence pointing to a higher prevalence of early adulthood depression and binge drinking, necessitating further investigation. In general, although children conceived by IVF have largely similar health profiles to those conceived spontaneously, research is essential to fully understand and address the risks actually associated with assisted reproductive techniques, as some differences among these children may be due to multiple births, which is the major complication of these treatments, or due to factors inherited from infertile parents rather than from the techniques themselves.

## Biography:

Degree in Biology, PhD in Basic Medical Sciences, University Specialist in Molecular Biomedicine Techniques, University Specialist in Pedagogical Aptitude and Research Sufficiency in the area of Medicine by the University of the Balearic Islands. Master's Degree in Assisted Human Reproduction from the University of Salamanca. Degree in Psychology from the Valencian International University and Master in Clinical Sexology from the University of Valencia.

Currently she's Senior Clinical Embryologist, Consultant and Researcher specialized in Assisted Reproduction in IVF LIFE - CARE FERTILITY Group and Lead Auditor.

She has been Director of several Embryology, Andrology and PGT Laboratories for more than 20 years, head of R&D and Scientific Director of Assisted Reproduction Units in Spain.

Associate Professor of the Faculty of Sciences of the University of the Balearic Islands from 2004 to 2007. Current member of the National Activity Registry Committee of the Spanish Ministry of Health and member of SIG Embryology of ASEBIR. Member of the SEF-ASEBIR Group for the elaboration of Assisted Reproduction Lab Guidelines.

# Driving Health System Transformation Through Digital Innovation in Screening and Treatment of Child Trafficking Victims

**Natalia Vargas**
*University of South Florida, USA*

## Abstract:

**Background:** Child trafficking is on the rise inthe United States (U.S.), but national standards of care for victim service providers remain undefined. National efforts to improve identification of and assistance to child trafficking victims are aggravated bycomplex systemic issuesthat make it difficult for health service providers to screen victims and coordinate theircare. Child trafficking victims in the U.S. are especially vulnerable to being medically underserved as data related to victim identification and treatment is fragmented across judicial, healthcare systems, and human service delivery sites. Victim identification challenges are compounded by differences in data reporting policies across states,data reporting inconsistencies across service delivery sites,suboptimal data quality, and inability to link health and human service data. Challenges related to the provision ofclinical guideline concordant care for child trafficking victims are also magnified by the involvement of avariety of health care providers in routine clinical care and behavioral service delivery. As a result, there is high variability of clinical guideline implementation for screening and treating children. Altogether, these challenges highlight the need to enhance evidence-based health care services.Implementation science (IS) promotes the rapid adoption and implementation of evidence-based practices to bridge the disconnect between evidence and research to practice.

**Objectives**: The primary objectives of this study are: (1) to synthesize evidence on currentapproaches to child trafficking victim identification and treatment; and (2) characterize current clinical guideline implementationchallenges and distill strategies to improve care for trafficked children using IS.

**Methods:** A narrative review was the basis for evidence synthesis.ThePromoting Action on Research Implementation in Health Services (i-PARiHS) IS framework was used to distill-challenges related to victim identification and to identify innovations and strategies to improve screening and treatment nationally.

**Findings:** Evidence-based practice for child trafficking screening and treatment is difficult to assess. Incidence rates for children experiencing some type of human trafficking are inconsistently reported. Application ofi-PARiHS led to a new research paradigm for implementing complex interventionsacross multiple sites with different organizational cultures and heterogeneous data assets.Digital innovations using artificial intelligence(AI) offered appropriate solutions. Findings were organized by the following categories: (1) proposed innovation, (2) recipients of the innovation, (3) organizational context inside and outside an implementation site, and (4) facilitation.

**Discussion:** Digital innovationsinvolving AIare promising when context for deployment is understood. These findings oppose previous claims by others in the field that using AI to combat human trafficking is "dangerous". Failure to implement innovative and pragmatic strategies to screen and treat vulnerable child trafficking victims may hinder timely delivery of life-saving health care services. IS offers a new approach to enhance existingevidence-based clinical guidelinesby improving victim identificationthrough the strategic adoption of digital tools and AI.

