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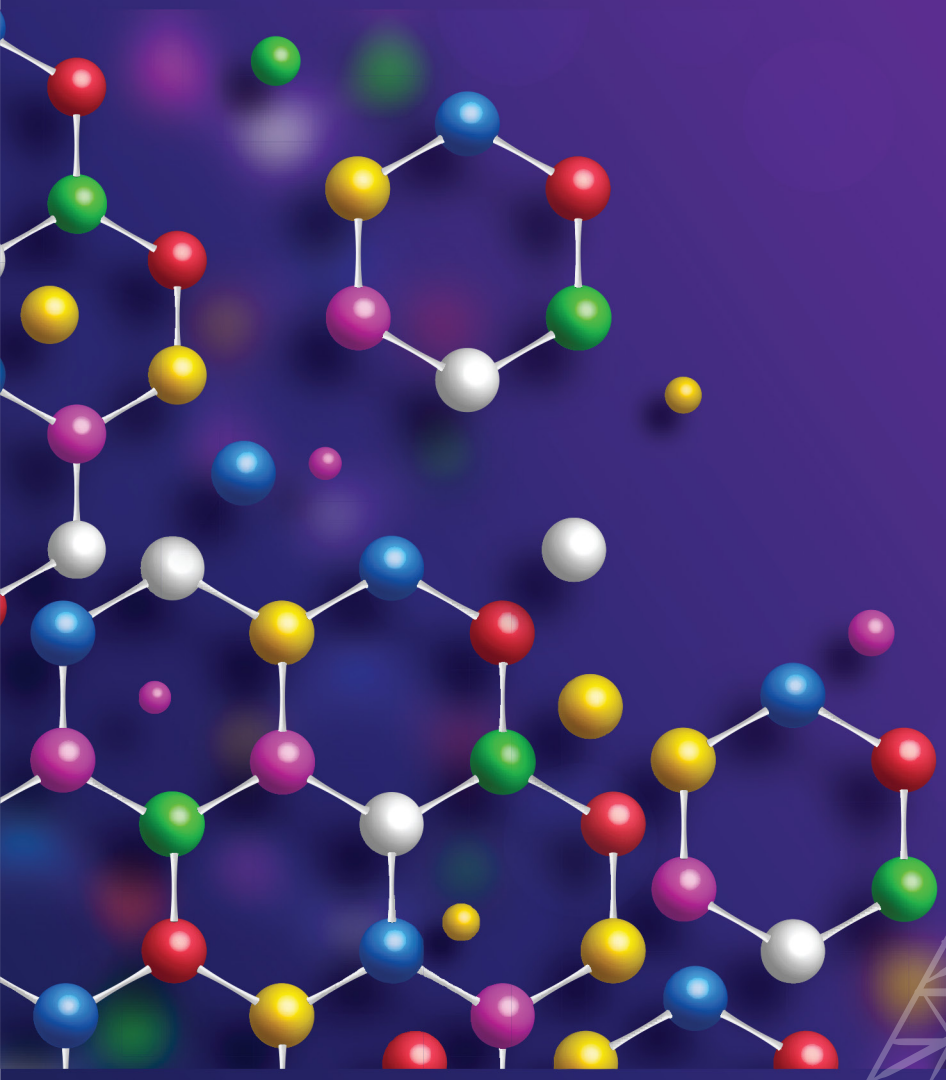
4th Euro-Global Summit on

FUTURE OF BIOLOGICS AND BIOSIMILARS

November 06-07, 2023 | Paris, France



BioL-BioS 2023

PEERS ALLEY MEDIA

A CONFLUENCE OF ERUDITE & KNOWLEDGE-SEEKER

PROGRAM-AT-A-GLANCE

BIOL-BIOS 2023

DAY 1
NOVEMBER 06, 2023

Scientific Program

08:00-08:55	**Registrations**
08:55-09:10	**Opening Ceremony**

Moderator: Martine Culty, *University of Southern California, USA*

Topics: Pharmaceutical Chemistry | Biosimilars and Biologics | Computer Aided Drug Design | Digital Health | Drug Delivery Systems for Biologics and Biosimilars | Globalization of Biosimilars | Drugs and Drug Targets | Biosimilars in Hematology and Oncology | Current Challenges in Developing Biosimilars | Intellectual Property Rights | Regulatory Updates on Biosimilars | Vaccines and Immunotherapies | Precision Medicine | Artificial Intelligence and Machine Learning in Drug Discovery and Development

Distinguished Speaker Talks

Session Chair: Denis Rontein, *Laboratoire D'analyse Des Huiles Naturelles, France*

09:10-09:30	**Title: Proteomics approaches in discovery of potential enzymatic biomarkers for early diagnosis of breast cancer** **Zoran Minic,** *University of Ottawa, Canada*
09:30-09:50	**Title: Continuous operation of depth filters in bioprocessing** **Nicholas Marchand,** *Cytiva, USA*
09:50:10:10	**Title: Is early exposure to acetaminophen and NSAIDs safe for the male reproductive system?** **Martine Culty,** *University of Southern California, USA*
10:10-10:30	**Title: Production of natural (E)-(R)-4-thujanol, in a crystal helix structure** **Denis Rontein,** *Laboratoire D'analyse Des Huiles Naturelles, France*

Group Photo 10:30-10:40

Refreshment Break 10:40-10:55

10:55-11:15	**Title: Arginine in arterial vs venous blood in lung inflammation** **Slobodan Tepic,** *Hepius Biotech AG, Switzerland*

11:15-11:35	**Title: Gait improvement of parkinsonian gait disturbances with wearable cyborg HAL trunk unit** **A. Uehara,** *University of Tsukuba, Japan*
11:35-11:55	**Title: LED photobiomodulation on 940 nm: series of studies** **Dayla Thyeme Higashi,** *Maringá State University, Brazil*
11:55-12:15	**Title: Plant-based health supplement for reducing serum glucose** **Chee Woon Wang,** *MAHSA University, Malaysia*
12:15-12:35	**Title: PEG-fDAO reduces lung inflammation in a mouse model of CGD-Possible enzyme replacement therapy for CGD** **Hideaki Nakamura,** *Sojo University, Japan* **&** **Hiroyuki Nunoi,** *University of Miyazaki, Japan*
12:35-12:55	**Title: Use of Orthobiologics in combination with chemical agents to improve quality of life of patients. Awaiting optimization or unfit lower limb arthroplasty or participating in shoulder rehabilitation program.** **Mujeeb Ashraf,** *King Fahd Armed Forces Hospital Jeddah, Saudi Arabia*
Lunch Break 12:55-13:30	
Session Chair: Wanida Jinsart, *Chulalongkorn University, Thailand*	
13:30-13:50	**Title: Visually exploring beyond three dimensions** **Youngjoo Kim,** *University of Groningen, The Netherlands*
13:50-14:10	**Title: Dark matter implications of the neutron anomaly** **Leonardo Darini,** *University of Pisa, Italy*
14:10-14:30	**Title: Post CABG CT-Angio as a tool for assessing graft orientation and patency in pedicled bilateral internal thoracic artery grafts in young patients** **Ashok Bandyopadhyay,** *Peerless Hospital & B.K. Roy Research Centre, India*
14:30-14:50	**Title: Antibacterial activity of green synthesized triangular ZnO nanoparticles using *Azadirachta indica* leaf extract: Joint experimental and theoretical approach** **Debesh Ranjan Roy,** *S. V. National Institute of Technology, India*
14:50-15:10	**Title: Designing & commercialization of affordable chemically defined serum free media and feed for high value Biosimilar manufacture** **Vishal G. Warke,** *HiMedia Laboratories Pvt. Ltd, India*

15:10-15:30	**Title: Occupational exposure of volatile organic compounds and fine particulate matter in the press factory and health risk management** **Wanida Jinsart,** *Chulalongkorn University, Thailand*
15:30-15:50	**Title: Effect of *Solanum lycopersicum and Citrus limon* derived exosome like vesicles on chondrogenic differentiation of adipose derived stem cells** **Merve Yıldırım Canpolat,** *Yeditepe University, Turkey*
Refreshment Break 15:50-16:05	
16:05-16:25	**Title: Biological activity of some thiazolyl-thiadiazines as BACE1 inhibitors for Alzheimer's disease in the light of DFT based quantum descriptors: Development of novel therapeutics** **Sutapa Mondal Roy,** *Sir P. T. Sarvajanik College of Science, India*
16:25-16:45	**Title: Downregulation of NT5C3 gene expressions by elastin-like polypeptide-gemcitabine conjugate for ovarian cancer therapy** **M. J. N. Chandrasekar,** *JSS Academy of Higher Education and Research, India*
16:45-17:05	**Title: Towards acute pain assessment index during anesthesia from salient features of EEG signals using artificial intelligence** **M. N. Nashid Rahman,** *National Electro-Medical Equipment Maintenance Workshop & Training Center, Bangladesh*
17:05-17:25	**Title: Towards acute pain assessment index during anesthesia from salient features of EEG signals using artificial intelligence** **Md. Asadur Rahman,** *Military Institute of Science and Technology, Bangladesh*
17:25-17:45	**Title: Towards acute pain assessment index during anesthesia from salient features of EEG signals using artificial intelligence** **Rubaiyat Rashid,** *National Heart Foundation Hospital & Research Institute, Bangladesh*
17:45-18:05	**Title: Loneliness is more than being alone** **Hacer Nermin ÇELEN,** *Atlas University, Turkey*
Panel Discussion	
End of Day 1	

DAY 2
NOVEMBER 07, 2023

Scientific Program

09:00-09:10 **Introduction**

Moderator: Nicholas Marchand, *Cytiva, USA*

Topics: Pharmaceutical Chemistry| Biosimilars and Biologics | Computer Aided Drug Design | Digital Health | Drug Delivery Systems for Biologics and Biosimilars | Globalization of Biosimilars | Drugs and Drug Targets | Biosimilars in Hematology and Oncology | Current Challenges in Developing Biosimilars | Intellectual Property Rights | Regulatory Updates on Biosimilars | Vaccines and Immunotherapies | Precision Medicine | Artificial Intelligence and Machine Learning in Drug Discovery and Development

Distinguished Speaker Talks

Session Chair: Zoran Minic, *University of Ottawa, Canada*

09:10-09:30
Title: Colombian initiative on neutron radiation for biophysical applications
J. Alfonso Leyva, *Pontificia Universidad Javeriana, Colombia*

09:30-09:50
Title: Challenges in the implementation of internet of things projects and actions to overcome them
Deivison Feitosa, *UNINOVE, Brazil*

09:50-10:10
Title: Management of barriers in adopting machine learning and artificial intelligence in pharmaceutical supply chain post-COVID-19
Eli Sumarliah, *Al-Ihya Islamic University, Indonesia*

10:10-10:30
Title: Incidence and risk factors of abdominal compartment syndrome in pediatric oncology patients: A prospective cohort study
Gabriela Cerqueira Caldas Pinto, *AC Camargo Cancer Center, Brazil*

Group Photo 10:30-10:40

Refreshment Break 10:40-10:55

10:55-11:15
Title: ARHGAP15 promotes metastatic colonization in gastric cancer by suppressing RAC1-ROS pathway
Chen Jiang, *Sun Yat-sen University Cancer Center, China*

11:15-11:35	**Title: Technical evaluation and optimization of the use of sediments extracted from the Koudiat Medouar dam for construction and public works projects** **Ali Fourar and Benaicha Amar Cherif,** *Université de Batna2, Algérie*
11:35-11:55	**Title: Deep learning enabled video steganography for macro block selection Tasmanian Devil Sail Fish optimization** **Surendra Bhosale,** *Veermata Jijabai Technological Institute, India*
11:55-12:15	**Title: Association of developmental milestones with vitamin B12 and folate status among hospitalized severe acute malnutrition children at a tertiary care center in North India** **Ganesh K. Verma,** *Uttar Pradesh University of Medical Sciences, India*
12:15-12:35	**Title: The potential utilization of waste cooking oils in microbial citric acid production** **Bilge SAYIN BÖREKÇİ,** *Ardahan University, Turkey*
12:35-12:55	**Title: The first reported case of embolic protection device implantation in a patient with prosthetic valve thrombosis treated with thrombolytic therapy: A case report** **Damirbek Osmonov,** *Bicard Clinic, Kyrgyzstan*
Lunch Break 12:55-13:30	
13:30-13:50	**Title: The role of bioactive compounds in alleviating citrus bitterness** **Çağla Özbek,** *Toros University, Turkey*
13:50-14:10	**Title: A cost-effective transperineal prostate biopsy method utilizes the original transrectal setting** **Richard C. Wu,** *E-Da Hospital, Taiwan*
14:10-14:30	**Title: Study of clinical and biochemical profile in children affected with thalassemia and assessment of their growth, endocrine and cardiac functions in relation with serum ferritin level** **Shashindra Bhannariya,** *District Hospital Sehore, India*
14:30-14:50	**Title: Investigation of the effect of Ruscus Aculeate alkaloid extract on HTLV-1 infected cancer cells** **Arzoo Baghban,** *Mashhad Azad University, Iran*

14:50-15:10	**Title: Forecasting the effects of climate change and land use on groundwater resources and providing solutions to deal with them (case study of the Hashtgerd plain)** **Abolfazl Hanifehlou,** *Islamic Azad University, Iran*
15:10-15:30	**Title: Biological reconstruction of posteromedial Tibial Defect with Autogenous Bone Graft in Complex Knee Arthroplasty** **Irfan Rajput,** *Dow University of Health Sciences Karachi, Pakistan*
15:30-15:50	**Title: Purification and characterisation of a novel thrombin inhibitor from *Moringa oleifera: Potential for alternative medicine*** **Sawetaji,** *University School of Biotechnology, India*
Refreshment Break 15:50-16:05	
16:05-16:25	**Title: A low thermal conductivity of light weight laterite-cement composites with cotton wastes fibres** **KAMGA SAMEN Liliane Van Essa,** *Local Materials Promotion Authority (MIPROMALO), Cameroon*
16:25-16:45	**Title: Safety signals of albumin-bound paclitaxel: Data mining of the Food and Drug Administration adverse event reporting system** **Xiao Liu,** *The Fifth People's Hospital of Chongqing, China*
16:45-17:05	**Title: Evaluating Self-Healing Concrete with Crystalline Admixture and Metakaolin Integration** **C. Sashidhar,** *JNTUA, India*
17:05-17:25	**Title: Phytochemistry and biological activities of selected medicinal plants used in Algerian traditional medicine: Potential use in human medicine** **Djebbar Atmani,** *University of Bejaia, Algeria*
17:25-17:45	**Title: Suppressing notch wear by changing the tool path in the side milling of a Ti-6Al-4V alloy** **Rodrigo Henriques Lopes da Silva,** *Federal Technological University of Paraná, Brazil*
17:45-18:05	**Title: Kinetics of alcohol ethoxylation reaction taking into account the influence of the association** **B.Ya. Stul,** *Research University Syntez, Russia*

18:05-18:25	**Title: Transformation of immunosuppressive mtKRAS tumors into immunostimulatory tumors by Nerofe and Doxorubicin** **Yoram Devary,** *Immune System Key (ISK) Ltd., Israel*
18:25-18:45	**Title: A network pharmacology-based treatment analysis of Luteolin for regulating Pyroptosis in acute lung injury** **Xiaowei Yuan,** *University of Shanghai for Science and Technology, China* **&** **Danying Zhang,** *Shanghai Changzheng Hospital, China*

Panel Discussion

End of Day 2 & Conference

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SCIENTIFIC ABSTRACTS

DAY 1

4th Euro-Global Summit on

Future of Biologics and Biosimilars

November 06-07, 2023 | Paris, France

BIOL-BIOS 2023 & ADV. MED CHEM 2023

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

Proteomics approaches in discovery of potential enzymatic biomarkers for early diagnosis of breast cancer

Zoran Minic[1], Yingxi Li[1,2], Nico Hüttmann[1,2], Suttinee Poolsup[1,2], Rochelle D'Mello[1,2] and **Maxim V. Berezovski[1,2]**

[1]John L. Holmes Mass Spectrometry Facility, Faculty of Science, University of Ottawa, Canada
[2]Department of Chemistry and Biomolecular Sciences, University of Ottawa, Canada

Breast cancer (BC) is one of the leading causes of death in Canadian women, with an average survival rate of 5 years after diagnosis. Early detection of BC can greatly improve patient outcomes and survival. However, a non-invasive BC detection method is not contemporarily available in clinics. Recent studies suggest that proteins in small extracellular vesicles (sEVs) could be promising biomarkers for non-invasive early-stage BC diagnosis. sEVs are membrane-enclosed vesicles secreted by cells, which drive different stages of carcinogenesis in BC. For proteomics analyses, sEVs were derived from different metastatic BC cell lines and a non-cancerous epithelial breast cell line. The results were generated from three proteomics approaches: quantitative proteomics, phosphoproteomics, and protein acetylation analysis. Enzymes with high abundances in cancerous cell lines were extracted from the quantitative proteomic data. Similarly, phosphorylated and acetylated enzymes present only in the cancer cell lines were extracted. Among these approaches, we proposed a list of enzymes, including their metabolic pathways, that can be explored as potential BC biomarkers. Some of these phosphorylated and acetylated enzymes were validated, showing higher specific enzymatic activity in sEVs isolated from MCF7 (estrogen and progesterone receptor-positive, metastatic) and MDA-MB-231 (triple-negative, highly metastatic) when compared to MCF10A (non-metastatic) cell lines. Future validation of enzymes using both cancer cell lines and blood from BC patients remains to be determined.

