

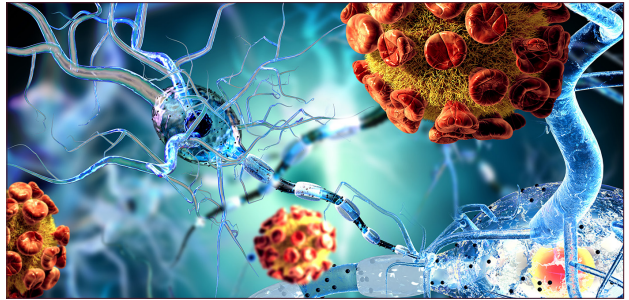
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# Scientific Tracks & Sessions

## March 18, 2022

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### *Neuroscience 2022*



7<sup>th</sup> International Conference on  
Neuroscience and Neurological Disorders

March 18-19, 2022 | Webinar

## The Role of Mef2c Transcription Factor in the Development of Medium Spiny Neurons in the Mouse Striatum

**Heba Ali**

Cardiff University, UK

**Introduction:** we have shown the transcription factor myocyte enhancer factor (Mef2c) to be significantly upregulated in the striatum over a period encompassing peak generation of medium spiny neurons (MSNs). Here we present data that suggest a significant functional role of Mef2c in the maturation and survival of matrix MSNs in the mouse striatum. MSNs constitute more than 90 percent of neurons in the mouse striatum, and are the neurons predominantly degenerating in Huntington's disease.

**Methods:** Using the Gsx2-cre-loxp recombination system, the Mef2c gene was specifically deleted in the striatum to generate Gsx2-CreMef2c<sup>-/-</sup> mice. Proliferation assay using BrdU and Edu, motor behavioural testing, Golgi-cox based tracing of dendrites and dendritic spines development, RT qPCR, cell culture, TUNEL assay and stereological quantification of striatal volume and striatal cell counts for NeuN, and MSNs markers (Foxp1 and Darpp-32) were all used in a developmental series between P2 to 12 months.

**Results:** Mef2c expression in WT striatum peaks at postnatal

day 0, a period critical for the maturation of matrix MSNs. Histological analysis revealed a significant reduction in the striatal volume. Also, total numbers of cells staining for NeuN, FoxP1 and Darpp-32, in Gsx2-Cre Mef2c<sup>-/-</sup> were reduced compared with wt mice. Furthermore, CKO mice exhibit significant motor function impairments and anatomical changes in dendrites development. A cell death assay revealed a mild, yet significant, increase in apoptotic cells at postnatal day 0.

**Conclusions:** Our results suggest that Mef2c has a significant role in the normal maturation and survival of MSNs. Further experiments are ongoing to explore the extent to which this is specific to matrix MSNs and the mechanisms underlying these findings.

### Speaker Biography

Heba Ali is a PhD student of Cardiff University, Cardiff, Wales, United Kingdom under the division of the Institute of Psychological Medicine and Clinical Neurosciences.

e: aliHA1@cardiff.ac.uk



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# Neuroscience and Neurological Disorders

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## **Anxiety and Cognitive Impairment: A Theoretical model of the connections between the Pre-Frontal Cortex, the Amygdala and the Hippocampus in the model**

**Gary Sinoff**

University of Haifa, Israel

Anxiety is widely recognized as probably the most common mood disorder in the elderly, with a prevalence ranging from 10% to 20%, a prevalence greater than for depression. During the last years, the interaction between neuropsychiatric syndromes, anxiety and depression, and cognition has been widely researched in view of the fact that these symptoms have been reported not only to accompany memory loss especially in the early stages of cognitive decline but also possible predictors of future cognitive decline. The debate is intensified by studies showing that in both anxiety and depression, and not only in cognitive decline have shown neuroanatomical changes in the brain: increase in A $\beta$  in the amygdala as well as in the hippocampus, atrophy of hippocampus and amygdala, neurofibrillary tangles, APOE $\epsilon$ 4 carriers. Since cognitive decline now has become a major burden to society, if one could delay the decline by initiating treatment as early as possible, the savings, for both the individual and society, would be significant. Anxiety is inter-related and inseparable with loss of memory and has sometimes been shown to be a predictor for future cognitive decline. Theoretically, this may be explained by Braak and

Braak's staging with changes initially in the entorhinal cortex, spreading to the hippocampus and amygdala and finally to the cortex. This theoretical model helps understand the interaction between anxiety in the elderly and cognitive decline.