## Biography:

Natalia is a Public Health Scientist and Translational Medicine expert with over 12 years of experience working across public, private, and academic sectors to improve health outcomes for individuals and communities by "translating" findings into medical practice, diagnostic tools, and policies. As the CEO and Founder of "Transforming Healthcare Experience and Mitigating Injustice in Society"(THEMIS), Natalia offers exceptional collaboration and strategic support in using data insights to improve organizational intelligence. Her company focuses on promoting the ethical use of data, technology, and Artificial Intelligence (AI) to maximize

their benefits to humans and society. Natalia serves as a Public Health Advisor at the United States Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. As a public servant, Natalia has devoted the last 10 years to improve the quality and outcomes of care for vulnerable and medically underserved populations. She is a visionary leader committed to driving impact in mitigating health disparities and inequities directly linked to systemic socioeconomic factors that prevent people from achieving optimal health. Natalia holds a Master of Public Health and a Graduate Certificate in Infection Control from the University of South Florida. Natalia completed post-graduate training at the Faculty of Medicine, Universidad Central del Ecuador, The Evaluators Institute at George Washington University, the Johns Hopkins Bloomberg School of Public Health, and the Mendoza College of Business at University of Notre Dame.

# The Neonatal Lung Diseases Diagnosis: Can Lung Ultrasound replace Chest X-ray?

**Jing Liu**
*Department of Neonatology and NICU, Beijing Obstetrics and Gynecology Hospital, Capital Medical University. Beijing Maternal and Child Health Care Hospital.*

## Abstract:

In this paper, we explain why lung ultrasound (LUS) should replace chest x-ray to diagnose neonatal lung diseases and might be routinely used in NICUs.

**Ultrasound can diagnose a variety 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.

**The sensitivity and accuracy of ultrasound diagnosis of NLDs are higher than those of conventional CXR examinations:** Long-term use and a large number of clinical application practices have confirmed that LUS diagnosing neonatal lung diseases is more sensitive, accurate and reliable than CXR.

**1)LUS has higher sensitivity for the diagnosis of atelectasis and can reveal "occult atelectasis"** : According to our previous study, the LUS can find 100% atelectasis,whereas CXR could detect only approximately 75% of atelectasis.We named such atelectasis that can be detected by ultrasound,but not by CXR and can be confirmed by chest CT as "occult 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 used a 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:** 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%, however,LUS can clearly differentiate RDS from TTN, thus avoiding misdiagnosis and mistreatment.

**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.

**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 Foundation of Beijing Chaoyang District Committee of Science and Technology,CYSF1820□.

**Keywords:** Lung Ultrasound; Neonatal Lung Diseases; Pseudoatelectasis; Respiratory Distress Syndrome

## Biography:

Prof.Dr.Jing Liu is a Distinguished Neonatologist and the Leader at the Department of Neonatology and NICU,Beijing Obstetrics and Gynecology Hospital, Capital Medical University, the Neonatal Lung Ultrasound Training Center and Neonatal Critical Ultrasound Training Center In China. He is good at neonatal intensive critical care, neonatal brain ultrasound and lung ultrasound. More than recent 13 years, Dr.Liujing mainly focused on neonatal lung ultrasound research. Since March 2017, the chest X-ray has been completely replaced by lung

ultrasound to diagnoses lung diseases in his NICU, this is the first department that using ultrasound completely replacing of X-ray diagnosing of neonatal lung diseases.

His academic positions include the Executive chairman of the Society of Pediatrics, Asia-Pacific Health Association;the Associate Chairman of the Division of Critical Ultrasound, Pediatric Society of Asia-Pacific Health Association; the Executive chairman of Asian-European Research Society for Pediatric and Neonatal Critical Ultrasound (AERS-PaNCU), the Associate Chairman of Chinese Neonatologist Association and the Associate Chairman of Beijing Neonatologist Association, etc. Dr.Liujing has published more than 360 papers, over 13 books and Chapters in Books, and has won 15 awards for science and technology of the government of China.

# Associations Between Alzheimer's Disease and Rett Syndrome: Clinical Trials of NA-831 for the Treatment of Alzheimer's and NA-921 for Rett Syndrome

**Lloyd L Tran**
*Chairman & CEO - Biomed Industries, USA*

## Abstract:

**Background:**
Alzheimer's disease (AD) and Rett syndrome (Rett) share genetic and molecular features. NA-831, a small molecule drug, promotes neuroprotection and neurogenesis for AD treatment. NA-921, an analog of NA-831, regulates MeCP2 for Rett treatment.