Biography

Zoran Minic received his Ph.D. degree at the Université de Paris 11, France, in 1998 and his Habilitation (HDR) at the Université de Paris 7, in 2004. He worked as a research associate at the Université de Pierre et Marie Curie (Paris, France) and at the Institut National de la Recherche Agronomique (Versailles, France). After relocating to Canada in 2007, he initially worked as a professional research associate at the University of Saskatchewan. From 2013-2017, at the University of Regina, he worked as a Facility Manager responsible for the high-throughput proteomics platform. Since 2017, Dr. Minic has been working as a core facility manager in the biological JHMS Facility at the University of Ottawa. Dr. Minic is involved in many collaborative projects and is the author/co-author of more than 70 academic journal articles. His personal research is related to the study of extracellular vesicles for diagnosis and treatment of various diseases.

Continuous operation of depth filters in bioprocessing

Nicholas Marchand and **Mike Collins**
Cytiva, USA

To fully realize the potential of continuous manufacturing the biopharmaceutical industry has made significant progress converting common unit operations from batch to continuous. Cellulose-based depth filters are composed of a complex mix of cellulose fibers, inorganic filter aids, and resins that create wide pore size distributions and enable multiple modes of separation (e.g. size exclusion, adsorption). They are heavily used in batch processing due to their scalability, footprint, and cost-effectiveness. However, they have not yet been adopted in continuous processing in part due to uncertainty over their long-term performance. Here, we use a continuous secondary clarification application to investigate depth filter performance over long run duration. After initial offline screening, select depth filters were sterilized and connected in-line with a CHO cell perfusion bioreactor and run for one to nine days of continuous filtration. We evaluate how fouling profiles change with run duration by fitting fouling models to the differential pressure data. Instantaneous filtrate data was collected to assess filtrate quality over run time and loading. Finally, we assess how flux and run duration impact filter capacities and process economics.

Biography

Nick Marchand is a manager within Cytiva's R&D department focused on bioprocess testing of new filtration equipment and consumables. He has previous experience in process development groups at Genzyme and Amgen. He holds a B.S. and Ph.D. from Rensselaer Polytechnic Institute.

Is early exposure to acetaminophen and NSAIDs safe for the male reproductive system?

Martine Culty

Department of Pharmacology and Pharmaceutical Sciences, Alfred E. Mann School of Pharmacy and Pharmaceutical Sciences, University of Southern California, USA

While pregnant women often self-medicate with acetaminophen (paracetamol/APAP) or NSAIDs such as ibuprofen (IBU), infants are commonly treated with these drugs for their analgesic and antipyretic effects. Epidemiological studies have found association between maternal use of APAP and NSAIDs and the incidence of reproductive disorders in male babies. Using rodent models, we previously found that neonatal gonocytes, as well as juvenile spermatogonia and Sertoli cells express cyclooxygenase (Cox) 1 and 2 and other eicosanoid pathway enzymes, and produce prostaglandin (PG) E2, D2 and F2a (1-4). Thus, we tested the hypothesis that exposing infants to APAP or IBU could disrupt the development and function of their testes, potentially affecting their future reproductive health, using *in vivo* and *in vitro* rodent models.

Mouse spermatogonial and Sertoli cell lines, as well as corresponding cells from rat pups were treated with APAP, IBU and selective Cox inhibitors, revealing differentially expressed genes, functional pathways and proteins following treatments. Data with Cox1-depleted spermatogonia and pharmacological inhibitors suggested opposite roles for Cox1 and 2 on spermatogonial differentiation, with Cox1 preventing differentiation and Cox2 promoting it (5). *In vivo* treatments of neonatal rats from postnatal day (PND) 1 to PND4 or 7 with APAP and IBU, at doses previously reported in children's blood, unveiled morphological and protein pattern alterations in testes, some persisting until adulthood, and changes in adult testosterone levels. Moreover, single cell-RNA-seq analysis of PND8 testes uncovered common and unique differentially altered genes in key testicular cell types between APAP and IBU.

These findings indicate that exposing rat pups and testicular cells to APAP and IBU can disrupt testicular function in short- and long-term manner, further suggesting using caution when treating infants with these drugs.

Biography

Dr. Martine Culty, PhD, is Associate Professor in the Department of Pharmacology and Pharmaceutical Sciences at Alfred E Mann School of Pharmacy and Pharmaceutical Sciences, University of Southern California, Los Angeles, USA. Her research focuses on characterizing the mechanisms regulating male germ cell development and on studying the impact of perinatal exposure to endocrine disrupting chemicals and pharmaceuticals on male reproduction, in relation to infertility and testicular cancer. Her current projects focus on deciphering the mechanisms driving the adverse effects of phthalate plasticizer DEHP and phytoestrogen genistein, and those of acetaminophen and ibuprofen, on testis development and function, using animal and cell models. She teaches toxicology and reproductive endocrinology to graduate and undergraduate students. She belongs to reproductive, endocrinology and toxicology societies. Her objective is to contribute to broadening the understanding of the physiology and toxicology of the male reproductive system and educate people about ways to improve reproductive health.

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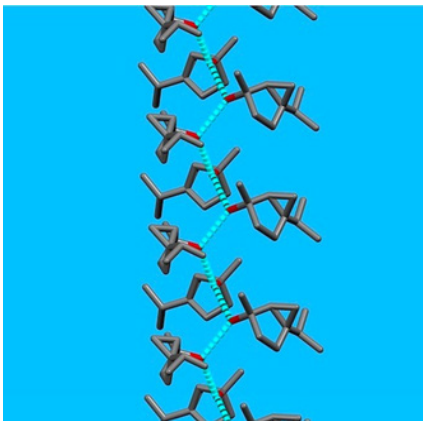
4th Euro-Global Summit on
Future of Biologics and Biosimilars

Production of natural (E)-(R)-*4*-thujanol, in a crystal helix structure

Denis RONTEIN

Laboratoire D'analyse Des Huiles Naturelles, Gréoux-les-bains, France

(*E*)-(*R*)-*4*-Thujanol present in thyme essential oil, is a flavoring agent with a menthol flavor. As (E)-(R)-4-thujanol is always a minor component in the natural extracts, the large scale productions of the pure compound is not economically viable. I report here an eco- responsible method to produce *(E)-(R)-4*-thujanol crystals on a kilogram scale. This new process involves (i) the use of a selected wild thyme (*Thymus vulgaris*) and (ii) a water steam distillation, producing an organic aromatic oil with high content of *(E)-(R)-4*-thujanol. Interestingly due to a favorable amphipathic partition at the air-water interface, *(E)-(R)-4-* thujanol forms spontaneously a crude crystal. Gas chromatography revealed a composition made of *(E)-(R)-4*-thujanol (60-75%) and others minors monoterpenes. The crude crystal submitted to several cycles of vaporization/ crystallization, led to accumulate translucent fibers made of *(E)-(R)-4*-thujanol (up to 99%). X-ray diffraction unambiguously demonstrated that crystals of *(E)-(R)-4*-thujanol forms a trimer unit. The trimers superpose themselves to construct a chiral P-type supramolecular helix. Deep inside the helix, each alcoholic function is engaged in two hydrogen bonds, thus forming a continuous backbone (see illustration). Crystals are very stable at room temperature, and can be melted and reconstructed several times. Some pharmaceutical applications may benefit from this, as compared to the polymorphous and unstable menthol crystal.



Biography

Denis RONTEIN has a PhD in plant biochemistry (2000), with a mixed training in molecular biology, biophysics and analytic chemistry. He had a post-doctoral position at the University of Florida (Gainesville) in the early 2000s. In 2003, he was hired as a project leader at a French start-up in CEA (French department of energy). In 2008, Denis RONTEIN founded its own (non-academic) laboratory, where he works as a specialist in the analysis of aromatic molecules. Co-author of several publications on the terpene biochemistry, he became in 2020, the scientific coordinator on the natural 4-thujanol production project.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

Arginine in arterial vs venous blood in lung inflammation

Slobodan Tepic

Hepius Biotech AG, Switzerland

Pneumonia, always a major malady, became the main public health and economic disaster of historical proportions with the COVID-19 pandemic. An experimental study in mice was undertaken on the premise that the pathology of lung metabolism in inflammation may have features invariant to the nature of the underlying cause. Amino acid uptake by the lungs was measured from plasma samples collected pre-terminally from a carotid artery and vena cava in mice with bleomycin-induced lung inflammation (N=10) and compared to controls treated with saline instillation (N=6). In the control group, the difference in concentrations between the arterial and venous blood of the 19 amino acids measured reached the level of statistical significance only for arginine (10.7%, p=0.0372) and phenylalanine (+5.5%, p=0.0266). In the bleomycin group, 11 amino acids had significantly lower concentrations in the arterial blood. Arginine concentration was decreased by 21.1% (p<0.0001) and only that of citrulline was significantly increased (by 20.1%, p=0.0002). Global Arginine Bioavailability Ratio was decreased in arterial blood by 19.5% (p=0.0305) in the saline group and by 30.4% (p<0.0001) in the bleomycin group. Production of nitric oxide (NO) and citrulline from arginine by the inducible nitric oxide synthase (iNOS) is greatly increased in the immune system's response to lung injury. Deprived of arginine, the endothelial cells downstream may fail to provide enough NO to prevent the activation of thrombocytes. Thrombotic-related vascular dysfunction is a defining characteristic of pneumonia, including COVID-19. This experiment lends further support to arginine replacement as adjuvant therapy in pneumonia.

That this is beyond scientific/academic interest is confirmed by a recently published final report on a prospective, comparative, double-blinded study conducted in Naples, Italy. Twice daily oral supplement of arginine aspartate given to hospitalized COVID-19 patients resulted in a highly statistically significant reduction of mortality by 75%. Long overdue for the COVID-19 pandemic, these findings should not be lost on the medical establishment in dealing with other types of pneumonia, not the least with the king of them all -- tuberculosis.

Biography

Education:

School of Mechanical Engineering, U. of Zagreb, 1970-1975, Dipl. Ing.

Mechanical Engineering Dpt., M.I.T., Cambridge, USA 1978-1980, M.S. in M.E.

Mechanical Engineering Dpt., M.I.T., Cambridge, USA 1980-1982, Dr. Sci. in M.E.

Work:

Research Associate at the AO Research Institute, Davos, Switzerland, 1983-1996.

Lecturer in the Mechanical Eng. Dpt., M.I.T., Cambridge, 1994-2008.

Full-time consultant to Schering-Plough Corp., 1996-1998.

Since 1998 co-founded and managed eight companies in MedTech and biotechnology.

Teaching and Supervisory Activities:

Member of faculty teams for hundreds of training courses for trauma and orthopedic human and veterinary surgeons. Supervised research work of five doctoral and two master's level graduate students and many M.D.'s for their graduation thesis programs.

References:

25 peer-reviewed publications; over 50 other publications, 50 patents, and more pending.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

Gait improvement of parkinsonian gait disturbances with wearable cyborg HAL trunk unit

A. Uehara

University of Tsukuba, Japan

Cybernic treatment establishes an interactive bio-feedback loop between an wearer's nervous system and the wearable cyborg Hybrid Assistive Limb (HAL); this treatment has been applied for several rare neuromuscular diseases such as spinal muscular atrophy, amyotrophic lateral sclerosis, and congenital myopathy. Thus, it is of interest to determine its potential for parkinsonian patients. A HAL trunk unit constructs functional and physical synchronization with the wearer by providing lateral cyclic forces to the chest in the form of somatosensory and motor cues. This study confirmed the feasibility of using a HAL trunk unit to improve parkinsonian gait disturbance. We conducted experiments with three Parkinson's disease patients and two patients with progressive supranuclear palsy. Table 1 presents the participants' information; the four gait disturbances caused by disease type are listed. Four participants could walk independently; the participant in Case 5 could not due to severe trunk dystonia. During the experiments, the immediate effect of the intervention was assessed; all participants exhibited improvements in gait disturbance while wearing the HAL unit, and this improvement effect persisted without the HAL unit in two participants.

Afterward, based on the assessment, we conducted a continuous intervention for one participant with progressive supranuclear palsy. Figure 1 shows the number of steps in the turning area in the continuous intervention. In this intervention, the number of steps in the final experiment was significantly decreased compared with the initial state. These findings suggest that the proposed method is an option for treating parkinsonian patients to generate somatosensory and motor cues. In the future, HAL dynamically fits parameters related to lateral cyclic force according to the wearer's physical and biological conditions, such as bioelectrical signals and ground reaction force, to achieve a comfortable and optimal intervention.

Case	Age	Sex	Weight	Disease	DI (years)	HY	UPDRS	AE	Drug treatment
1	69	F	46 kg	PD	7	2.5	2/4	-	IS, LC, RO, SH,
2	72	M	64 kg	PSP	1	3	3	Cane	-
3	65	M	70 kg	PD	42	3	1	-	AH, DR, LB, TH, ZNS
4	80	M	72 kg	PD	6	4	2	Cane	CZP, LC
5	65	M	75 kg	PSP	5	5	4	EW	-

Table 1. *Summary of participant physical and clinical characteristics. AE usage of assistive equipment in daily life, AH amantadine hydrochloride, CZP clonazepam, DI duration of illness, DR droxidopa, EW electric wheelchair, F female, FG festinating gait, FOG freezing of gait, GD gait disturbance, HY Modified Hoehn and Yahr Scale, IS istradefylline, LB levodopa-benserazide, LC levodopa-carbidopa, M male, PD Parkinson's disease, PSP progressive supranuclear palsy–pure akinesia with gait freezing, RO rotigotine, SG staggering gait, SH selegiline hydrochloride, SSG small stepping gait, TH trihexyphenidyl hydrochloride, UPDRS Unified Parkinson's Disease Rating Scale, item 14 (freezing of gait), ZNS zonisamide.*

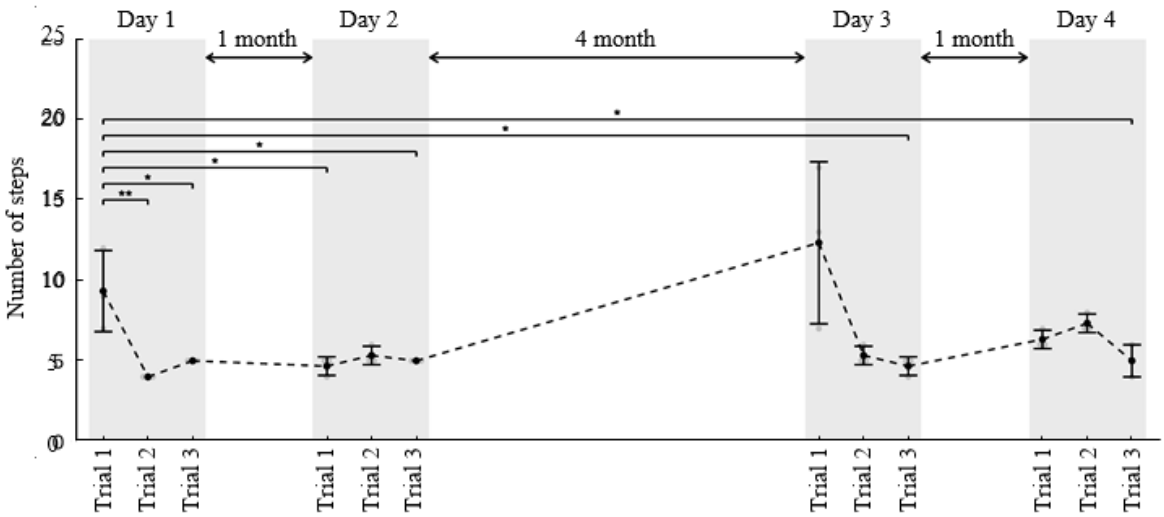

Figure 1. *Experimental results of continuous intervention for Case 2 (progressive supranuclear palsy–pure akinesia with gait freezing). The black dots indicate the average number of steps in the turning area, and the error bars indicate the standard deviation of the value. **$P < 0.01$, *$P < 0.05$; absence of an asterisk indicates $P > 0.05$. Each trial consisted of preintervention without HAL (Trial 1), intervention with HAL (Trial 2), and postintervention without HAL (Trial 3).*

Biography

Akira UEHARA, Ph.D., Assistant professor at University of Tsukuba, Japan. Received his Ph.D. in Engineering from the University of Tsukuba in 2020. He was an interaction designer at Sony Group Corporation from 2020 to 2022 and an adjunct researcher at Sony Computer Science Laboratories, inc from 2021 to 2022. His research focuses on Cybernics that enhance, strengthen, and support physical and cognitive functions of human beings, based on the fusion of human, machine, and information systems.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

LED photobiomodulation on 940 nm: series of studies

DT. Higashi Miranda[1], MG. Hoeppner[2], CCD. Garbelini[2], DO. Toginho Filho[2], IC. De Souza[1], NM. Yoshida[1] and **RSS. Terada[1]**

[1]*Maringá State University, Brazil*

[2]*Londrina State University, Brazil*

Distinct wavelengths of light have been known to have various biological effects on humans. Especially the red and infrared wavelengths have been shown to penetrate through human tissues and to locally (and possibly systemically) affect cellular metabolism, cellular signaling, inflammatory processes and growth factor production. We already know that photobiomodulation therapy (PBM) can be delivered by lasers and LEDs. Lasers are the most studied, approximately 85% of the original research has utilized lasers as light sources in PBM. Advances with LED PBM have been shown the same and even best results than lasers, mainly because of the possibility to irradiate a large area. Orthodontic induced root resorption is a concern still without prevention or treatment. In this field we started research PBM with LED on 940nm. Wistar rats were used to verify the influence of LED PBM on orthodontic induced root resorption. Three days of irradiation were necessary to reach satisfactory results, proven by histological and microtomographic analysis. The next step was to test LED PBM on 940nm in a clinical trial. Some studies have tested Laser PBM on the clinical risk of bleaching-induced sensitivity, but none of them used LED. For that sixty-four volunteers were selected and randomly divided in two groups, placebo (PG) and LED (LG). The LG received PMB irradiation and tooth bleaching, while the PG received tooth bleaching and a simulation of the irradiation. The results showed that LED irradiation decreased the occurrence of sensitivity at all studied evaluation times as well as its intensity, except for the 72-h data when both groups presented no difference. Recently, we had great outcomes with a LED face mask in a patient that had a facial paralysis after surgery.