### **Speaker Biography**

Gary Sinoff completed his MD degree at Witwatersrand University in South Africa, and then MA and PhD at Haifa University, Israel. He completed his specialization in Family Medicine in 1985 and in Geriatric Medicine in 1997. He was appointed deputy director of Geriatric Department and director of the Cognitive Clinic at Carmel Medical Center in Haifa from 1998. His area of research has included the study of anxiety in the elderly and its interaction with depression and cognitive decline, publishing many articles in these fields. Prof. Sinoff is a member of the Geriatric Society of Israel and Israel Gerontology Society for many years, having served on the board of both societies. He was initially a lecturer in Geriatric Medicine from 2001 and appointed Assistant Professor of Medicine in The Technion- Israel Institute of Technology in 2011. He also was appointed a lecturer in Gerontology from 2004 and appointed senior lecturer in Department of Gerontology in the Faculty of Social Welfare and Health Sciences at University of Haifa since 2012.

e: [gsinoff@gmail.com](mailto:gsinoff@gmail.com)

# Neuroscience and Neurological Disorders

March 18-19, 2022 | Webinar

## Magnets in Hospital as Healing Device - Suggestions

**Florent Pirot**

Independent researcher, France

Hospitals may buy magnets that could be used to accelerate the excretion of alpha emitting nanoparticulates through e.g. later syringue taking through the blood vessels, or urinating. This strategy will foster the healing of neurological impairments together with natural walking activities and possibly other forms of reeducation. The combination of that strategy with the transfer of the excretates in a Triga-like subcritical nuclear power system will have added benefits. Magnetic particles will not produce similar effects. The body's natural flow should never be counterveined. Magnet power should be set low at the beginning (except for emergencies) and be increased gradually. This could possibly also be used for ischemic accidents in the brain in direct intervention by emergency services. Soviet physiotherapists actively used magnetic fields to restore a patient after surgery. Such therapy could help accelerate blood flow in the needed

places, positively affect blot clotting and blood vessels. Also, such devices were used in the treatment of varicose veins, swelling in the legs. it is clear that in the late Soviet Union after the 1986 Chernobyl accident an early version was attempted in combination with amputation of the area in which the alpha emitters were accumulated for final plutogenization with the flesh as moderator to feed the Polious space missile (that detonated in its take off). Positively affect blood clotting: indeed as this Soviet system pushed the alpha emitters in blood clots. For later amputation.

### Speaker Biography

Florent Pirot is a multidisciplinary researcher with Einstein Syndrome and specialties in geophysics, nuclear physics, astrophysics as well as biology and health. He got his graduate in economics and political sciences (Sciences Po Lille, College of Europe and CAPES in economics and sociology).

e: florent.pirot@orange.fr

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# Neuroscience and Neurological Disorders

March 18-19, 2022 | Webinar

## Advances in Autoimmune Encephalitis

**Raghav Kapoor**

Max Super Speciality Hospital, India

**A**utoimmune encephalitis is an emerging and unique clinical entity that causes severe neuropsychiatric symptoms and results in significant morbidity and mortality. Many patients with autoimmune encephalitis are first seen by psychiatrists because of the frequent onset of the disease with psychiatric symptoms such as agitation, hallucinations, delusions, or depressed mood. Once the disease progresses, patients typically develop additional neurological symptoms, such as movement disorders, epileptic seizures, autonomic dysfunction, and cognitive deficits.