**Clinical Study Methods and Results:**
NA-831: A randomized, double-blind, placebo-controlled Phase 2 study to assess the safety, tolerability, and efficacy of NA-831 in Alzheimer patients with mild cognitive impairment (ClinicalTrials.gov ID NCT03538522).
Topline results: NA-831 showed a significant improvement for patients with mild and moderate AD with the ADAS-Cog-13 score change of an average of 4.1 compared to the placebo after 24 weeks of treatment (p=0.001; ITT). CIBIC-Plus showed 78% patient improvement (p=0.01; ITT). NA-831 was well-tolerated at 30 mg/day, with no serious adverse events observed.

**NA-921:** A randomized, double-blind, placebo-controlled Phase 2/3 study of NA-921 (Bionetide) for the treatment of girls and women with Rett Syndrome (ClinicalTrials.gov ID NCT06849973).

Topline results:

- Rett Syndrome Behavior Questionnaire (RSBQ): The least squares mean (LSM) change

from baseline to week 12 was -5.5 for NA-921 versus -1.6 for placebo (p=0.001; n=86 for NA-921, n=87 for placebo).

• Clinical Global Impression–Improvement (CGI-I): At week 12, the score was 3.60 for NA-921 versus 3.83 for placebo (p=0.0020; effect size=0.42; n=86 for NA-921, n=87 for placebo). NA-921 is a potential treatment for Rett Syndrome with fewer side effects and improved patient retention rates.

**Conclusion:**

A possible association between Alzheimer's disease and Rett Syndrome will be presented and discussed. While findings suggest a potential association, further research is needed to determine causality.

## Biography:

Dr. Tran is the Chairman and Chief Executive Officer of Biomed Industries, Inc., a leading biotechnology company dedicated to developing breakthrough treatments for neurodegenerative and metabolic diseases. Dr. Tran has over 30 years of experience in pharmaceutical research and development, specializing in treatments for neurodegenerative diseases, metabolic disorders, and infectious diseases. He began his career as a scientist at G.D. Searle (later acquired by Monsanto) and Pfizer before serving as Director of Research & Development at Controlled Release Technology, Inc. Dr. Tran later served as the Chief Scientific Officer for Biomed Pharmaceutical, Inc., and NeuroActiva, Inc., which was acquired by Biomed Industries, Inc.

A pioneer in Alzheimer's disease research, Dr. Tran was the first to identify the role of neurogenesis in its treatment. He holds multiple U.S. and international patents covering drugs targeting Alzheimer's disease, major depressive disorder, stroke, Rett syndrome, obesity, and Metabolic dysfunction-associated steatohepatitis (MASH). He has also contributed to global health initiatives, collaborating with Nobel laureate Dr. Tu Youyou in the development of Artemether for malaria treatment. Artemether plus lumefantrine (AL) is now approved in the U.S. and 86 countries worldwide.

Additionally, Dr. Tran is the inventor of the MICROS Infusion System, approved for marketing in the U.S. Beyond his scientific contributions, he serves as the Committee Chair of the Alzheimer's International Society and has played a key role in advancing Alzheimer's research. He holds a B.Sc. (Honours) in Chemistry from the University of Otago and a Ph.D. in Medicinal Chemistry from the University of Wellington, New Zealand.

# Enhancing Eye-Gaze Communication with AI: Empowering Expression, Inclusivity, and Joy

**Dr. Isabel Maranhao**
*University of Sussex and Bayezian, UK*

## Abstract:

Eye-gaze communication devices are indispensable for individuals with conditions such as ALS and Locked-In Syndrome, providing over two million people worldwide a means to express themselves despite profound physical limitations. Yet, current systems often fall short in enabling nuanced, engaging interactions.

Our project leverages cutting-edge advancements in artificial intelligence (AI) and physiological data integration to elevate the accuracy, responsiveness, and adaptability of these devices. A key focus of this work is the inclusion of humor as a mode of expression, empowering users to convey personality, foster social connections, and engage meaningfully in emotional exchanges. For users of eye-gaze devices, humor transcends basic communication, offering a medium to assert individuality, reduce stigma, and approach challenging situations with resilience and levity.