Biography

Dayla Thyeme Higashi graduated in Dentistry school at 2012 year, in the Londrina State University, Brazil. In the same institution graduated in master´s degree at the year 2014. In the year 2015 became a dentistry professor at the institution Paranaense University. In the next year started the doctorate degree at the Maringá State University. In the year 2016 started to teach postgraduate courses in the field of dentistry and aesthetic. The doctorate degree was finished at the year 2018. Since was graduated in dentistry works in private clinic.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Plant-based health supplement for reducing serum glucose

CW Wang[3], Ken Toh[1] and **PC Leong[2]**

[1]WE HEALTHY PTE LTD, Singapore
[2]KING FOOD Technology(S) Pte Ltd, Singapore
[3]Faculty of Medicine, MAHSA University, Malaysia

The incidence of diabetes type II has been increasing steadily both in Asia and the world. This is mainly due to insulin resistance in receptors. Thus, serum glucose could not absorbed into cells and excrete out in the urine. The search for plant-based health supplement for reducing serum glucose has gaining immediate attention of health practitioners and industries. Bitter gourd (*Momordica charantia*) has long been accepted as vegetable dishes. It contains substances with anti-diabetic properties such as charantin, vicine, and polypeptide-p, as well and unspecific antioxidant compounds. Polypeptide-p is an unidentified insulin-like protein isolated and characterized from *M. charantia* fruits and seeds. Metabolic and hypoglycemic effects of bitter gourd extracts have been demonstrated in cell culture, animal, and human studies. The mechanism of action has been proposed via regulation of insulin release or altered glucose metabolism. However, its insulin-like effect, is still not clear. The seeds and fruit pulp of bitter gourd are normally discarded. On the other hand, the seeds have been known as traditional medical health supplement to reduce serum glucose.

Royal bitter gourd peptide ™ is a very fine powder containing appropriate amount of bitter gourd peptide and soy peptide. The total protein content measures 78.3 %(w/w). Nanotechnology technique has been used to produce a fine powder of appropriate dimension in angstroms. Ten gram of bitter gourd powder are dissolved in water in less than five minutes. Most of the peptides are absorbed into the cells in less than 10 minutes. Case studies on Royal bitter gourd peptide ™ to reduce serum glucose in diabetic patients have been demonstrated using self-tested glucose meter.

This presentation shall discuss the chemical components, case studies of bitter gourd peptide as health supplements in the practice of traditional medicine.

Biography

Chee Woon Wang graduated with B.Sc. (Hons) Biochemistry in 1972 and Ph.D. in Biochemistry in 1977 from the University of Malaya, Malaysia. He has just retired as the Deputy Dean and a professor in the Department of Biochemistry, Faculty of Medicine, MAHSA University, Saujana Putra Campur, Malaysia. His other main research interest includes microRNAs in stroke, hypertension and colorectal cancer. He is also working actively on applied enzymology. His current interest is on health supplements from traditional medical plants.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

PEG-fDAO reduces lung inflammation in a mouse model of CGD-Possible enzyme replacement therapy for CGD

Hideaki Nakamura[1], Makoto Matsukura[2], Hiroshi Maeda[3] and Hiroyuki Nunoi[4,5]

[1]Laboratory of Environmental Science and Technology, Faculty of Pharmaceutical Sciences, Sojo University, Japan
[2]Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Pharmaceutical Sciences, Sojo University, Japan
[3]BioDynamics Research Foundation, Japan
[4]Division of Pediatrics, Faculty of Medicine, University of Miyazaki, Japan
[5]Aisenkai Nichinan Hospital, Japan

Chronic granulomatous disease (CGD) is a primary immunodeficiency wherein phagocytes are unable to produce reactive oxygen species (ROS) owing to a defect in the nicotinamide adenine dinucleotide phosphate oxidase (NADPH) complex. Patients with CGD experience recurrent and invasive bacterial and fungal infections which induced granulomatous lesions and sometimes excessive inflammatory disorders due to the dysregulation of inflammation (TLR signaling, various ways of programed cell death, etc). Although bone marrow transplantation and gene therapy are theoretically curative, they are still on the way to be established. Based on the concept of enzyme replacement therapy (ERT) introduced in lysosomal storage diseases in 1964, we have tried to develop novel ERT for CGD with polyethylene glycol conjugated D-type amino acid oxidase (PEG-DAO), which supplies ROS. In the first study, we reported that treatment of neutrophils from CGD patients with porcine-derived DAO restores bactericidal activity *in vitro (EBM.2012;237:703–8.)*. We also confirmed DAO-based ERT therapeutic effects in an *in vivo* nonviable Candida albicans (nCA)–induced lung inflammation model of gp91-phox knockout CGD mice with novel *Fusarium*-derived D-amino acid oxidase (PEG-fDAO). The lung weight and pathological findings suggested the condition was ameliorated by administration PEG-fDAO, followed by intraperitoneal injection of d-phenylalanine or d-proline (*Inflammation.2022;45:1668–79.).* Although more detailed studies are needed, these data reveal targeted delivery of PEG-fDAO to sites of inflammation *in vivo* and demonstrate that PEG-fDAO may be used as a possible candidate for ERT in CGD.

Biography

Hiroyuki Nunoi is a professor emeritus of Faculty of Medicine, University of Miyazaki and Dean of Aisenkai Nichinan Hospital. His work focuses to investigate the genetic background and find therapeutic ways for the patients with Immunodeficiency, especially neutrophil dysfunctions. Hideaki Nakamura is a associate professor of faculty of Pharmaceutical Sciences, Sojo University. His work focuses on the investigation of enzyme-based therapeutics and polymer therapeutics for the treatment of cancer and other diseases. In particular, he currently works on therapeutics that act in response to the cancer microenvironment. Makoto Matsukura and Hiroshi Maeda have supported ERT projects.

Use of Orthobiologics in combination with chemical agents to improve quality of life of patients. Awaiting optimization or unfit lower limb arthroplasty or participating in shoulder rehabilitation program

Mujeeb Ashraf, Ahmed Jedani and **Hatem Al Harbi**

King Fahd Armed Forces Hospital Jeddah, Saudi Arabia

Introduction: Indications and scope of Orthobiologics is widening worldwide. The advent of Biologic Association USA and its increasing membership of most developed countries in the world is seeing a new era of regulated and evidenced based use of Biologics.

Critical review of emerging literature in use of biologics in musculoskeletal medicine, show a prominent role of biologics as disease modifying rather than disease eradicating agent.

Methods: A prospective intervention-based cohort review of patients who had Knee, Hip or shoulder disease affecting daily activities leading to dependence on pain medication. Many were unfit for surgical intervention; others were awaiting optimization for surgery.

We started a monitored program of improving patient's quality of life, reducing or eliminating regular use of pain medication, dependence for daily activities and improving mood and mobility.

Patients filled periodic Oxford Knee and Hip, DASH scores along with Knee Society Scoring System and maintained a record of their analgesia medication use, after every intervention.

They received intervention with Platelet Rich Plasma + lidocaine 1%+ Bupivacaine 0.25% in addition non-weight bearing exercises for Quadriceps, Hip abductors and rotator cuff respectively.

Results: A total of 300 patients out of 450 patients, had complete record and follow up of over 12 months. Statistically, mean and standard deviations, chi-square test, One-way ANOVA with Games-Howell as a post hoc test, + p-value <0.05 was the criteria to reject the null hypothesis. 87% percent of the patients showed statistically significant improvement in their respective scores, with scores of more than 80% in all three domains of Short Form, Knee Society Scoring System.

Conclusions: The use of Biologics can offer a unique treatment option which improves quality of life of patients in an effective and cost-effective manner, reducing the hospital visits, use of opioids medication and reducing dependence on others for daily activities of life.

Biography

Irish and UK trained Orthopaedic surgeon currently working in Armed forces Hospital Saudi Arabia, as Trauma, Pelvic, Arthroplasty and Sports surgeon with interest in Orthobiologics treatment over the last six years, first presenting results in EFORT in 2018. Intrested in research presenting have been presenting and publishing since 1997 and been a presenter in multiple times in American Academy of Orthopaedic Surgeons, European Federation of National Associations of Orthopaedics and Traumatology, European Congress of Trauma & Emergency Surgery, International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine and European Knee Society etc including various UK and Irish Orthopaedics societies.

Visually exploring beyond three dimensions

Y. Kim

Bernoulli Institute for Mathematics, Computer Science and Artificial Intelligence, University of Groningen, The Netherlands

Intuitively analyzing multidimensional data for exploratory purposes is challenging. Multidimensional data visualization is used to tackle this challenge. In the field of multidimensional data visualization, dimensionality reduction (DR) provides a lower-embedding of the original high-dimensional data so that the data are more accessible by visualization. Furthermore, DR is the preferred method to find visual clusters of points that represent the clusters in the original data. However, finding visually well-separated clusters using conventional DR methods is challenging, as there are numerous DR methods applicable to a wide range of data sets. Therefore, this presentation focuses on using a preconditioning step of DR by sharpening the multidimensional data in the high-dimensional space prior to dimensionality reduction so that clusters are also separated better in the lower-dimensional embedding. We improve this sharpened DR method in terms of dimensional scalability, computational scalability, ease-of-use, and stability. The method is also applicable to any real-valued multidimensional data set allowing applications in various fields. In summary, we argue that this work is an important step towards finding interesting and meaningful visual clusters for the exploratory analysis of high-dimensional data.

Biography

Youngjoo Kim received a PhD in computer science from Bernoulli Institute for Mathematics, Computer Science and Artificial Intelligence, University of Groningen, The Netherlands, in 2023. She was enrolled in Data Science and Systems Complexity (DSSC) and EU's Horizon 2020 program. She received her BS and MEng degree in computer engineering from KWU, Seoul, Republic of Korea, in 2015 and 2017, respectively. Her research interests include the exploration of high-dimensional data with applications in biomedicine and astronomy.

Dark matter implications of the neutron anomaly

Leonardo Darini

University of Pisa, Italy

Motivated by the neutron decay anomaly, we reconsider the neutron decay model $n \to \chi\chi\chi$, where the new species χ plays the role of dark matter. We precisely compute the $\chi^{-} n \to \chi\chi$ rate finding that fitting the anomaly compatibly with all bounds needs at least two "generations" of the χ particle.

Biography

Leonardo Darini (09/02/1998) attended the University of Pisa and Scuola Normale Superiore of Pisa and graduated in 2022 in theoretical physics.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Post CABG CT-Angio as a tool for Assessing Graft Orientation and Patency in Pedicled Bilateral Internal Thoracic Artery Grafts in Young Patients

Ashok Bandyopadhyay[1], Sayan Das[2] and Manish Mandal[3]

[1]Clinical Director, CTVS, Peerless Hospital & B.K. Roy Research Centre, India
[2]Clinical Lead, Interventional Radiology, Peerless Hospital & B.K. Roy Research Centre, India
[3]Consultant Cardiac Anaesthesiologist, Peerless Hospital & B.K. Roy Research Centre, India

Objective: To study the impact of Pedicled Bilateral Internal Thoracic Artery (BITA) to the left coronary system in young patients in the short & mid-term.

Scope: Patients presenting in the fourth or fifth decade for Coronary Artery Bypass Grafting (CABG) present a special subset who deserve the best graft patency rates in the long term. The long term benefits of arterial grafts are well documented. CTA helps to determine the patency & orientation of the grafts and determine a novel surgical strategy with pedicled grafts to the left coronary system.

Methods: 20 patients from this age group, received bilateral pedicled Internal Thoracic Artery grafts using the ITA in various configurations to the left coronary system. Different target vessels were chosen as per the coronary anatomy & disease involvement. They were configured to achieve revascularisation of the LAD, Diagonals, Intermidius & Marginal Vessels. All surgeries were done using Off-Pump Technique. All patients underwent CTA after 4 to 12 weeks of surgery for graft patency and orientation.

Radial Artery or Saphenous Veins were chosen for the RCA where necessary. Thin ITAs or T grafts were excluded from the study. Redo CABG was also excluded.

Conclusions: The graft patency and orientation in the younger subset of high risk patients helps to plan the configuration of Pedicled BITAs to ensure good surgical strategy and graft patency.

Biography

Did my Graduation from B.S. Medical College (MBBS); Postgraduation in General Surgery (MS) in 1991(University College of Medicine, Kolkata) & M. Ch (Cardiothoracic & Vascular Surgery) from Delhi University in 1995. Primary focus on Adult Cardiac Surgery

Current areas of Interest:

- Re-do coronary artery surgery & Total arterial revascularization on beating heart
- Effect of stem cell therapy on Chronically ischemic limbs
- Enjoy sports and going to the Himalayas to relax.

PEERS ALLEY MEDIA

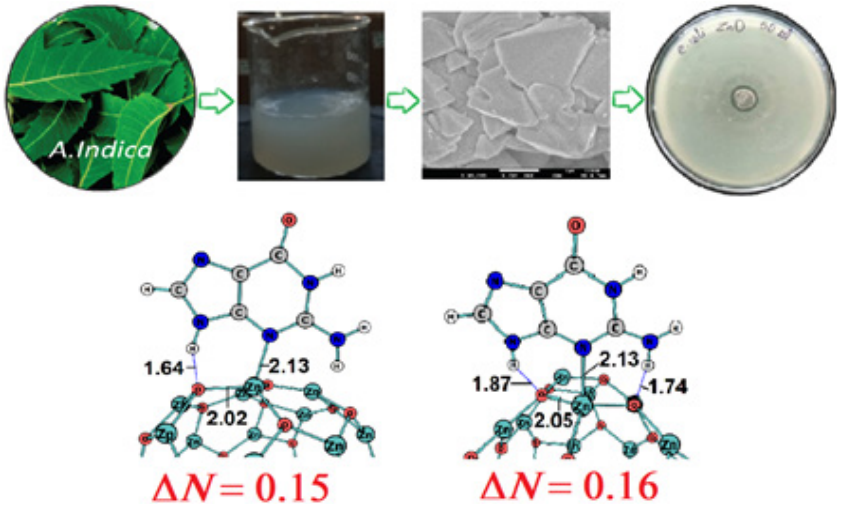
4th Euro-Global Summit on
Future of Biologics and Biosimilars

Antibacterial activity of green synthesized triangular ZnO nanoparticles using *Azadirachta indica* leaf extract: Joint experimental and theoretical approach

D. R. Roy[1], B. K. Sharma[1], B. R. Mehta[1], E. V. Shah[1], V. P. Chaudhari[1] and **S. Mondal Roy[2]**

[1]*Department of Physics, S. V. National Institute of Technology, India*
[2]*Sir P. T. Sarvajanik College of Science, India*

The present study reports the green synthesis of triangular ZnO nanoparticles (G-ZnO NPs) using *Azadirachta indica* leaves extract, and a shape dependent Density Functional Theory (DFT) investigation for ZnO NPs on their antimicrobial activity. The X-ray diffraction (XRD) analysis shows the synthesized G-ZnO NPs are well crystalline in nature and calculated grain size is found to be 60-65 nm. The Fourier transform infrared spectroscopy (FT-IR) represents that the functional group and capping agents are well attached to the nanoparticles, and the bands located near 500.8 cm^{-1}, 459.07 cm^{-1} and 418.57 cm^{-1} represents G-ZnO NPs. Scanning electron microscopy (SEM) and Energy dispersive X-ray analysis (EDS) confirmed the presence of the synthesized G-ZnO nanoparticles with an average size range 100-200 nm. The synthesized G-ZnO NPs are found to be in the triangular shape. A detail theoretical investigation under DFT framework shows that our synthesized triangular ZnO nanoparticles are better candidate for biological interactions compared to the prototypical spherical counterpart. The synthesized G-ZnO nanoparticles using *A. indica* leaves extract in triangular shape are found to show significant antimicrobial activity against Gram-negative E. coli and Gram-positive *B. subtilis* bacteria indicating a better alternative to the typical chemical methods.