Because it can present with a wide variety of neurologic and psychiatric manifestations, often indistinguishable from other more common neuropsychiatric syndromes, that cause behavioral disturbance, it can often be a very challenging diagnosis for clinicians to make and can be mistaken for a mental health disorder or drug abuse. At the same time, early diagnosis is important to avoid serious complications. A cross section observational is being conducted at Max Super

Speciality hospital, Saket, New Delhi. The study includes 38 diagnosed cases of Autoimmune Encephalitis as well as newly diagnosed cases, presenting to the hospital. Following an informed consent, each patient's demographics, clinical data and radiological and lab parameters are being recorded. Outcome to supportive treatment and immunotherapy including ivig and rituximab for refractory cases is being assessed and categorized according the modified Rankin Scale (mrs). The results of the study will be compared to various studies conducted earlier in India and in other countries.

### Speaker Biography

Raghav Kapoor has completed his MBBS from UCMS, New Delhi, India. He later did his post-graduation in internal medicine when he developed an interest in neurosciences. He is currently a super speciality resident in Neurology at Max Super Speciality Hospital, Saket, and New Delhi. With many publications under his name, he is currently working on Autoimmune Encephalitis.

e: raghavsmart07@gmail.com

# Neuroscience and Neurological Disorders

March 18-19, 2022 | Webinar

## Mental Health status of divorcees from different cultural backgrounds in Kathmandu

**Nabin Prasad Joshi**

Founder CEO of PICS NEPAL, Nepal

**D**ivorcees have different psychological impacts because of their different caste/ethnicity, gender and socio-cultural backgrounds. This study is about cultural psychological factors of divorce and its different psychological impacts on different cultural groups. This research is designed in the mixed method research to understand the "Mental Health Status of Divorcees from Different Cultural Backgrounds in Kathmandu". The total number of participants was 48 and was selected by the purposive sampling lead by snowball methods. The qualitative data is analyzed through narrative techniques. Among the total population, it is found that the psychological issues are significantly higher among females than males. The prevalence of stress, anxiety and depression is higher in less educated females in comparison to highly educated females. Similarly, it has been found that differences in cultural practices including

language, food, festivals, and family role lead to divorce. Data show that one-third of the informants have a severe level of anxiety and depression respectively after they had divorced but nearly fifty per cent.

### Speaker Biography

Nabin Prasad Joshi who had completed master degree in Counseling Psychology in 2020 has been lecturing at Tribhuvan University and working as a founder CEO of PICS NEPAL (Psychotherapy and Integrated Counseling Services Nepal) a non-profit organization. He is equally contributing his effort in the field of mental health research. In the beginning, he had struggled a lot to handle all three jobs, however, his dedication, passion, and interest in the respected field have had helped him to made it comfortable. His main approach of doing counseling is holistic, whereas his main area of expertise is in solution focused brief therapy and behavior therapy. Above that he is highly aspiring research scholar who loves to share his knowledge to everyone and every corner of the world.

e: [nabin.joshi@cpp.tu.edu.np](mailto:nabin.joshi@cpp.tu.edu.np)

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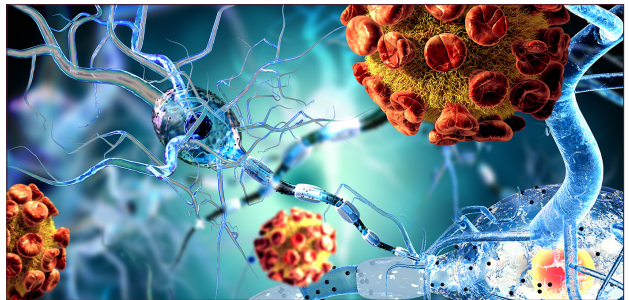
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# Scientific Tracks & Sessions

## March 19, 2022

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### *Neuroscience 2022*



7<sup>th</sup> International Conference on  
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March 18-19, 2022 | Webinar



## Immunomodulatory Imide Drugs (IMiDs): Therapeutic strategies for Neurological Disorders targeting Neuroinflammation

**Dong Seok Kim**

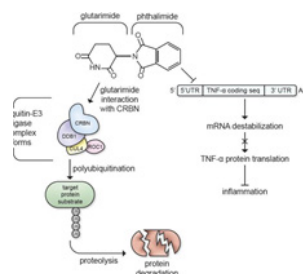
AevisBio, Inc., ROK & USA

**Statement of the Problem:** Neurological disorders are the second leading cause of death in the elderly population worldwide (WHO, 2001; GBD 2016 Neurology Collaborators, 2019). However, there remains an immense unmet medical need in the availability of effective drug treatments for most neurological disorders. For neurodegenerative diseases such as Parkinson's disease (PD) and Alzheimer's disease (AD), drugs that can prevent, slow, or cure the disease have yet to be found.