Beyond its social impact, humor plays a vital role in supporting mental well-being by alleviating stress, boosting mood, and creating moments of shared joy. This initiative reimagines eye-gaze technology as a dynamic and empowering tool, fostering greater autonomy and deeper emotional connection.

By integrating AI-driven enhancements, our approach seeks to transform assistive communication into an inclusive and enriching experience, enabling users to participate fully in the richness of human interaction. This work represents not only a technological breakthrough but

a profound step forward in promoting dignity, inclusivity, and joy for individuals relying on assistive communication devices.

## Biography:

Isabel completed her undergraduate at the University of Sussex in Medical Neuroscience. During her studies, she was an intern in the consciousness lab and through that got offered her scholarship for her PhD. She passed her viva with no corrections with the thesis titled “From time to time: an investigation of Temporal Consciousness and its neurophysiological mechanisms”. After completing her PhD, she started working at Bayezian where she was involved in a myriad of projects from Computer vision to aid academic experiments to neural decoding for brain machine interfaces. She has founded the Neuroscience and AI centre of Excellence at her company and now oversees Neuroscience projects scoping neuro-habilitation and neuro-disability.

# Anti-inflammatory and analgesic active ingredients of traditional Chinese medicine Morinda and related research

**Lu Qin**
*South-Central MinZu University,China*

## Abstract:

Morinda officinalis is one of the “four major southern medicines” in China, which is the dried root of Morinda officinalis in the Rubiaceae family, and is mainly produced in Guangdong Province, Fujian Province and Guangxi Zhuang Autonomous Region. The taste is sweet and slightly astringent, it has the effect of tonifying kidney yang, strengthening muscles and bones, dispelling rheumatism, and is mainly used to treat impotence and spermatozoa, uterine cold infertility, menstrual irregularities, cold pain in the abdomen, rheumatism and paralysis, and weak muscles and bones.

Inflammation and pain are important areas of medical research.Inflammation is the body’s response to injury or infection, and its molecular mechanism has been continuously studied. The central role of inflammasomes (e.g., NLRP3) in the inflammatory response has been elucidated, and its activation can promote the release of IL-1β and IL-18 and participate in the occurrence of a variety of diseases. In addition, the role of cytokines (such as TNF-α, IL-6) in inflammation has also been widely studied and has become a therapeutic target. The relationship between chronic inflammation and metabolic diseases (e.g., obesity, diabetes) and cancer has attracted much attention, and studies have found that chronic inflammation promotes disease progression by altering the microenvironment.

Pain is a common concomitant symptom of inflammation, and mechanistic studies have focused on ion channels, receptors, and neuroinflammation. The role of TRPV1, TRPA1 and

Nav1.7 plasma channels in pain conduction has been extensively studied and has become an important target for drug development. The role of neuroinflammation in chronic pain has also attracted much attention, with glial cells (e.g., microglia) contributing to the chronicity of pain by releasing inflammatory mediators.

Nowadays, more and more people are studying the anti-inflammatory and analgesic effects of the active ingredients of traditional Chinese medicine.It has the advantages of high safety, low addiction, lower cost and less toxic side effects.Therefore, it is considered a treatment option with great potential.

My presentation will illustrate the anti-inflammatory and analgesic effects of Morinda active ingredient through animal experiments, histological experiments, etc

Keywords: Morinda officinalis; Inflammation; Pain;Active ingredient

## Biography:

Lu Qin will graduate from South-Central Minzu University in June 2025 with a Master's Degree in Biomedical Engineering, specifically in the area of membrane ion channels and drug discovery and development.She mainly uses animal, molecular and cellular experiments to elucidate the mechanism of action of active ingredients in Chinese medicine.

# Building Sustainable Healthcare in Ethiopia: Training, Empowerment, and Primary Care Networks

**Iñaki Alegria Coll**[1]
*Department of Paediatrics, Hospital General de Granollers, Barcelona, Spain*
*Department of Paediatrics, Gambo General Hospital, Oromiya, Ethiopia*

## Abstract:

In Ethiopia, where limited healthcare infrastructure and widespread health disparities continue to challenge the wellbeing of millions, our initiative aims to create a self-sustaining healthcare system by training local healthcare personnel, empowering communities, and establishing a robust primary healthcare network. Our approach is guided by a powerful ethos: "No one should die when it's not their time to die. There is something better than saving lives—teaching others how to save them."