Biography

Dr. Debesh R. Roy presently an Associate Professor and Head of the Department of Physics at SVNIT Surat. He obtained his Ph.D. degree in 2008 from IIT Kharagpur. He was a Post-Doctoral Researcher during 2009-2010 at VCU, USA, and a Fellow at Hanse-Wissenschaftskolleg, Germany during 2019-2020. His research area is 'Chemical and Materials Physics'. Among 141 of his reputed publications, more than 100 SCI papers are cited more than 5000 times with h-index of 32 and i10-index of 63. He has featured in the 'World's top 2% scientists' list by Stanford University, USA and Elsevier. He has received four SERB-DST, Govt. of India sponsored projects. He is Editorial Board member for three Int'l reputed journals, and delivered many Int'l/Nat'l invited talks and recipient of many prestigious Int'l/Nat'l awards including Govt. National Scholarship, ELSEVIER Top 50 Most Cited Article Award, DST Young Scientist Award, Regular Fellowship of HWK, Germany etc.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Designing & commercialization of affordable chemically defined serum free media and feed for high value Biosimilar manufacture

Vishal G. Warke[1], Ratnesh Jain[2], Priti V. Warke[1], Gauri Page[1], Shraddha Mane[1], Mausami Bhattacharya[1], Soni Shukla[1] and Girish B. Mahajan[1]

[1]HiMedia Laboratories Pvt. Ltd, India
[2]Institute of Chemical Technology, India

The global chemically defined serum-free media (CDSFM) market is categorized on the basis of media type as protein expression media, hybridoma media, & Chinese hamster cell (CHO) culture media etc. The global cell culture media market in terms of revenue was estimated to be USD 4.9 billion in 2021. It is expected to reach to about USD 10 billion by 2026. The media market will grow with the expected CAGR of about 16 percent from 2021 to 2026.

With core expertise in media development & manufacture we initiated with the mission of making India self-reliant, in quality & affordable media & feed manufacturing for biosimilar manufacture & ultimately aiding in cost reduction of anti-cancer biosimilar remedies, our project was completed with part grant support from BIRAC (Biotechnology Industry Research Assistance Council). The two most needed biosimilar are, Herceptin and Avastin, and their respective producer CHO clones, were selected for optimization of CDSFM and feeds.

Starting with high throughput screening of more than 100 media combinations through DOE, at low volume scale (96 well plates), optimization experiments were performed at parallel Bioreactor scale (Capacity 1.5L), performance validation of media and feeds were further performed on large scale bioreactors (Capacity: 10L). Cutting-edge automated technologies such as liquid handling systems, biochemical analyzer, amino acid analyzer and automated cell counters were used at each step of experimentation. The Analytics team from ICT validated the Biosimilars using IgG characterization techniques such as charge variant, aggregation and glycan analysis. With continual systematic approach for media and feed development we have successfully achieved ~40% increase in the IgG titer.

A completely validated CDSFM and feed are now available in the market to Biosimilar manufacturing companies at a very affordable cost. We envisage that this would ultimately have a positive impact on reducing the cost of Biosimilars.

Biography

Dr. Vishal. G. Warke is a reputed Scientist and the Director of Cell culture & Higronics division at HiMedia Laboratories. He completed Doctorate in Cell Biology and Molecular Genetics from University of Maryland, USA after M.B.B.S from the University of Mumbai. He has been awarded the Medical Research Fellowship of The Walter Reed Army Institute of Research, USA.

As a leader of the next generation of HiMedia, he has done pioneering work in diverse areas of biosciences. He has successfully established the Animal & Plant tissue culture, and the Higronics department. He has worked on development of media for biosimilars. He has been an active member of several reputed scientific bodies.

He is well connected with premier research institutes in India & participated in several national and international conferences & exhibitions. He is an expert in cell line media & feed development with 25+ peer reviewed publications in leading journals.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Occupational exposure of volatile organic compounds and fine particulate matter in the press factory and health risk management

W. Jinsart and **N. Pongboonkhumlarp**

Department of Environmental Science, Faculty of Science, Chulalongkorn University, Thailand

The workers exposure of volatile organic compounds and fine particulate matter in the press factories were monitored in working days, during 8 hours work shift. The concentrations of air pollutants were measured from the four voluntary printing factories with two types of the printing process, offset and digital printing. Were compared. The 8 hours average of VOCs and PM2.5 in the field blank, Offset A, Offset B, Offset C printing and Digital printing D were evaluated. The highest PM2.5 level in the Offset printing C, 78 µg m^{-3} was due to the surrounded paper dust in the sampling area. The value is higher than the daily ambient PM2.5 standard, (35 µg m^{-3}). The installation of Dust indoor air control systems were recommended to rectify PM build up concentrations in the printing process rooms. The highest VOCs was 22 ppm in the Offset printing C because of the high production rate and the emission of organic solvents in the clean-up process. The workers in offset printings were at risk of VOCs exposure with Hazard quotient >1. Health risk management was recommended in various methods such as the addition of air pollution control devices, the application of water based ink and cleaning solvent, the effected use of Personal protection equipment and finally the shift of printing process to digital printing.

Biography

Professor in air pollution and environmental health, at Department of Environmental science Chulalongkorn University. She had her Ph.D. in chemistry and biochemistry from La Trobe University in 1992 then continue worked as a research fellow in Molecular biology one year. She also had experiences in academic administration and research publications: Head, Department environmental science 2002-2006 and 2018-2020 Chair of the Toxicology industrial environment postgraduate program 2018-2020 President: Thai Society of Higher Education Institutes on Environment 2017 -2022 Editor in Chief: Environment Asia, a Scopus journal since 2017- 2022 Board committee: The Science society of Thailand under the patronage of His Majesty the King 2022-2023.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

Effect of *Solanum lycopersicum* and *Citrus limon* derived exosome like vesicles on chondrogenic differentiation of adipose derived stem cells

Merve Yıldırım Canpolat, Naz Ünsal, Bilge Kabataş, Olcay Eren and **Fikrettin Şahin**
Yeditepe University, Turkey

Articular cartilage defect treatment is a very important problem because its therapeutic options are not successful enough. Due to the weak self-repairing capacity of the avascular cartilage, even minor damage can progress and cause joint damage leading to osteoarthritis. Although various treatment strategies have been developed to repair damaged cartilage, cell- and exosome-based therapies are promising. Plant extracts have been used for decades, and their effects on cartilage regeneration have been studied. Exosome-like vesicles, which are secreted by all living cells, are involved in cell-to-cell communication and cell homeostasis. The differentiation potential of exosome-like vesicles isolated from *S. lycopersicum* and *C. limon*, which are known to have anti-inflammatory and antioxidant properties, was investigated in the differentiation of human adipose-derived mesenchymal stem cells (hASCs) into chondrocytes. In order to obtain tomato-derived exosome-like vesicles (TELVs) and lemon-derived exosome-like vesicles (LELVs) Aquous Two- Phase system was performed. Characterisation of isolated vesicles based on size, shape were achieved via Zetasizer, NTA FAME analysis, and SEM techniques. These results showed that TELVs and LELVs increased cell viability and did not show any toxic effects on stem cells. Although TELVs triggered chondrocyte formation, LELVs downregulated. The expression of ACAN, SOX9, and COMP, known as chondrocyte markers, was increased by TELV treatment. In addition, protein expression of the two most important proteins, COL2 and COLXI, found in the extracellular matrix of cartilage, increased. These findings suggest that TELVs can be used for cartilage regeneration, and may be a novel and promising treatment for osteoarthritis.

Biography

An expert in the field of Genetics, Bioengineering and Gene therapy with a particular focus on the use of plant- derived exosomes in the treatment of cancer and osteoarthritis. She is graduated from Biotechnology Program of Yeditepe University. In partnership with MD Anderson Cancer Center, she has conducted clinical studies on cancer treatments and awarded a patent for an cancer drug. Her published work includes the effects of plant- derived exosomes applications for the regeneration of bone, cartilage, muscle and hearth muscle. Recently, she was developed a new treatment for osteoarthritis which is currently undergoing clinical trials. In 2020, she was elected Scientific Chairman of Cancer free Life Association, a non- profit to assist patient and family undergoing cancer treatment. As co-founder of Cellestetix, she sherheads the R&D initiatives to develop a wide range of breakthrough discoveries and novel molecular applications for disease treatments, cellular regeneration and longevity support.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Biological activity of some thiazolyl-thiadiazines as BACE1 inhibitors for Alzheimer's disease in the light of DFT based quantum descriptors: Development of novel therapeutics

S. Mondal Roy

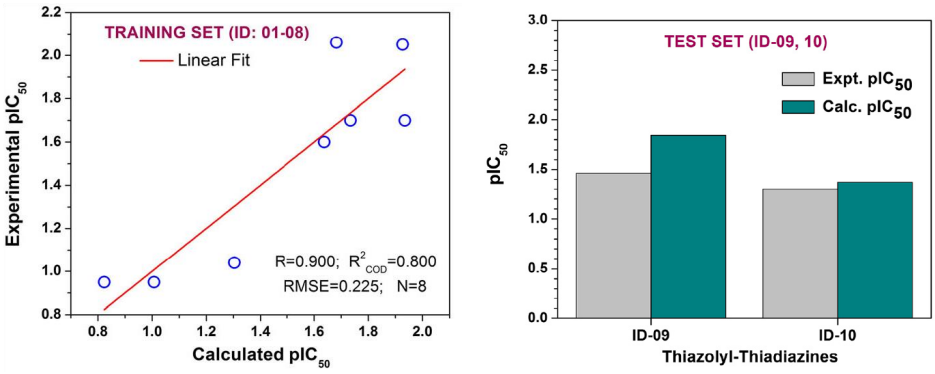
Sir P. T. Sarvajanik College of Science [Veer Narmad South Gujarat University], India

Objectives and Scope: One of the important therapeutic approaches of controlling Alzheimer's disease is to chemically inhibit BACE1 enzyme. β-site APP (amyloid precursor protein) cleaving enzyme 1 or BACE1 is the primary driving force for the cleavage of APP to form β-amyloid peptides (Aβ). Accumulation of these Aβ peptides is known to be the predominant factor for the pathological development of Alzheimer's disease. The primary objective of the present investigation is to understand the biological activity (pIC50) of a series of thiazolyl-thiadiazines molecules as potential BACE1 inhibitors in terms of various relevant quantum chemical descriptors including electron affinity (EA), total electronic energy (E), electron transfer (ΔN), and energy transfer (ΔE) between thiazolyl-thiadiazines and the predicted model biosystem (amino acids), under DFT.

Results: The QSAR regression models with different quantum chemical descriptors (EA, E, ΔE, and ΔN) are developed for the chosen series of thiazolyl-thiadiazines (training sets). 90% correlation is observed between the theoretical results the observed biological activity. The best developed regression model for training set is also validated for unknown test set of homologous compounds.

Methods used: In present work, the structures of the thiazolyl-thiadiazines are optimized at the Becke-3-parameter-Lee-Yang-Parr (B3LYP) hybrid functional level of theory using with 6-31+G [d,p] basis set employing the GAUSSIAN09. Based on Koopmans' theorem, using finite difference approach, ionization potential (IP) and electron affinity (EA) are calculated. All the descriptors are calculated using standard equations.

Conclusion: Thus, the developed quantum chemical descriptors for prediction of the biological activity of thiazolyl-thiadiazines as potential therapeutics for BACE1 inhibition, will certainly be an excellent addition in the QSAR parlance of drug development.



(a) *(b)*

FIGURE 1: ***(a)*** *Experimental versus calculated biological activity (pIC50) values and (b) Histogram representation of the experimental versus calculated biological activity (pIC50) values for the test set of thiazolyl-thiadiazines*

ID	EA	E_{B3}	ΔN_{Asn}	ΔE_{Asn}	Expt. pIC_{50}[a]	Calc. pIC_{50}[b]
Training set						
01	1.97	−58505.13	−0.054	0.014	1.04	1.30
02	2.13	−64560.49	−0.037	0.006	0.95	0.82
03	1.97	−55388.64	−0.051	0.012	1.60	1.64
04	2.17	−63490.51	−0.031	0.004	0.95	1.01
05	2.00	−54318.67	−0.048	0.011	2.05	1.93
06	2.19	−59719.58	−0.029	0.004	1.70	1.94
07	2.07	−58089.09	−0.042	0.008	2.06	1.68
08	1.90	−48031.21	−0.051	0.012	1.70	1.73
Test set						
09	2.00	−50731.66	−0.041	0.008	1.46	1.84
10	2.15	−60537.39	−0.033	0.005	1.30	1.37

TABLE 1: Training and test sets of various thiazolyl-thiadiazines along with their electron affinity (EA), total electronic energy at the B3LYP level of theory (EB3), electron transfer (ΔN_{Asn}), and energy transfer (ΔE_{Asn}) with Asparagine (Asn), along with experimental and calculated pIC50 values

Biography

Dr. Sutapa Mondal Roy did her UG and PG from prestigious Jadavpur University, Kolkata, India. After qualifying in CSIR-NET, she did her Ph.D. from SINP, Kolkata. Then she worked as CSIR-RA in SVNIT, Surat, India during 2013-2016. Later she joined as Assistant Professor at Department of Chemistry, Uka Tarsadia University, Gujarat, India. During 2019-2020, Dr. Mondal Roy worked as Guest Scientist at the CKfS, University of Bremen, Germany. There, she worked on metal-oxide nanoparticles, their synthesis, and spectroscopic characterization. In 2022, Dr. Sutapa received Sr. Fellow Award from HanseWissenschaftsKolleg (HWK), Germany. She travelled to HWK, Delmenhorst, Germany and worked for three months on her project. Later, she started working as Assistant Professor (Adhyapak Sahayak) at P. T. Sarvajanik College of Science [VNSGU, Govt. of Gujarat].

Dr. Sutapa has published 20 research papers of international repute, 2 book chapters, 1 book. She is the recipient of 5 National and 1 International level Government sponsored fellowships/awards.

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Future of Biologics and Biosimilars

Downregulation of NT5C3 gene expressions by elastin-like polypeptide-gemcitabine conjugate for ovarian cancer therapy

MJN Chandrasekar[1] and **Deepthi Ramamurthi**[2]

[1]School of Life Sciences, Ooty Campus, JSS Academy of Higher Education and Research, India
[2]Department of Pharmaceutical Chemistry, JSS College of Pharmacy, Ooty, JSS Academy of Higher Education and Research, India

Among the new strategies of drug targeting systems being developed, the concept of polymer-drug conjugates has shown considerable promise. In this context, thermally responsive elastin-like polypeptides (ELPs), which are biocompatible, biodegradable, non-immunogenic and retained in blood circulation for longer periods of time, have been examined. Another important feature of ELPs is their capability to undergo inverse temperature transition (ITT) behaviour, which can be exploited by the application of external hyperthermia to induce their tumour localization. Peptide-drug conjugates improve the drug pharmacokinetics and lead to increased tumour accumulation over free drugs due to passive targeting (Enhanced Permeability and Retention).