**Methodology & Theoretical Orientation:** Neuroinflammation represents a common trait in the pathology and progression of numerous neurological disorders, including neurodegenerative diseases and brain injuries. Immunomodulatory imide drugs (IMiDs) are analogs of the drug thalidomide that possess pleiotropic biological actions through cereblon, an E3 ligase, and/or independently of cereblon interaction. These comprise of anti-proliferative, anti-angiogenic, immune-modulatory and, in particular, potent anti-inflammatory effects. Based on the pivotal role of neuroinflammation in neurological disorders, the therapeutic potential of IMiDs was evaluated in a series of disease models.

**Findings:** Several novel IMiDs including 3,5'-dithiopomalidomide (DP) with in vivo anti-inflammatory actions showed a promising therapeutic potential in traumatic brain injury models and other neurodegenerative animal models including AD and PD.

**Conclusion & Significance:** Animal studies with IMiDs support that neuroinflammation is a promising therapeutic target of neurological disorders and these drugs warrant evaluation in additional disease models and further development for clinical studies.



Immunomodulatory imide drugs interactions with cereblon (CRBN) and TNF- $\alpha$  mRNA. IMiDs destabilize the 3'-untranslated region (3'-UTR) of TNF- $\alpha$  mRNA, inhibiting TNF- $\alpha$  protein synthesis and inhibiting inflammatory pathways. The glutarimide moiety of the thalidomide backbone catalyzes E3 ubiquitin ligase complex formation, modifying target proteins for proteolysis. (Jung YJ, et al., 2021)

### Speaker Biography

Dong Seok Kim is the founder and CEO of AevisBio, Inc., a biotech focusing on targeted protein degradation (TPD) system. He has his expertise in ubiquitin-mediated protein degradation system and inflammation that is the basis of the drug development strategy of AevisBio, Inc. He has identified a novel series of Immunomodulatory imide drugs (IMiDs), exhibit multiple biological effects providing diverse drug development platforms. Several IMiDs are under investigation in diverse disease models including cancer and neurological disorders and in preparation for clinical studies.

e: [dskim@aevisbio.com](mailto:dskim@aevisbio.com)



## Reducing painfulness and labor intensity and increasing accuracy of tests in Needle Electromyography

**Alexander Kharibegashvili**

Telavi State University, Georgia

**Statement of the problem:** Needle electromyography (EMG) has a significant role in the diagnostics of neuromuscular diseases. The drawback of this research is that it is a painful, lengthy, traumatic procedure for the patient and a difficult and laborious one for the doctor. Routine electromyography takes 0.5-1 hours during which the electromyographer constantly moves the needle electrode to and forth in order to obtain optimal location against the motor unit fibers. As a result, the procedure causes persistent pain to the patient and is labor-intensive for the physician. This is particularly true for single fiber electromyography. This test requires proficiency of the electromyographer (manipulating with the electrodes within tenth of millimeters) and collaboration from the patient. Even an electromyographer highly experienced in this methodology needs from one to several hours to conduct the test. The purpose of this study is to Reducing of needle EMG test Painfulness and Labor Intensity, increasing accuracy of tests.