Our program focuses on providing comprehensive training for healthcare professionals, including nurses, community health workers, and physicians, particularly in rural and underserved areas. By equipping them with practical skills in areas such as infectious disease management, maternal and child health, emergency care, and preventive medicine, we enhance their capacity to deliver high-quality care. Additionally, we emphasize continuous education and peer-to-peer learning to foster a culture of knowledge-sharing, ensuring that healthcare providers can adapt to evolving health challenges.

Central to our work is the empowerment of local communities. We believe that healthcare delivery must be deeply rooted in the cultural and social fabric of Ethiopian society. Thus, we engage community leaders, traditional healers, and local organizations to create health education programs that promote preventive care, improve health literacy, and address specific health issues prevalent in each region. This participatory approach allows us to build trust and encourage proactive health-seeking behaviors.

At the core of our intervention is the creation of a scalable and sustainable healthcare network based on primary care. This network is designed to provide accessible and affordable health-care services, ensuring that even the most remote communities have access to life-saving care. By focusing on primary healthcare, we aim to reduce the burden on tertiary care facilities, improve early detection and management of diseases, and reduce preventable deaths. Our primary healthcare model integrates preventive, curative, and rehabilitative services, ensuring a holistic approach to patient care.

Our program's impact is measurable in terms of improved health outcomes, reduced mortality rates, and increased capacity within the healthcare workforce. By shifting from reliance on external aid to a model of local empowerment, we are not only addressing immediate health needs but also fostering long-term resilience within Ethiopia's health system. Our ultimate goal is to build a healthcare network that is both responsive to the current needs of the population and adaptable to future health challenges.

In conclusion, our work in Ethiopia demonstrates that sustainable healthcare development hinges not only on saving lives but on empowering individuals to become life-savers themselves. By investing in the training of local healthcare professionals, empowering communities, and establishing a strong primary care network, we aim to ensure that no one dies needlessly and that Ethiopian healthcare can stand on its own for generations to come.

**Keywords:** Paediatrics, internacional cooperation, Africa,

## Biography:

Inaki is a medical doctor and specialist in paediatrics. He graduated from the University of Barcelona and specialized in pediatrics at the General Hospital of Granollers (Barcelona). He also obtained a master's degree in international health and cooperation from the Autonomous University of Madrid and is certified with advanced pediatric and neonatal life support (ALSN) by the European Resuscitation Council.

His vocation to improve the living conditions of the most vulnerable children led him to Ethiopia and to found the NGO Alegria Sin Fronteras (www.alegriasinfronteras.org). In Ethiopia, where he has more than 10 years of professional experience, he has worked as medical director at Gambo General Hospital (www.gambohospital.org ). He has worked on the front line in the response to the COVID19 pandemic, measles epidemics, and participated in the improvement of the national maternal and child health program supporting Ethiopian health institutions. He has extensive experience in coordinating emergency nutritional projects, maternal and child health, and has led a wide range of health projects in Ethiopia, Senegal, and Angola. Iñaki is president of the cooperation section of the Official College of Physicians of Barcelona (COMB) and member of the committee of experts of the FCOMCI (Foundation for International Cooperation of the Collegiate Medical Organization). He is also a member of the international cooperation working groups of the Spanish Association of Pediatrics.

In addition to his healthcare and humanitarian work, he also develops his career as a university professor, teaching courses in medical school on the most prevalent diseases of childhood (Integrated Management of Child Health Illness) and is regularly invited as a speaker at national and international conferences, such as the World Pandemics Forum. His work and career have been recognized with national awards such as the Spanish Association of Pediatrics or the International Health Society and at the international level where the Ubuntu award as a social leader for the defense of health, awarded by the Euro-African forum, stands out. He has been interviewed by many national and international media and recognized by iSanidad as one of the forty professionals to transform the healthcare system.

# Pre-Surgery Patient Anxiety Understanding Your Patient's Stress Levels

**Vince Callahan**
*Florida Institute for Neural Discovery, USA*

## Abstract:

Patients develop pre-procedure anxiety and stress. This stress impacts not only how they recover from the procedure, but how they approach having the procedure done.