A short ELP, *Val-Pro-Gly-Val-Gly, Val-Pro-Gly-Val-Gly-gemcitabine* were synthesized by solid-phase peptide synthesis with a phase transition temperature of 42˚C was confirmed. *In vitro* drug release of the peptide-drug conjugate was evaluated at acidic pH 5.4 and basic pH 7.4. At pH 5.4, nearly 50% of gemcitabine was released from the peptide-drug conjugate at the end of 12h whereas it was only 11% in 7.4 during the corresponding period indicating that the peptide-drug conjugate has a pH dependent drug release effect confirming the drug's release in acidic environment of the tumour. The cytotoxicity of ELP-gemcitabine conjugate and gemcitabine were assayed for their ability to inhibit the growth of SK-OV-3 ovarian cancer cell lines. The IC_{50} values revealed significant cytotoxicity potential of the ELP-gemcitabine and it also decreased the proliferation rate. The *in silico* binding affinity analysis of gemcitabine-peptide confirmed that the conjugate had a better binding affinity than gemcitabine. The increased binding affinity of the gemcitabine-peptide conjugate was further substantiated by the comparative binding mode analysis of the receptor-ligand interactions of both the ligands with the core amino acid residues of 6L3R protein. Downregulation of NT5C3 gene expression was observed from 0.82 to 0.45 folds in peptide-drug conjugate treated cells of SK-OV-3.

Biography

Prof. MJN. Chandrasekar is Professor and Head School of Life Sciences, Ooty Campus, JSS Academy of Higher Education and Research. He obtained PhD in field of drug delivery from The Tamilnadu Dr. M.G.R. Medical University, Chennai. Prior to this Prof. Chandrasekar was professor at the Dept. of Pharmaceutical Chemistry, JSS College of Pharmacy, Ooty. His area of research include, design and development of drugs and drug delivery system, herbal product research and synthetic organic chemistry. Dr. MJN Chandrasekar has been visiting scientist at the University of Regensburg, Germany (2001), University of Rosario, Argentina (2009) and University of Auckland, New Zealand (2013). Prof. Chandrasekar has guided 28 PhD scholors has more than 75 publications and 2 patents to his credit. He has completed 10 sponsored research projects funded by DBT, DST, UGC, ICMR and AICTE.

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Towards acute pain assessment index during anesthesia from salient features of EEG signals using artificial intelligence

M. N. Nashid Rahman[1], Md. Asadur Rahman[2], and **Rubaiyat Rashid[3]**

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[2]*Military Institute of Science and Technology, Bangladesh*
[3]*National Heart Foundation Hospital & Research Institute, Bangladesh*

The expression of emotion can be hidden but the corresponding functionality of the brain cannot. Functional brain imaging is becoming increasingly popular for understanding the connectivity of the whole psychophysiological relations with the brain. Electroencephalogram or EEG is a low-power, lightweight, and portable multichannel functional brain imaging modality with exceptionally high temporal resolution. This powerful tool and its bi-spectral index become an essential part of anesthesia monitoring during operation. Several recent research works also showed the significance of this tool in pain level measurement. Our recent research outcomes showed that during the operation, the state of anesthetic depth (for general anesthesia (GA)) can be classified and predict the transition levels of state with more than 90% accuracy from the salient features of the EEG signal. For that proposed model we utilized MUSIC (Multiple Class Signal Classification)-based feature extraction from the EEG signal and artificial neural network. During this research work, we have found an interesting band of EEG power in MUSIC-based power spectra that can be correlated with the transition pain of the anesthetic patient during the surgery. Although the patient does not feel any pain when the surgery starts due to GA, a pattern of power spectral density is initiated in the EEG signal. This is a source of communication of pain to the brain which is accepted by the brain with different reflexes as the patient is not feeling anything. This acute pain pattern in EEG spectra is not regular in all the patient's cases. This irregular pain pattern of EEG-MUSIC spectra has been modeled with long short-term memory (LSTM) a recurrent AI model. The proposed model provides an Acute Pain Assessment Index (APAI) which has been validated with sufficient dataset. However, to get a robust subject-independent APAI a big dataset is needed.

Biography

M. N. NASHID RAHMAN received the B.Sc. degree from the Department of Electrical and Electronic Engineering, Rajshahi University of Engineering and Technology (RUET), Bangladesh, in 2011. He received his M.Sc. degree from the Department of Biomedical Engineering, Military Institute of Science and Technology (MIST), Dhaka, in 2023. He is currently working as Technical Manager (Training) in National Electro-Medical Equipment Maintenance Workshop & Training Center, Ministry of Health & Family Welfare, and Dhaka, Bangladesh. His research interests include EEG-based functional brain imaging, Anaesthesia Monitoring through EEG, Artificial intelligence, Biomedical Image and Signal Processing, Remote Maintenance of Medical Devices, and Implantable Medical Equipment.

Rubaiyat Rashid Biography:

Rubaiyat Rashid received the MBBS degree from North Bengal Medical College Hospital, Bangladesh in 2014. She is currently working as Medical Officer (Cardiac Surgery) in National Heart Foundation Hospital & Research Institute, Dhaka, Bangladesh. Her research interests include Pain Assessment, EEG-based functional brain imaging, Anaesthesia Monitoring through EEG, Artificial intelligence, and Implantable Medical Equipment.

MD. Asadur Rahman Biography:

MD. ASADUR RAHMAN received the B.Sc. and M.Sc. degrees from the Department of Electrical and Electronic Engineering, Khulna University of Engineering & Technology (KUET), Bangladesh, in 2012 and 2014, respectively, and the Ph.D. degree from the Department of Biomedical Engineering, KUET, in 2020. He is currently working as an Assistant Professor in the Department of Biomedical Engineering, Military Institute of Science and Technology (MIST), Dhaka, Bangladesh. His research interests include Functional Brain Imaging, Brain-Computer Interfaces, Artificial intelligence, Intelligent Algorithms, Biomedical Image and Signal Processing, Statistical Modelling, and Implantable Medical Equipment. He supervises many postgraduate students (M.Sc. and PhD). Dr. Asad is involved in more than 20 Journals as a reviewer, editorial board member, and editor.

Loneliness is more than being alone

H. Nermin Celen and **Petek AkmanOzdemir**

Developmental Psychology, Atlas University, Turkey

People are connected and live even in a very close knit society or they may have big families but still feel lonely. They want to be listen to and they want to make contribution. Loneliness is characterized across developments perceived dissatisfaction with current social relationship marked by negative feelings including sadness and pessimism.

From evolutionary perspective loneliness is viewed adaptive process. When we aware social disconnection we try to repair connection and strength the social relations. If one can not manage repairment of social network experiences higher boredom, anxiety. Stress, nameless fear, aimlessness, self talk, hyper alertness.

The types of loneliness are: Emotional and Social. Emotional loneliness is not to have relationship based on trust. Social loneless is not being a member of a group which shared values and behavioral rituels. And also just after disasters which has high risk and mortality. leads Individuals may feel or sense loneliness. It is difficult engaging new social network. Both types of loneliness share common symptoms. The frequency of loneliness is higher in adolescents and older adults. In any way one can experiences loneliness in any time of his/her life.

Limited support systems, chronic diseases, cognitive changes (executive functions), Physical changes, changes in social context and technology may make different reasons for adolescences and older adults to experience loneliness.

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SCIENTIFIC ABSTRACTS

DAY 2

4th Euro-Global Summit on

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November 06-07, 2023 | Paris, France

BIOL-BIOS 2023 & ADV. MED CHEM 2023

Colombian initiative on neutron radiation for biophysical applications

J. Alfonso Leyva[1], Edwin Munévar[2] and L. Andrea García[1,2]

[1]Pontificia Universidad Javeriana, Colombia

[2]Universidad Distrital Francisco José de Caldas, Colombia

In Colombia, medical physics started formally about three decades ago. Two Master's programs in medical physics initiated activities at two different universities. In particular, the Master's program at the Pontificia Universidad Javeriana has been underway since 2012, and taking into account its projections, a team was established in 2015 in collaboration with the Universidad Distrital Francisco José de Caldas to conduct basic research on cancer treatment using Neutron Capture Therapy (NCT). The primary goal of our initiative is to create the infrastructure required to adapt new technologies in our universities in the future. The long-term objective is to use neutron radiation to study not only NCT but also biomolecules, membranes, and materials. This will require the commissioning of an actual nuclear facility. Our group has been exclusively focused on carrying out calculations with GEANT4 because of its characteristics as open-source software, its accessibility, and its ample worldwide use and validation in the particle physics, nuclear physics, and medical physics communities. In this work, we present some results of our preliminary design for the ion accelerator column of a compact neutron generator. Also, we present the characterization of the kinematical and dose distributions of boron and gadolinium neutron capture processes using Geant4. Finally, we present an extension to the Geant4/Geant4-DNA simulation toolkit able to take into account in the Monte Carlo simulation, not only DNA, but also proteins and lipids as well.

Biography

I am a Colombian scientist, mainly investigating the structure-function relationship of biomolecules under different conditions. In a first approach I use computational models/simulations, together with experimental studies to answer these questions. Currently we are implementing the use of neutron radiation in biophysical studies to investigate the response of biological systems to this type of radiation at the cellular and molecular level. One of our main objectives is the use of neutron radiation with contrast agents for cancer treatment.

I studied physics at the Universidad Nacional de Colombia. For a year I worked at the Colombian Immunological Institute in the development of a malaria vaccine against. Then I did my PhD in theoretical physics at the Johannes Gutenberg Universitaet in Germany, after that I had postdoctoral training in Biophysics at Johns Hopkins University in Baltimore USA, finally I returned to Colombia to be a professor at the Pontificia Universidad Javeriana.

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Challenges in the implementation of internet of things projects and actions to overcome them

Deivison Feitosa[2], Cristina Martens[1], Luciano Ferreira da Silva[3] and Mauro Martens[4]
[1-3]UNINOVE, Brazil
[2,4]USP, Brazil

The objective of this article is to identify the problems that this type of technology may face in its use in organizations, as well as directing present actions to overcome challenges in the implementation of Internet of Things (IoT) projects. The theory of environmental impact, which elucidates issues and coping strategies, presents problems and coping mechanisms, was used as a theoretical lens and theoretical framework. Using a qualitative and exploratory approach, the research initially involved a pilot study through five in-depth interviews and documentary analysis to verify the challenges of IoT. The findings of the first phase prompted a new round of interviews that was conducted with eleven professionals, making it possible to identify the main challenges and actions to implement IoT projects. Data analysis involved a cyclical coding methodology, in which it was possible to apply the content collected in the research using the IT tool ATLAS.ti software. Eight main challenges were identified in the implementation of IoT projects: administration, data collection and management; cost; innovation; the integration of technologies; an efficiency matrix; people; security; and bringing value and business solution. Seven actions to overcome the challenges were also identified: IoT architecture; scalability, sustainability, and reliability in projects; ensure security and support; information, resources, and project management; interaction of people and things; the standardization of the IoT concept; and the promotion of knowledge of technologies and processes. This article contributes to the literature primarily in its focus on description of the relationships and co-occurrence between challenges and actions. The results can guide practitioners in the implementation of IoT projects.

Biography

Ph.D Student in the - PPGP – UNINOVE; Ph.D in System information – EACH USP; M.Sc. Master in Administration with professional in Project Management – UNINOVE. International Module in Project Management - Bentley University (USA); MBA in Information Technology (IT) and Internet – UNINOVE; Graduation in Technology in Computer Networks – UNINOVE; Graduation in Management of Internet Environments and Computer Networks – UNINOVE; Graduation in Theology ESTM. 61 IT specialization courses such as: MCSE Microsoft, CCNA Cisco; ITIL; Cobit; Agile, LGPD - Brazil (similar GDPR - EU) and other courses. Teacher Experience: Professor at IBTA College, technical course on Data Processing. Professor at UNINOVE, graduation in Electrical Engineering. Professor at SENAC, technical course on Information Technology. Theme of interest and research: Digital Transformation, Agile, DevOps, Innovative technologies; Artificial Intelligent (AI), Internet of Things (IoT); Information Technology (IT), Virtualization, Cloud computing; Network computing; Project Management.

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Management of barriers in adopting machine learning and artificial intelligence in pharmaceutical supply chain post-COVID-19

Eli Sumarliah[1] and **Kawther Mousa**[2]

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Background: The COVID-19 epidemic has initiated rigorous supply chain (SC) disturbances worldwide and has caused SC uncertainties and disruptions that generate massive volatility, such as unavailability of products, instabilities of prices, panic buying, disturbances in sourcing and manufacturing up the chain, which subsequently disrupt prices and SC points down the chain. Pharmaceutical supply chain (PSC) is among the main sectors that have been severely disrupted by the COVID-19 outbreak, especially in Indonesia, causing medicine insecurity throughout the country. As the COVID-19 outbreak has changed most of business platforms from offline to online, the role of digital technologies becomes important. Numerous scholars suggest the importance of adopting digital technologies in the PSC, intending to alleviate barriers related to PSC disruption through the improvement of robustness, agility, and resilience. These digital technologies include machine learning (ML) and artificial intelligence (AI). AI is a high-tech driver of digitalization; ML is one of AI applications. Apparently, MLAI adoption is important to handle and alleviate many barriers in the PSC post-COVID-19.

Purpose: The paper purposes to demonstrate the barriers of adopting machine learning and artificial intelligence and (MLAI) for mitigating the effects of COVID-19 in Indonesia's PSC.

Methodology: This study uses an integrated cross impact matrix multiplication-fuzzy interpretive structural modelling (MICMAC-FISM) to identify 21 main barriers derived from an inclusive review of publications and specialists' opinions. Subsequently, the discovered barriers are prioritized using analytical network process (ANP).

Findings: Results show that the most critical barriers of MLAI adoption in the PSC are "inadequate privacy and security of data" and "absence of government's policies". Besides, MLAI in the PSC is an influential tool for predicting the future accurately to minimalize fears and uncertainty caused by pandemic.

Originality: The paper is an initial attempt to assess the likelihood of MLAI in the PSC post-COVID-19 using an integrated method of MICMAC, FISM, and ANP, especially in a developing economy of Indonesia context.

Biography

Eli Sumarliah is a lecturer and researcher at the Faculty of Engineering, Al-Ihya Islamic University of Kuningan, Indonesia. She got her doctoral degree from the School of Economics and Management, University of Science and Technology Beijing, China. In the past three years (2021-2023), she has published 27 research articles, 11 of which as the first author, in peer-reviewed journals indexed by SCI, SSCI, EI/Compendex and Scopus. She has also published a conference paper for the 2019 International Conference on Transportation and Traffic Engineering–ICTTE (Auckland, New Zealand). Her areas include Supply Chain Management, Information Management, E-commerce, and Consumer Behaviour. Her publications can be found at Google Scholar: sTSPyI4AAAAJ with H-index: 11, and Scopus: 57216867000 with H-index:8.

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Incidence and risk factors of abdominal compartment syndrome in pediatric oncology patients: A prospective cohort study

Gabriela Cerqueira Caldas Pinto[1,2,3], Laura de Carvalho Gaiga[1], Milena Pessoa de Moura[1] and Eduardo Juan Troster[1,2]

[1]Universidade de São Paulo, Brazil
[2]AC Camargo Cancer Center, Brazil
[3]Hospital Israelita Albert Einstein, Brazil

Abdominal compartment syndrome (ACS) has been the subject of increasing research over the past decade owing to its effects on morbidity and mortality in critically ill patients. This study aimed to determine the incidence and risk factors of ACS in patients in an onco-hematological pediatric intensive care unit in a middle-income country and to analyze patient outcomes. This prospective cohort study was conducted between May 2015 and October 2017. Altogether, 253 patients were admitted to the PICU, and 54 fulfilled the inclusion criteria for intra-abdominal pressure (IAP) measurements. IAP was measured using the intra-bladder indirect technique with a closed system (AbViser AutoValve®, Wolfle Tory Medical Inc., USA) in patients with clinical indications for indwelling bladder catheterization. Definitions from the World Society for ACS were used. The data were entered into a database and analyzed. The median age was 5.79 years, and the median pediatric risk of mortality score was 7.1. The incidence of ACS was 27.7%. Fluid resuscitation was a significant risk factor for ACS in the univariate analysis. The mortality rates in the ACS and non-ACS groups were 46.6% and 17.9%, respectively ($P < 0.05$). This is the first study of ACS in critically ill children with cancer.

Biography

Gabriela Pinto is a doctor graduated from the Escola Bahiana de Medicina e Saúde Pública, she graduated in pediatrics from Hospital Martagão Gesteira in Salvador - Bahia – Brazil and in pediatric intensive care from Instituto da Criança FMUSP, where she completed her doctoral thesis in April/2023.