**Methodology & Theoretical Orientation:** A new type of needle electrode has been developed by us – a telescopic electrode, acknowledged as an invention by the state. It represents a hollow needle with lengthwise groove in which the dielectric rod is located with a microelectrode affixed on it. Result: During the test the hollow needle is immobile inside the muscle; only the dielectric rod is moved, thus sharply reducing the painfulness of the process. A needle electrode may be connected to a micro screw, micro electromotor and be equipped with relevant software, which significantly reduces labor-intensity of

the routine needle electromyography and single fiber electromyography in particular. Accuracy of the test has greatly increased – measuring the transverse dimension of fibers of separate muscles has become possible. New parameters for assessment of functional state of neuromuscular system are proposed.

**Conclusion & Significance:** The significant reduction in pain may allow the use of needle electromyography among pediatric patients too.

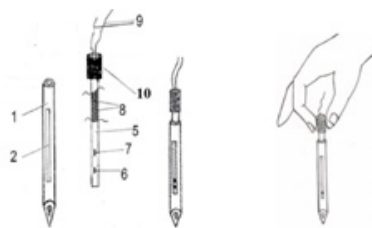


Fig.1 , 1 - hollow needle, 2 - lengthwise groove, 5 - dielectric rod, 6, 7 - microelectrodes, 8 - insulated electrical conductors-wires connected with microelectrodes, 9 - wires connected with wires 8, 10 - handle

### Speaker Biography

Alexander Kharibegashvili Graduated from Tbilisi State Medical University. He completed clinical residency in epilepsy at the Institute of Clinical and Experimental Neurology of Tbilisi and an internship in electromyography at the Second Moscow State Medical Institute. Works in the Telavi Regional Hospital as a neurologist.

e: [unitelavi@rambler.ru](mailto:unitelavi@rambler.ru)

## Psychoeducation as part of the implemented national guidelines – a new standard to the prevention of Depression Relapses

**Dagmar Breznoscakova**

University of P. J. Safarik Kosice, Slovakia

**Statement of the Problem:** Emerging issues in the management of depression comprise nonadherence to treatment and treatment failures, depression recurrence and relapses, misidentification of incoming exacerbated phase and consequently, a chronification. The study sought to evaluate the impact of psychoeducation as part of the implemented national guidelines for treatment of depression on the course of depressive disorders in adults with depression on standard psychopharmacological treatment.

**Methodology & Theoretical Orientation:** This was a nonrandomized comparative study of 96 adults diagnosed with depression of moderate or severe degree without manifested psychotic symptoms who were assigned to the intervention based on a modified Munoz's programme of depression prevention (n=49) or control (n=47) and were followed prospectively. Psychoeducational programme in this study was administered as part of the national guidelines for treatment of depression that have been implemented in clinical practice.

**Findings:** There was no significant difference between experimental and control group in scores of the Beck anxiety inventory scale, Zung's depression questionnaire and Montgomery and Åsberg depression rating scale at six months follow-up. In the experimental group, we found lower rates of re-hospitalisation within 1 year (2.1% vs. 16.7%;  $p < 0.001$ ), rehospitalisation after 1 year (6.3% vs. 25%;  $p < 0.001$ ), lower rates of sickness absence (11.5% vs. 29.2%;  $p < 0.001$ ) and less

subjects who discontinued treatment early (6.3% vs. 28.1%;  $p < 0.001$ ).

**Conclusion & Significance:** The psychoeducation within the implemented national guidelines significantly contributes to the increased quality of life of patients with depression in terms of reducing number of relapses, sickness absence and lowering the risk of early discontinuation of treatment. The findings implicate that psychoeducation should be a standard part of the management of depression that offers a new approach to the prevention of depression relapses.

### Speaker Biography

Dagmar Breznoscakova, is a psychiatrist, psychotherapist, researcher, forensic expert in psychiatry. Since 2016 has been the Vice-president of Slovak Psychiatric Association and CPT member Council of Europe in respect of Slovak Republic. Since 2012 she has been the chairwoman of the Section of Psychopharmacology Slovak Psychiatric Association, Slovak Medical Association. She also lectures and publishes in her field, focusing on affective and anxiety disorders, particularly bipolar disorder, comorbidity of mental disorders and psychosomatic connections. She is a co-author of several chapters in foreign as well as domestic publications, author of psychoeducational handbooks for patients and their relatives; all in all over 150 publication outputs. She holds prizes for the best original work for the journal Psychiatry practice and figures in the biographical encyclopedia Slovak personalities republiky "Who is who". She organizes and actively participates in various psychoeducational and anti-stigma activities and is the chairwoman of ROZ ODOS Košice o. z., joining together patients, their relatives, professionals as well as the general public or supporters.