This presentation will discuss the stressed brain and how medical professionals can reduce patient anxiety. Particular attention will be given to understanding the role of cortisol in the process of inhibiting the healing process.

Further discussion will center around how to facilitate neurotransmitter changes within patients that will reduce pre-surgery anxiety and promote healing.

Finally, this workshop will discuss the viability of patient-professional bonding during the medical relationship, discussing both positive and negative aspects.



## Biography:

Vince Callahan received his master's degree from Regent University in 1986 and began a three decade career as a professional counselor, and educator, working with individuals and families in both private practice and in-patient hospital settings. As part of the intensive work that has been done, he has studied the needs of children and the impact dysfunctional family systems have on their growth and development. Fueled by the desire to investigate these and other issues within the field of learning and development he began his doctoral work at Regent University in 2010.

Vince's doctoral focus has been the neurological impact of emotional trauma and its effect on academic performance. Intrigued by the implications within the educational system of how emotional trauma effects the learning process and academic performance, Dr. Callahan has spent the last twelve years researching early life stress and neurological development. A key element that his research uncovered is the viability of creating a relational learning environment within the classroom which would impact the learning ability of children who have experienced early life stress.

Vince has documented over thirty thousand clinical counseling hours of individual and family counseling. He has worked in many therapeutic venues, in-patient psychiatric hospital units, private practice, church-based counseling centers and PACT teams. As a Christian counselor he believes in the power of God to "set the captive free" while utilizing sound psychological principles to assist clients in uncovering their interpersonal issues.

# ROLEOFLYOPHILIZEDPLATELET RICHPLASMAINLUNGDISORDERS

**Dr. Pradeep V Mahajan**
*StemRx Bioscience Solutions, India*

## Abstract:

The global burden of lung diseases is increasing steadily, with developed countries showing increasing trends in tobacco- and pollution-associated lung dysfunction, while developing countries are grappling with infectious conditions such as tuberculosis. Irrespective of the type of lung disease—obstructive, circulatory, malignant, infectious, etc.—the pathogenesis ultimately leads to scarring of lung tissue, structural changes, loss of cells, and circulatory disturbances in the lungs, all of which have long-termeffects on the quality of life of the affected individual. Therefore, the need of the hour is not just strategies that help control progression of the disease, but also those that helpin regeneration of damaged tissues.

Regenerative medicine and cell-based therapies are being researched in the management of several acute and chronic conditions. One such therapeutic modality is the use of platelet concentrates. Platelets have a complex biology that have been shown to playanimportantroleininflammationandtissuerepair,inadditiontobloodclotting. The various growth factors in platelet concentrate play roles in chemotaxis, cell differentiation, extracellular matrix remodeling, angiogenesis, and tissue repair among other functions. In context of lung diseases, platelet concentrates (particularly platelet- rich plasma [PRP]) can reduce alveolar as well as systemic inflammation, thereby preventing progressionof the infection.PRPhasbeen shownto decrease the expression and production of pro-inflammatory cytokines, improve blood supply, enhance pulmonary oxygenation, reduce fibrosis, among other effects, all of which aid in regeneration of cells and tissues in lung diseases.

Lyophilization of PRP is a consistent method for product standardization andfabrication of an off-the-shelf product with improved stability, which is ready for future uses. In this presentation, I will explain the advantages of PRP in pulmonary regeneration and highlight the advantages of lyophilized PRP in the management of various lung disorders including COVID-19.

## Biography:

Dr. Mahajan completed his masters in General Surgery from Marathwada University, Maharashtra and went on to pursue Diploma in Urology at the University of Vienna, Austria. In acareer changing move, after threedecades of being asuccessfulgeneraland uro-surgeon, he started his brainchild - StemRx Bioscience Solutions Pvt. Ltd. in the year 2011. This was to focus on in-depth research in the field of Regenerative Medicine and Cell Based Therapy which he believes is the solution to address the limitations of conventional therapeutic modalities. To this effect, he underwent and continues to undergo intensive training in the United States. He has devised personalized treatment protocols in cell-based therapy for more than 75 health conditions.

Dr. Mahajan has published 16 research articles in international and national journals.He has a patent for Avascular Necrosis and is on the board for reviewing scholarly articles for various international journals. Dr. Mahajan has received many international awards for his pioneering research work in regenerative medicine.