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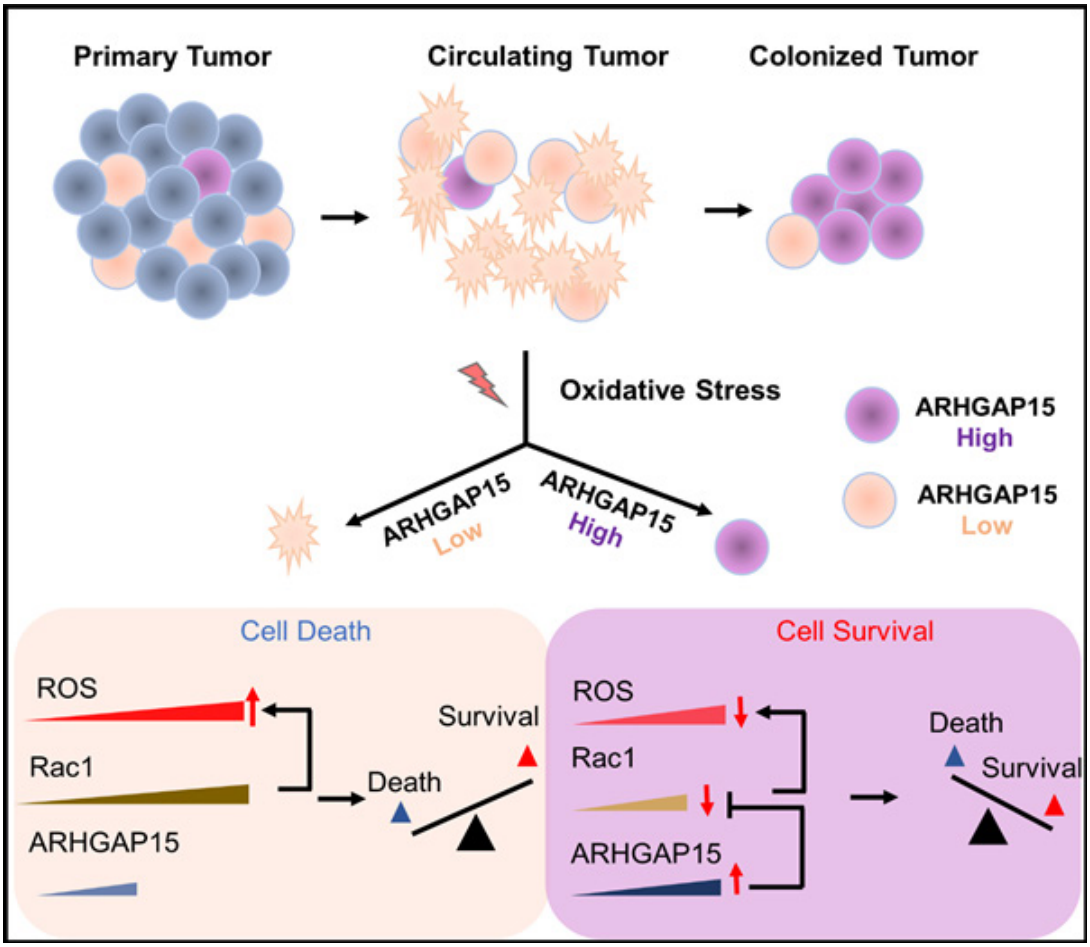
ARHGAP15 promotes metastatic colonization in gastric cancer by suppressing RAC1-ROS pathway

Chen Jiang[2,3], Feifei Zhang[1], Dongping Jiang[3], Yuzhu Cui[1], Xinyue Wang[3], Liangzhan Sun[1], Miao Chen[1], Ka-On Lam[1], Shayi Wu[1], Krista Verhoeft[1], Dora Lai-wan Kwong[1] and **Xin-Yuan Guan[1, 3-5]**

[1]Department of Clinical Oncology, The University of Hong Kong, China
[2]Department of Pathology
[3]State Key Laboratory of Oncology in Southern China, Sun Yat-sen University Cancer Center, China
[4]Advanced Energy Science and Technology Guangdong Laboratory, China
[5]MOE Key Laboratory of Tumor Molecular Biology, Jinan University, China

The molecular mechanism of tumor metastasis, especially how metastatic tumor cells colonize in a distant site, remains poorly understood. Here we reported that ARHGAP15, a Rho GTPase activating protein, enhanced gastric cancer (GC) metastatic colonization, which was quite different from its reported role as a tumor suppressor gene in other cancers. It was upregulated in metastatic lymph nodes and significantly associated with a poor prognosis. Ectopic expression of *ARHGAP15* promoted metastatic colonization of gastric cancer cells in murine lungs and lymph nodes *in vivo* or protected cells from oxidative-related death *in vitro*. However, genetic downregulation of *ARHGAP15* had the opposite effect. Mechanistically, *ARHGAP15* inactivated RAC1 and then decreased intracellular accumulation of reactive oxygen species (ROS), thus enhancing the antioxidant capacity of colonizing tumor cells under oxidative stress. This phenotype could be phenocopied by inhibition of RAC1 or rescued by the introduction of constitutively active RAC1 into cells. Taken together, these findings suggested a novel role of *ARHGAP15* in promoting gastric cancer metastasis by quenching ROS through inhibiting RAC1 and its potential value for prognosis estimation and targeted therapy.



Biography

Dr. Jiang received the Bachelor's Degree of Medicine from Bengbu Medical College in 2011 and the Ph.D. degree in Cancer Genetics from The University of Hong Kong in 2018. He is currently working at the Department of Pathology, Sun Yat-sen University Cancer Centre as a pathologist. His research interests include Epstein-Barr virus associated malignancies and the mechanism of tumor metastatic colonization.

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Technical evaluation and optimization of the use of sediments extracted from the Koudiat Medouar dam for construction and public works projects

Pr. FOURAR. Ali and **BENAICHA. Ammar**

Université de Batna2, Algérie

The sedimentation of dam reservoirs represents a major ecological and environmental challenge in terms of protecting and preserving water resources and their quality. This phenomenon, which occurs in Algeria in particular, where large quantities of sediment are deposited in dams every year, has serious consequences, such as reducing the storage capacity of dams, deteriorating water quality and disrupting ecosystems.

Various approaches can be envisaged to deal with this problem. Sediment management techniques include reservoir dredging to remove accumulated sediment, the use of diversion dams to control sediment flow, and the implementation of soil conservation measures in watersheds to reduce erosion and the amount of sediment transported.

In the specific case of the Koudiat Medouar dam in Algeria, it is imperative to extract the accumulated sediments to avoid its deterioration and filling in the medium term. Paradoxically, these sediments have great geotechnical and mechanical value, opening up opportunities for their use in construction and public works projects. However, it is essential to carry out an in-depth study to assess the technical feasibility and best approach to reclaiming these sediments, while complying with environmental standards.

The aim is to find the best solutions for optimal use of sediment resources while preserving the environment and extending the operating life of dams.

To achieve this, it is necessary to identify the various options available for cost-effective and efficient use of sediments, taking into account technical aspects such as the quality, composition and physical properties of the materials removed. In this respect, managing the sedimentation of dam reservoirs requires a multi-dimensional approach. This involves assessing the quantities of sediment required, determining appropriate transport and storage methods, and possibly considering treatment or preparation stages.

Biography

FOURAR Ali, Professor at the University of Batna 2 in Algeria. I am also a teacher-researcher in fluid mechanics and hydraulics since my doctorate in 1986. Alongside my career as a research scientist, I also hold scientific and administrative responsibilities such as:

- Expert in the American Journal of Water Science and Engineering (AJWSE), Science Publishing Group, New York, U.S.A, ISSN Print: 2575-1867; ISSN Online: 2575-1875.
- Member of Science Publishing Group INC, New York, U.S.A.
- Expert of the International Journal of Digital Earth Taylor & Francis (IJDE), Aerospace Information Research Institute, Chinese Academy of Sciences, ISSN 1753-8947.
- And more responsibilities.

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Deep learning enabled video steganography for macro block selection Tasmanian Devil Sail Fish optimization

Surendra Bhosale[2] and **Shamal Salunkhe**[1,2]

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In this digital era, most of the research findings are being digitalized by electronic medium for well-organized mass storage, transformation, transfer, and easy access. The usage of digital data is more convenient to perform any task rapidly and precisely as compared to a tangible form of information. The innovations in advanced information technologies has led to rapid delivery and sharing of multimedia data like images and videos. Deep learning technique is used to develop image and video steganography and Steganalysis.

There are many fields wherein the secrecy of information is highly essential to prevent illegal access viz., Medical, Military or Intelligence communication, Personal Information System, etc. In medical applications, the biometric system is used for personal identification and allowing for authorizing access. Human biometric having physiological, behavioural, and psychological characteristics of an individual. Physiological biometric information of a human being includes face recognition, eye recognition, fingerprints, palm classification, voice recognition, vein recognition, information related to Deoxyribonucleic Acid (DNA), Magnetic Resonance Imaging (MRI), electroencephalography, electrocardiography (ECG), and other medical information about the anatomy of the patient must be secured while communicating between the medical centres.

The behavioural characteristics include different posture and gestures created by the individual human body, the different patterns of handshaking, sitting, standing, and walking style. While psychology consists of the emotions felt by human beings, majorly he/ she is medically analysed during Norco Test. All this sensitive medical information must be prevented against the public domain's leak. Video steganography is aimed to ensure enough security on the issues related to data security such as digital communication, invisible communication via digital media and copyright protection of digitized properties. Video can be considered as combination of audio and collection of still images which moves in constant time sequence. Videos are getting popular as a cover object in steganography due to high embedding payload than a digital image and temporal features of video also provide perpetual redundancy which is not available in digital images. Video steganography is a process of hiding the secret information behind video bit streams. The main goal of video steganography is to hide presence of secret message from human visual system.

Video steganography embeds message into cover contents and is used in many fields such as military communication, medical systems, law enforcement, copyright protection and access control, etc. Since human visual system are less sensitive to the small changes of digital medias, especially for digital video, video steganography is a technique which hides message into a video and conceals the fact of the transmission. Proposed TDSFO based Deep CNN model for

video steganography using effective tests and discussion conducted on various other existing techniques. It is clearly proven that the proposed model has gained best performance with superior outcomes of high PSNR of 83.9764 dB, and Correlation Coefficient of 1.0000. To reduce effect of external noise and distortion a TDSFO based DCNN model is developed for compressed domain video stream.

Proposed TDSFO-Based DCNN for Video Steganography

The requirement of hiding data from the attackers is around the world since ancient times. For maintaining the information secrecy, various techniques of hiding are evolved wherein one of them is steganography. The video steganography has become popular, because of its ability to accommodate high payload. The goal of this model is to devise an optimized model, namely TDSFO for video steganography in compressed video stream. In embedding phase, the input video attained is fed to key frame extraction, wherein the key frames of video are mined. Then, the estimation of motion is performed for mining the motion vector.

The macro-blocks is chosen using DCNN for embedding secrete image, which is trained with TDSFO algorithm. After motion-vector embedding, the bit-stream embedding is performed and then the motion compensation is performed. Then, the DCT quantization and entropy coding is performed. Finally, compressed bit-stream is derived from entropy coding process. On the other hand, in the extraction phase the compressed bit-stream is fed into decoding process, where the information is decoded. After that, embedded motion-vector extraction is carried out then followed by bit-stream extraction in order to extract the message bit. Furthermore, motion compensation is performed using the result obtained from embedded motion-vector extraction.

Dataset description: The assessment is performed with video dataset [2] [3] [4]. Here, seven videos are considered. The first video is based on news reading, which comprises 30 frames. The second video is of classroom, which contains 30 frames. The third video is of traffic area, which contains eight frames. The fourth video is of travelling, which contains 30 frames. The fifth video is of boat ride, which contains 30 frames. The sixth video is of hockey and it contains 13 frames. The seventh video is of site, which contains 30 frames. The evaluation of designed model is done with specific measures are CC and PSNR. The techniques employed for the analysis includes DWT+DCT, DCT-CNN, DTF+WT+WEWO-DeepRNN, FrWEWO-DeepCNN, and TDSFO-DCNN. [5-12]

Outcome of the developed TDSFO algorithm and its comparison with novel algorithms:

The comparative analysis of the algorithms is summarized as follows:

(a) Analysis using video-1 CC - The performance enhancement of CC with proposed model with values of 16.7478 %, 8.23063 %, 0.69615 %, 0.32639 %, and 0.04063 %. The average overall improvement in performance is 5.2083%. The performance enhancement of PSNR with proposed method with values of 106.988 %, 80.7548 %, 88.5578 %, 37.780 %, and 48.1373 %. The average overall improvement in performance is 68.44 %.

(b) Analysis using video-2 CC - The performance enhancement of CC with proposed model with values of 35.5184 %, 14.5872 %, 2.54228 %, 1.17743 %, and 0.83674 %. The average overall improvement in performance is 10.93 %. The performance enhancement of PSNR with proposed method with values of 106.5637 %, 76.3258 %, 62.4666 %, 37.7758 %, and 41.2963 %. The average overall improvement in performance is 64.8856 %.

(c) Analysis using video-3 CC - The performance enhancement of CC with proposed model with values of 40.1528 %, 10.1279 %, 2.03956 %, 1.3505 %, and 0.6196 %. The average

overall improvement in performance is 10.8581%. The performance enhancement of PSNR with proposed method with values of 108.895 %, 75.4388 %, 67.8962 %, 36.8354 %, and 42.9672 %. The average overall improvement in performance is 66.4065%.

(d) Comparative analysis using video-4 CC - The performance enhancement of CC with proposed model with values of 22.504 %, 16.2385 %, 1.6260 %, 1.2966 %, and 0.5935 %. The average overall improvement in performance is 8.4517%. The performance boost of PSNR with proposed method with values of 98.7265 %, 80.1254 %, 71.9645 %, 44.713 %, and 44.2312 %. The average overall improvement in performance is 67.9521 %.

(e) Comparative analysis using video-5 CC - The performance enhancement of CC with proposed model with values of 44.6068 %, 20.7322 %, 0.8563 %, 6.0905 %, and 0.589671 %. The average overall improvement in performance is 14.575 %. The performance enhancement of PSNR with proposed method with values of 109.063 %, 88.7166 %, 68.0369 %, 60.7486 %, and 41.1889 %. The average overall improvement in performance is 73.5508 %.

(f) Comparative analysis using video-6 CC - The performance enhancement of CC with proposed model with values of 35.152 %, 9.5369 %, 2.501287 %, 0.7283 %, and 0.9222 %. The average overall improvement in performance is 9.7682%. The performance boost of PSNR with proposed method with values of 96.8117 %, 74.994 %, 54.4097 %, 35.8503 %, and 33.48175 %. The average overall improvement in performance is 59.1095 %.

(g) Comparative analysis using video-7 CC - The performance rise of CC with proposed model with values of 33.9944 %, 9.2419 %, 3.0503 %, 1.7294 %, and 0.0103 %. The average overall improvement in performance is 9.60525 %. The performance enhancement of PSNR with proposed method with values of 95.3575 %, 90.9622 %, 83.6585 %, 48.699 %, and 58.8337 %. The average overall improvement in performance is 75.50218 %.

Biography

Surendra Bhosale is an Associate Professor in Electrical Engineering and is a Ph.D. guide. He had received his B.E. Degree in Electrical Engg. from Shivaji University, Kolhapur and M.E. Degree in Electrical from the University of Mumbai, Maharashtra. He has obtained his Ph.D. Degree in Electrical Engineering from the University of Mumbai, India.

Currently, He is an Associate Professor of Electrical Engineering Department at VJTI, Mumbai India. He has more than 35 years of teaching experience. He was Head of monitoring and evaluation cell for World Bank Project named Technical Education Quality Improvement Programme (TEQIP-2) 2011-2016.

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Association of developmental milestones with vitamin B12 and folate status among hospitalized severe acute malnutrition children at a tertiary care center in North India

Ganesh K. Verma[1], Ramesh Chand[1], Imran A. Khan[2], Ashok Kumar[1] and **Rajesh K. Yadav[3]**

[1]Department of Pediatrics, Uttar Pradesh University of Medical Sciences, India
[2]Department of Community Medicine, BRD Medical College, India
[3]Department of Pediatrics, Moti Lal Nehru Medical College, India

Introduction: Severe acute malnutrition (SAM) is a severe form of malnutrition affecting nearly 20 million children worldwide. Besides increasing the risk of death and disease, malnutrition also leads to growth retardation and impaired psychosocial and cognitive development. Vitamin B12 and folate are water-soluble essential micronutrients critical in average growth and development, particularly during infancy and childhood. A deficiency of folate and vitamin B12 can result in anemia, poor growth, and increased infections, and vitamin B12 deficiency can cause irreversible neurologic damage to the developing brain. We conducted this study to assess serum folate and vitamin B12 levels in children with SAM at admission and determine its relation with their developmental milestones.

Materials and Methods: One hundred admitted SAM children between ages 6 and 59 months were taken to assess serum folate and vitamin B12 levels status in a tertiary care hospital and determine its relation with their developmental milestones.

Results: The majority of the participants were in the age group 6–12 months (64%), rural (95%), the lower class of socioeconomic status (76%), and incomplete immunization (63%). Serum vitamin B12 and folate levels were found to be significantly associated with different domains of childhood development.

Conclusion: This analysis revealed a high prevalence of vitamin B12 deficiency among malnourished children aged 6–59 months. We found that serum vitamin B12 level and folic acid were significantly associated with developmental delay in all domains (gross motor, fine motor, language, and social) of milestones.