e: dagmar.breznoscakova@upjs.sk



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## The Autism Neurological Disorders Caused by Food Allergy

Aderbal Sabra

Santa Casa da Misericordia, Brazil

**Statement of the problem:** It was observed by our studies that autism often establishes itself as a disease in normal patients with adequate psychomotor development and without previous neurological conditions, but with FA preceding the neurological deficits. Primary inflammation and infections of the CNS cause inflammation in neurons and have the potential to make the CNS the “homing” site or target organ, attracting the circulating lymphocytes and immunoglobulins involved in the process of FA. The clinical manifestations of FA in the CNS may, therefore, cause the individual to present within the autism spectrum disorder, clinically varying according to the affected area and the extent of allergic aggression towards this system.

**Material and Methods:** We included in this study 132 patients with previous diagnosis of ASD, attended at our unit of outpatient clinic of Food Allergy and Autism at Santa Casa da Misericordia do Rio de Janeiro. The diagnosis of FA was made through the score obtained from the anamnesis of each patient. The inflammation of the CNS and glutamate as a neurotransmitter in the brain was detected by studies with MR with spectroscopy and diffusion. We collect information by reviewing the medical records, characterizing this study as a retrospective cross-sectional study. The Ethics and Research Committee approved this research project under number CAAE 66813917.0.0000.5283. The Free and Informed Consent Term is in accordance with resolution number 466 of December 12, 2012, of National Health Council, on research involving human beings.

**Findings:** The presence of neurons with inflammation in the CNS in patients with FA favors homing of the immune disturbance to local neurons. This causes neurological disorders favoring the development of autism secondary to food allergy. These mechanisms include multilevel pathways in the gut–brain axis contributing to alterations in behavior and cognition. Recent studies have shown that pathogenetic factors and pathophysiological mechanisms can link ASD and GI disturbances through intestinal inflammation and dysregulation of the gut microbiome.

**Conclusion:** We hypothesized that FA is one of the foregoing factors in patients who develop ASD, if they suffer from inflammation of the central nervous system (CNS). This inflammatory injury may turn neurons the target organ or the FA homing site once the brain-gut connection is established by different mechanisms.

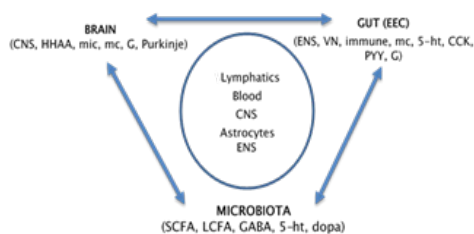


Figure: The brain-gut-microbiome axis

BRAIN: CNS- central nervous system; HHAA- hypothalamus-hypophysis-adrenal-axis; mic- microglia; mc- mast cell; G- glutamate; Purkinje. GUT: ENS- enteric nervous system; VN- vagal nerve; immune- immune system; mc- microglia; 5-ht- serotonin. EEC- enteroendocrine cells: CCK- cholecystokinin; PYY- peptide YY. MICROBIOTA: SCFA- short chain fatty acid; LCFA- long chain fatty acid; GABA- gamma amino butyric acid; 5-ht- serotonin; dopa- dopamine.

### Speaker Biography

Aderbal Sabra is a member of the Brazilian Academy of Medicine. He is the professor of Pediatric Gastroenterology, Food Allergy, and Autism at Santa Casa da Misericordia do Rio de Janeiro, Brazil. He is the author of the book Food Allergy, which is currently in its Fourth Edition. In the past five years, his primary research efforts and publications were related to the association of autism neurological disorders caused by food allergy.

e: [aderbalsabra@lwmail.com.br](mailto:aderbalsabra@lwmail.com.br)