Biography

Educational Qualifications:

MBBS (2007) BRD Medical College Gorakhpur.

MD (Pediatrics) 2011 MLB Medical College Jhansi.

Total Teaching Experience: 12 years.

Post Graduate Medical Teacher as per NMC

Published various publication in prestigious pubmed centeral & scopus index

Faculty and chairing the sessions in many Paediatric Conferences.

Additional Medical Superintendent of UPUMS, Saifai

Incharge OPD/IPD/CRR - UPUMS, Saifai

Incharge - Thalasemia & Hemophilia Unit

Inspector of Nursing College

Deputy medical superintendent of covid -19 during covid

Warden of MBBS & MD boy's hostel.

Member Anti Ragging Squad of UPUMS. Member of the Counseling board for admission in various courses in Nursing and paramedical college of UPUMS.

In-charge of Pediatric Intensive Care Unit (PICU).

PEERS ALLEY MEDIA

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Future of Biologics and Biosimilars

The potential utilization of waste cooking oils in microbial citric acid production

Bilge SAYIN BÖREKÇİ

Ardahan University, Turkey

For value-added products that are obtained in a biotechnological way, many different waste materials generated during the production and consumption of food can be considered valuable feedstocks. This approach helps to prevent biomass and nutrient losses and contributes to reducing environmental pollution. Considering the increasing population and demands, it is known that the quantity of food production will rise, leading to a corresponding increase in waste generation. Therefore, effective recycling efforts to reduce disposal costs and contribute to the national economy have become more important day by day. Citric acid, an important tricarboxylic acid widely used in various industrial fields such as food, beverage, detergents, pharmaceuticals, and cosmetics, is growing in annual production and consumption. Also, studies focusing on microbial citric acid production using substrates that lower process costs and promote environmentally friendly production with renewable resources are rapidly advancing. As a waste of domestic and industrial activities, waste cooking oil presents environmental challenges when improperly disposed of. Researchers have been investigating ways to convert waste cooking oil into biodiesel and biogas, providing greener alternatives to conventional fossil fuels. Moreover, it has been revealed that waste cooking oil can serve as a substrate for microbial lipid, enzyme, and organic acid production. However, the literature contains limited studies using waste cooking oils in citric acid production. In this study, the evaluation of waste oils for citric acid production, process limitations, future suggestions, and approaches will be explored.

Biography

Bilge Sayın Börekçi is a full-time assistant professor in the Department of Gastronomy and Culinary Arts at Ardahan University, Turkey. She graduated in Food Engineering from the Faculty of Agriculture of Atatürk University in 2011. She gained her M.Sc. degree at Ankara University in 2013. Her M.Sc. thesis is about microbial alkaline protease production and is entitled "Determination of the specifications of alkaline proteases of some anaerobic bacteria". In 2020, she finished her Ph.D. thesis, which is entitled "Determination of citric acid production capacity of autochthonous *Candida zeylanoides* strains". She has experience in the fields of food biotechnology and process optimization. Recently, her research studies on the production of citric acid and single-cell oil from industrial food waste, such as olive-mill wastewater and waste cooking oil, and the optimization of these processes are ongoing.

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The first reported case of embolic protection device implantation in a patient with prosthetic valve thrombosis treated with thrombolytic therapy: A case report

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[1]Department of Cardiology, Bicard Clinic, Kyrgyzstan
[2]Department of Cardiac Surgery, Bicard Clinic, Kyrgyzstan

Background: Prosthetic valve thrombosis (PVT) is a rare but one of the most dreaded complications of implanted mechanical valves. Although surgery is the first-line treatment modality particularly in symptomatic obstructive mechanical valve thrombosis, it is associated with high rates of morbidity and mortality. Thrombolytic therapy has also been used as an alternative to surgical treatment. The risk for cerebral thromboembolism associated with thrombolytic therapy seems to be the main limitation for its use in left-sided mechanical valve thrombosis. To the best of our knowledge, this is the first case of implantation of embolic protection devices during thrombolytic therapy of PVT.

Case Summary: Our report describes management of patient with obstructive prosthetic valve thrombosis of the aortic valve. Fluoroscopy showed an immobile anterior disc of the aortic prosthesis. TOE detected the severely restricted prosthetic valve motions and a huge mass at the supravalvular site. A patient had very high surgical risks. Although, thrombolytic treatment was not without risk due to the large thrombus (>10mm) increasing the risk of thromboembolism. We implanted embolic protection devices into both internal carotid arteries (Figure 1) followed by the administration of a thrombolytic therapy with 50 mg Alteplase. After the procedure an embolized thrombus was detected at the apex at the left-sided placed device. There were no signs of TIA nor stroke, and the procedure was ended uneventful. The TOE performed on the next day confirmed successful resolution of the thrombus.

Discussion: Mechanical left-sided prosthetic valve obstruction is a serious complication with high mortality and morbidity and requires urgent therapy. The choice between surgery, thrombolysis and escalation of anticoagulation is considered on an individual basis. In patients with high surgical risk and high risk of embolization, an embolic protection device may be used in conjunction with thrombolytic therapy to decrease the risk of embolic cerebral events.

Biography

Damirbek Osmonov, MD, is a graduate of Hacettepe University, School of Medicine in 2005, Ankara, Turkey. He has completed his Cardiology residency in Siyami Ersek cardiovascular surgery centre in 2011, Istanbul, Turkey. His field of interests are interventional cardiology, echocardiography, and invasive arrhythmology.

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The role of bioactive compounds in alleviating citrus bitterness

Çağla Özbek

Faculty of Fine Arts Design and Architecture, Gastronomy and Culinary Art Department, Toros University, Turkey

Citrus peels exhibit a pronounced bitterness, primarily attributed to the presence of limonin, nomilin (limonoids class), as well as naringin, neohesperidin, ponsrin, and neoeriocytrin (flavonoids). Additionally, the elevated tannin levels in the peel contribute to this bitterness. Tannins, more abundant in peels compared to other fruit parts, not only possess antioxidative properties but also confer protective effects against cardiovascular diseases and cancer. Current preprocessing techniques, including grating, boiling, and soaking, aim to alleviate bitterness in fruit peel products. However, methods like blanching incur substantial time, labor, and economic costs. In light of this, alternative approaches are sought for bitterness masking and product enrichment. This study investigates the effects of gallic acid and tannic acid phenolic compounds in alleviating bitterness in orange peels. Samples comprising 0.05% gallic acid, 0.05% tannic acid, a mixture of gallic acid and tannic acid (1:1), 10% naringin, 0.05% gallic acid combined with 10% naringin, and 0.05% tannic acid combined with 10% naringin were prepared. To observe the behavior of naringin in the presence of gallic acid and tannic acid, a spectrum was drawn within the range of 300 to 450 nm, and absorbances of the mixtures were measured. The findings indicate a distinctive complex formation between naringin and gallic acid, particularly highlighting the suppressive effect of gallic acid on naringin, leading to a reduction in perceived bitterness. As a result, it is no longer necessary to apply pre-treatments such as blanching, which causes time, labor and economic losses. The flavonides and tannins that cause bitterness and have so many health benefits that are lost with blanching have been preserved. This study sheds light on a promising avenue for effectively mitigating bitterness in citrus peels, offering potential applications in enhancing the quality of fruit-derived products.

Biography

Dr. Çağla Özbek is an esteemed educator and researcher specializing in food science, food technology, dairy technology, and waste management. She completed her undergraduate studies at the Department of Food Engineering at Gaziantep University in Turkey. During this period, she received a scholarship to pursue studies in food science at the University of Bologna in Italy. She furthered her academic journey by obtaining her master's and doctoral degrees from the Department of Food Engineering at Çukurova University in Turkey. Presently, she serves as a faculty member and Ph.D. advisor at the Department of Gastronomy and Culinary Arts at Toros University.

Dr. Özbek has contributed extensively to the field of food science, with her research papers published in numerous peer-reviewed journals. Additionally, she has actively participated in various conferences, presenting her findings and taking on roles in organizing committees. She also holds the position of Section Editor in the Toros University Journal of Food, Nutrition, and Gastronomy, and has served as a peer reviewer for several high-impact factor journals.

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A cost-effective transperineal prostate biopsy method utilizes the original transrectal setting

Richard C. Wu[1,2,3], Mu-Chaio Tung[1] and Victor C. Lin[1,3]

[1]Department of Urology, E-Da Hospital, Taiwan
[2]Department of information engineering, I-Shou University, Taiwan
[3]School of Medicine, College of Medicine, I-Shou University, Taiwan

Introduction: Transperineal prostate biopsy (TPB) presents an appealing alternative to the conventional transrectal prostate biopsy (TRB) in the realm of prostate cancer diagnosis. Nevertheless, the adoption of TPB may entail additional expenditures, encompassing both disposable and capital equipment costs, which can potentially encumber its integration into routine urology practice. In this report, we delve into the inaugural experience of a pioneering TPB technique implemented within the confines of a tertiary referral center situated in Taiwan.

Methods: A meticulous retrospective scrutiny was conducted, encompassing all men who underwent prostate biopsies between January and October in the year 2021. Both TPB and TRB procedures were executed utilizing the same medical setup, employing a convex-convex array ultrasound probe, administered under local anesthesia either solely or in conjunction with sedation, employing a double free-hand technique. An evaluation of complications occurring within a 30-day post-procedure window and a comparison of the cancer detection rates (CDR) between the two groups were the focal points of this analysis.

Results: The comprehensive analysis encompassed a total of 118 biopsies. Among them, eleven patients received systematic biopsies, augmented with additional MRI-targeted biopsy (TB) cores, all conducted via the transperineal approach. After excluding the TB cores, the TPB group (n= 47) and TRB group (n= 58) exhibited a closely aligned CDR (46.8% vs. 44.8%, p = 0.675). Notably, the general complication rates for TPB were significantly lower when juxtaposed with the TRB group (27.7% vs. 46.6%, p = 0.047). It is noteworthy that none of the patients who underwent TPB suffered from infectious complications, in stark contrast to the five documented episodes in the TRB group (p = 0.114).

Conclusion: The deployment of TPB, orchestrated with a convex-convex ultrasound probe and employing the double free-hand technique, emerges as a safe, pragmatic, cost-effective alternative that mirrors the CDR of TRB. Furthermore, its adoption holds the promise of obviating hospitalizations stemming from infectious complications while simultaneously mitigating the demand for additional capital investments associated with TPB integration.

Biography

Dr. Richard C. Wu, MD, is a renowned urologist, specializing in urological cancer and minimally invasive/ robotic surgery. He currently holds the prestigious position of Head of the Urological Cancer Team and Chief of the Urological Ward at E-Da Hospital in Taiwan.

Dr. Wu's educational journey began with the attainment of his medical degree from Chang Gung University, Taiwan. His post-graduate training includes an extensive residency and fellowship in urology at E-Da Hospital. He is currently pursuing a PhD in Information Engineering at I-Shou University.

Notably, Dr. Wu's international exposure includes participation in the Michigan Urological Surgery Improvement Collaborative (MUSIC) during 2019-2020, a significant contribution to his expertise in urological advancements.

Within the medical community, Dr. Wu actively contributes to the Taiwan Urological Association (TUA), serving on various committees. His unrelenting dedication to urology continues to the domains of urological cancer treatment and the advancement of minimally invasive and robotic surgical techniques.

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Study of clinical and biochemical profile in children affected with thalassemia and assessment of their growth, endocrine and cardiac functions in relation with serum ferritin level

Shashindra Bhannariya[1,2] and **Ganesh Kumar Verma**[2]

[1]*District Hospital Sehore, India*

[2]*Uttar Pradesh University of Medical Sciences (UPUMS) Saifai, India*

Introduction: Thalassemia refers to a group of genetic disorders of globin-chain production. There is a decrease in beta globin chain synthesis resulting in an excess of alpha globin chain and thus an imbalance between alpha and beta globin chains. (1)

B-Thalassemia syndromes result from a decrease in beta-globin chains, which results in a relative excess of alpha -globin chains. B0-thalassemia refers to the absent production of the B-globin chains. When there is homozygosity of the BO-thalassemia gene, normal ß-globin chains (HbA) cannot be made. B+ thalassemia indicates a mutation that makes decreased amounts of normal Beta globin (HbA). ß0-thalassemia syndromes are generally more severe than B+ thalassemia syndromes, but there is significant variability between the genotype and phenotype. (2)

The natural course of the disease is dramatically altered by transfusion side effects, which need to be monitored and treated. Iron overload resulting in end-organ damage and blood-borne infectious agents still represent the principal causes of morbidity and mortality. Due to repeated blood transfusions, Iron accumulates in tissues such as liver, heart and endocrine glands as these organs have high levels of transferrin-receptor. Hormone secretion disorders mainly gonadotrophins (FSH and LH) and Growth Hormone (GH) are caused due to extreme sensitivity of the anterior pituitary gland to free radical oxidative stress . Other endocrine organs affected by iron deposition secondary to multiple transfusions include the pancreas, thyroid, and parathyroid glands leading to Diabetes Mellitus (DM), Acquired hypothyroidism and hypoparathyroidism respectively.(8)

Material and Methods: It is a hospital based observational study

STUDY POPULATION –Indoor Patient admitted in Department of Paediatrics with thalassemia

INCLUSION CRITERIA

All the patients affected with thalassemia aged between 6 months – 14 years

EXCLUSION CRITERIA

a) chidren more than 14 years
b) children less than 6 months
c) chidren on hormonal therapy
d) chidren with any other chronic disorder.
e) Children with any pre-existing cardiac diseases
g) not willing to give informed and written consent for participation in study

Biography

My name is Dr Shashindra bhannariya lives in Bhopal M.P in India.

QUALIFICATION

M.B.B.S passed in 2012 from Barkatullah University Bhopal (M.P).

DCH (Diploma in Child Health) from NSCB Medical College Jabalpur in M.P

TRAINING: F-IMNCI, NSSK, RKSK, National Malaria Control Programme, T.B Control Programme

WORK EXPERIENCE

- Resident in Surgery dept in Peoples Medical College Bhopal. Junior Resident in Cath Lab (Catheterization laboratory) in Moolchand Hospital Delhi.
- As Medical Officer in Primary Health Centre Anjani Jabalpur (M.P)
- As Paediatric consultant in Matrusparsh hospital Kutch Gujrat
- Currently I am posted in PICU in District hospital Sehore M.P

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Future of Biologics and Biosimilars

Investigation of the effect of Ruscus Aculeate alkaloid extract on HTLV-1 infected cancer cells

Arezoo Baghban[1], Mohammad Momen Heravi[1] and **S.A. Rahim Rezaee[2]**

[1]Department of Chemistry, Faculty of Science, Azad University of Mashhad, Iran
[2]Immunology Research Center, Inflammation and Inflammatory Diseases Division, Faculty of Medicine, Mashhad University of Medical Sciences, Iran

Ruscus aculeatus is a traditional herb with antiviral, antibacterial and anti-inflammatory properties. Glycosides, saponins, and ruscogenins constitute the active compounds of the *Ruscus aculeatus* plant, often known as anti-proliferative and antiviral agents. The urgent need to find a cure for HTLV-1 infection or related diseases has prompted us to investigate *Ruscus aculeatus* plant extract in detail using IR spectroscopy, GC-MS and HPLC analysis.

Specific compounds in *Ruscus aculeatus* include 2-(1,3-Benzodioxol-5-yl)-8-methoxy-3-nitro-2H-chromene C17H13NO6, Glaucine C21H25NO4, 6-Methyl-2-nitro-6,7-dihydro-9H-5-oxa-9-azabenzocyclohepten-8-one C10H10N2O4 and polyphenols in Ruscus aculeatus, which may be physiologically active as anticancer, antiviral agents with antioxidant properties using GC-MS chromatography.

Also, in this study, the compounds of *Ruscus aculeatus* extract on cell proliferation of HTLV-1-MT2 and three cancer cell lines were investigated in terms of inhibitory effect for viral therapeutic purposes and cancer agents. Based on *in vitro* observations of HTLV-1- Infect MT2 cells (9.12% survival) - HT29 cells (28.8% survival) - MCF7 cells (52.55% survival) - A549 cells (80.49% survival).

According to the obtained results, the best inhibitory effect was observed for HTLV-1-Infect-MT2 cells. It can be used as a potential therapeutic agent against HTLV-1 infection.

Biography

I am 35 years old, a PhD student at Mashhad Azad University, currently completing a Ph.D. degree in physical chemistry.

I am also collaborating with the Immunology Research Centre to study and research different plant extracts for the treatment of HTLV-1 infection with the Faculty of Medicine of the University of Medical Sciences of Mashhad.

The research I have done so far includes studying the performance of yew plant toxins, its alkaloid extract, the difference of extraction on viral protease and cells infected with them.

We are analysing the chromatograms obtained by GC-MS and HPLC using different extraction conditions and comparing the extracted toxins.

Examination and comparison of extracted extracts with existing drugs in LOD amount and nanoparticle complexation.

Also, based on theoretical research and MD studies focusing on the HTLV-1 protease, the protein Tax as a target for binding with bioactive compounds obtained from extracts.

PEERS ALLEY MEDIA

4th Euro-Global Summit on
Future of Biologics and Biosimilars

Forecasting the effects of climate change and land use on groundwater resources and providing solutions to deal with them (case study of the Hashtgerd plain)

A. Hanifehlou[1], S. A. Hosseini[2], S. Javadi[3] and **A. Sharafati[4]**

[1]Department of Civil Engineering, Science and Research Branch, Islamic Azad University, Iran
[2]Department of Civil Engineering, Science and Research Branch, Islamic Azad University, Iran
[3]Department of Irrigation and Drainage Engineering, College of Abouraihan, University of Tehran, Iran
[4]Department of Civil Engineering, Science and Research Branch, Islamic Azad University, Iran

It is essential to achieve reliable methods for predicting changes in aquifer storage to plan for the sustainable use of groundwater resources. This study investigated the management, protection, and sustainable use of groundwater resources under climate change and land use change conditions. In this regard, groundwater supply and demand in one of the essential plains in Iran (Hashtgerd Plain) for 2020 as the base year was simulated to forecast the trends until 2050 by considering climate change and land use to develop management scenarios to adapt to these conditions using the WEAP model. First, climate change prediction was performed using the HadGEM2-ES model under two emission scenarios, RCP2.6 and RCP8.5, of the IPCC Fifth Assessment Report. The Markov chain method implemented in TerrSet software was used to model land use change for 2050. The effect of climate change and land use on the decrease of groundwater level was then simulated using the MODFLOW model for the period 2020-2050.The effects of various management scenarios such as increasing irrigation efficiency, reducing the loss of drinking water distribution networks, and allocating water from the transmission line were evaluated on the adaptation to climate change and land use for 30 years. The results showed that with the simultaneous consideration of climate change and land use in the most critical state, the average drop in groundwater level would reach 58 m during the study period, and aquifer reserves will be reduced by more than 50%. The evaluation of management scenarios showed that their implementation will protect aquifer reserves and, in addition to meeting 100% of the water needs, will result in sustainable exploitation of groundwater resources.

Biography

I am 43 years old and I completed my PhD in Civil Engineering and Water Resources Management at Tehran University of Science and Research in 2023. I have been working in the water and wastewaters company for about 15 years. The titles of some of my articles are as follows:

1-The effects of the application of treated urban wastewater of Ahvaz on soil hydraulic properties. https://civilica.com/doc/1596026

2-Evaluation of rain irrigation systems in Zanjan region. https://civilica.com/doc/38629

3-Evaluation of the quality of the incoming and outgoing wastewaters of West Ahvaz sewage treatment plant for reuse in agriculture. https://civilica.com/doc/5442

4-Prediction of climate and land use changes effects on temporal and spatial fluctuation of groundwater recharge using WetSpass-M distributed model (Case study: Hashtgerd Aquifer, Iran). https://civilica.com/doc/1646329

5- Sustainable exploitation of groundwater resources considering the effects of climate change and land use to provide adaptation solutions (case study of the Hashtgerd plain). https://doi.org/10.1007/s11600-022-00843-2

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Biological reconstruction of posteromedial Tibial Defect with Autogenous Bone Graft in Complex Knee Arthroplasty

Irfan Muhammad Rajput and **Muhammad Waqas Khan**

Dow University of Health Sciences Karachi, Pakistan

Purpose: We conducted this study to examine the clinical outcomes of primary total knee arthroplasty (TKA) with autogenous bone graft for a tibial bony defect with a minimum follow-up of 12 months.

Methods: A total of 21 individuals underwent primary TKA with autogenous on-lay bone grafting (ABG) for restoration of posteromedial tibial defect between January 2016 and November 2021. The patients were clinically assessed using the knee society score (KSS), varus score and range of motion (ROM) preoperatively and postoperatively to compare using a single sample t-test. Postoperative complications were also considered.

Results: KSS before and after surgery was reported to be statistically significant [mean difference = −55.32 (6.81); $P < 0.001$]. The mean KSS before surgery was 21.14 (7.03) while improved to the mean KSS after surgery of 76.45 (3.05). ROM score before and after surgery was reported to be statistically significant [mean difference = −30.45 (8.99); $P < 0.001$]. The mean ROM before surgery was 75.45 (6.71) while the improved mean ROM after surgery of 105.91 (5.03). Varus score before and after surgery was reported to be statistically significant [mean difference = 18.45 (3.75); $P < 0.001$].

Conclusion: The mechanical axis and stability of the knee were effectively restored, with significant differences in preoperative and postoperative results, indicating that this technique is a reasonable and versatile option when reconstructing moderate-to-severe bone loss in TKA.

Biography

I am Dr. Irfan Rajput, working as an Assistant Professor at Dow University of Health Sciences Karachi, Pakistan. I completed a national and international clinical fellowship in hip and knee replacement and sports medicine after completing my orthopedic residency program in 2013.

I have worked in various medical universities in Pakistan for the past 10 years, and I have more than 30 articles in indexed journals.

These days, knee preservation techniques like PRP, Stem cells, and Osteochondral autograft are my particular area of interest.

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Future of Biologics and Biosimilars

Purification and characterisation of a novel thrombin inhibitor from *Moringa oleifera: Potential for alternative medicine*

Sawetaji and **Kamal Krishan Aggarwal**

University School of Biotechnology, India

A serine protease thrombin plays crucial role in blood coagulation and has been considered as target for the development of drug against thrombosis. Available drugs against thrombosis are associated with serious side effects. Plants derived thrombin inhibitors have been proposed as potential safe anticoagulants against thrombosis. In the present work, a novel thrombin inhibitor has been purified from leaves of Moringa oleifera. A single protein stained band on Native PAGE confirms its purity and its molecular weight was determined as 50 kDa on SDS-PAGE. The purified inhibitor inhibits thrombin in a non-competitive manner and its Ki was calculated as 4.35 x10^{-7} M at 37°C and pH 7.2. IC_{50} of purified inhibitor was determined as 4.23 µg. This novel thrombin inhibitor from *Moringa oleifera* may be further explored for its role as phyto-anticoagulant and alternative medicine.

Biography

I am Sawetaji, a PhD scholar at University School of Biotechnology, Guru Gobind Singh Indraprastha University, Delhi, India. I am currently working on purification and characterization of plant proteins that may be used as phytotherapeutics. This research will open new possibilities for the development of drugs from plants and contribute to our understanding of natural alternative medicines.

PEERS ALLEY MEDIA

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A low thermal conductivity of light weight laterite cement composites with cotton wastes fibres

Van Essa L. Kamga. Samen[1,2], Juvenal Giogetti Deutou Nemaleu[1], Rodrigue Cyriaque Kaze[1,3], Franck Docgne Kammogne[2], Pierre Meukam[2], Elie Kamseu[1,4] and **Cristina. Leonelli[4]**

[1]Local Materials Promotion Authority (MIPROMALO), Cameroon
[2]Ecole Nationale Supérieure Polytechnique, Cameroon

These recent years, the development of eco-friendly environmental and sustainable building materials aroused the interest in the scientific community. These materials can exhibit low thermal conductivity and optimal physic-chemical properties ensuring passive thermal comfort. Having said that, the major issues related to the minimization of greenhouse-gases (GHG) emission and energy needs in homes, can be tackled. Thus, to attend this objective, the present research investigates of the use of waste cotton fibres for the design of lightweight laterite-cement composites with low thermal conductivity for structural applications. The final products were first obtained by replacing the laterite cement composites with the cotton wastes fibres (0.3-0.6 wt%). Finally, the process has been completed by an uniaxial pressing of around 14 MPa (See Figure 1).

Figure 1 : *Laterite cement composite with cotton wastes fibres*

The thermo-engineering and structural properties were performed using several techniques: X-Ray Diffraction (XRD), Environmental Scanning Electron Microscope (ESEM), Fourier Transform Infrared Spectroscopy (FTIR), mechanical properties as well as the thermal conductivity. This process has yielded to an optimum (0,78 W.m-1. K-1) structural material made with 6 wt% cement, 0.6 wt% cotton fibres and a better packing density of laterites particles (50/50). The experiments showed that the increase of the cotton fibres content resulted in lowering the mechanical performances regardless of the size of the particles. This might be due to the creation of pores and the weakness adhesion between the cellulosic fibres and laterites particles within the matrix. In addition, the presence of the cellulose within a matrix which enhanced the crystallinity of cementitious phases (CASFH and CASH) of the end-products, has certainly contributed to the observed behaviour. To prove the efficiency of the proposed design the formulated samples with the reduction of around 29% of the embodied energy have also been compared to other conventional materials (Table1). Henceforth, based on the results analyses, the proposed approach appears as a promising eco-friendly composite with good thermal comfort, small-embodied energy and low environmental impact through sustainable process.

Table 1 : *Evaluation of the embodied energy of buildings materials*

Building materials	**Materials used**	**Process**	**Embodied Energy per block (MJ/block)**	**Embodied Carbon per block ($KgCO_2$/block)**	**Thermal conductivity ($W.m^{-1}.K^{-1}$)**	**Reference**
Eco material	Laterite, cotton fibers, cement, water	drying, crushing, sieving, mixing, pressing curing	**9.52**	**0,95** (Dahmen et al., 2019)	**0.78**	**The present study**
Concrete block	Cement, sand, water	drying, sieving, mixing, molding, curing	12.5	1.33 - 1.76	2.05	Habert G, Billard C, Rossi P, Chen C, Roussel N (2010) Cement and concrete research cement production technology improvement compared to factor 4 objectives. Cem Concr Res 40:820–826. https://doi.org/10.1016/j.cemconres.2009.09.031]

Fired Brick	Clay	grinding, mixing, cutting drying, firing	30 - 40	2.17 – 4.29	1.61	Dahmen J, Kim J, Ouellet-Plamondon CM (2018) Life cycle Assessment of emergent masonry blocks. J Clean Prod 171:1622–1637. https://doi.org/10.1016/j.jclepro.2017.10.044
Alkali Activate Concrete	Metakaolin , sand, water, silicate, sodium hydroxide	drying, sieving, mixing, molding, curing	21	1,03 – 2.6	1.1	-Praseeda KI, Reddy BVV, Mani M (2015) Embodied energy assessment of building materials in India using process and input – output analysis. Energy Build 86:677–686. https://doi.org/10. 1016/j.enbuild.2014.10.042 -Dahmen J, Kim J, Ouellet-Plamondon CM (2018) Life cycle Assessment of emergent masonry blocks. J Clean Prod 171:1622–1637. https://doi.org/10.1016/j.jclepro.2017.10.044

Biography

I am a Cameroonian researcher at the Local Materials Promotion Authority (MIPROMALO) under the supervision of the Ministry of the Scientific Research of Cameroon (MINRESI). I obtained a master's degree in engineering sciences in the field of energetics at the laboratory Eau, Energie, Environnement of the National Advanced School Polytechnique of Yaounde I-Cameroon. I received the PhD degree in the same field, in 2023. My research is focused on the environmental-friendly materials for building with low energy need. I received the awards of Junior researcher at the Journées d'Excellence de la Recherche Scientifique et de l'Innovation to Cameroon (JERSCIC), 2021 Edition, 5th best oral presentation at the 2nd symposium in 2021 on "Geopolymers Research and Applications" (GRA) and best scientific researcher at the MIPROMALO (2020).

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Safety signals of albumin-bound paclitaxel: Data mining of the Food and Drug Administration adverse event reporting system

Xiao Liu[2] and **YuWei Wang**[1]

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[2]*Department of Gastrointestinal Surgery, The Fifth People's Hospital of Chongqing, China*

Background: With the extensive application of paclitaxel for injection (albumin-bound), its adverse reactions have also received increasing attention.

Aim: This study aims to provide a reference for the safe use of albumin-bound paclitaxel in clinical practice; adverse drug events signals of albumin-bound paclitaxel were reviewed and identified by data mining of the Food and Drug Administration (FDA) adverse event reporting system (FAERS).

Methods: The reporting odds ratio method was used for the quantitative detection of signals from the data in the FDA public data program (Open FDA) from 2004 to 2019 for the albumin-bound paclitaxel.

Results: According to the Open FDA, 1659 adverse events (AEs) were identified for albumin-bound paclitaxel. AEs were mostly observed in females rather than males, aged 45–64 years. AEs involved 17 system organ classes, mainly blood and lymphatic, gastrointestinal, hepatobiliary, respiratory, thoracic, and mediastinal systems, and general AEs. Safety signals were found in 20 unexpected adverse drug reactions that are not listed on drug labels, mainly including macular edema and lymphopenia.

Conclusion: Identifying and evaluating albumin-bound paclitaxel-associated AEs signals by mining FAERS may help evaluate the safety profiles of albumin-bound paclitaxel and reduce the risk of medical treatment. In the clinical application of albumin-bound paclitaxel in addition to the adverse reactions mentioned in the drug instructions, lymphocyte changes should be paid close attention to, and eye monitoring should be conducted regularly to avoid drug withdrawal or organ damage caused by adverse reactions.

Biography

Xiao Liu, MD, attending physician, engaged in general surgery clinical work for more than 10 years. Main research interests: Minimally invasive treatment of surgical acute abdomen; Minimally invasive treatment of external abdominal hernia; Rectal and anal diseases surgery; Early diagnosis and comprehensive treatment of gastrointestinal tumors.

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4th Euro-Global Summit on
Future of Biologics and Biosimilars

Evaluating Self-Healing Concrete with Crystalline Admixture and Metakaolin Integration

C. Sashidhar[1] and **A. Ravi Theja**[2]

[1]*Professor of Civil Engineering, JNTU College of Engineering, JNTUA, India*
[2]*Assistant Professor in SVR Engineering College, India*

This study investigates the potential of various additives to enhance the self-healing capabilities of fiber-reinforced concrete (FRC) with wide cracks. The study focuses on the incorporation of chemical substances that improve waterproofing properties and durability in harsh environments. The self-healing capabilities of FRC enhanced with crystalline admixture and metakaolin are assessed, along with their mechanical and durability performance. The study also investigates the effects of time, crack width, additional elements, and the application of through-crack stresses.

The evaluation of self-healing abilities was conducted through visual observation, image processing, and scanning electron microscopy (SEM). FTIR spectra were used to determine the self-healing mechanisms by examining the stretching vibrations of various samples and quantifying the $CaCO_3$.

The findings show that self-healing capabilities are dependent on the type of crystalline admixtures and exposure conditions. Concrete samples with crystalline admixture and metakaolin exhibited maximum self-healing efficiency, particularly when a 15% metakaolin was incorporated as a pozzolanic material under water immersion exposure conditions.

Overall, this study highlights the potential of metakaolin, as well as crystalline admixtures, in promoting self-healing properties in concrete. These materials can aid in mitigating cracks and damage, thereby enhancing the longevity and durability of concrete structures.

Biography

Dr. C.Sashidhar is in faculty of Civil Engineering, since 1999, in Jawaharlal Nehru Technological University, Hyderabad, and he has worked in its constituent college, viz., JNTU College of Engineering, Anantapur. Presently, he is Director ICS, JNT University Ananatapur. He has taught 12 subjects to undergraduate and postgraduate students. He had implemented AICTE project 'MODROBS' on "Concrete Laboratory" in Civil Engineering Dept., of JNTU College of Engineering, Anantapur. Dr. Sashidhar is active in research since 2005 onwards in the areas of Concretes and Special Concrete. He has 34 research publications in International Journals and 5 National Journals, in addition, 19 publications in International conference proceedings and 12 in National Conference proceedings. He has successfully supervised 12 Ph.D. theses. Presently, 8 research scholars are working under his supervision. He is active in Professional societies, viz., ISTE & IEI.

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Phytochemistry and biological activities of selected medicinal plants used in Algerian traditional medicine: Potential use in human medicine

D. Atmani and **D. Kilani**

Laboratory of Applied Biochemistry, Faculty of Life and Nature Sciences, University of Bejaia, Algeria

Medicinal plants are an important source for the discovery of potential new substances for use in medicine and food. *Pistacia lentiscus, Fraxinus angustifolia* and *Clematis flammula,* plants growing in the Mediterranean basin, are widely used in traditional medicine. Thus, the present study was designed to investigate their antioxidant, anti-inflammatory, antidiabetic, and neuroprotective potential, and identification of active compounds, using appropriate methodology.

Plant extracts and fractions exhibited high scavenging capacity against known radicals, enhanced superoxide dismutase and catalase activities and restored blood glucose levels, *in vivo*, to normal values, in agreement with the *in vitro* enzymatic inhibition data, through inhibition of amylase and glucosidase activities. Administration of *Pistacia lentiscus* extracts significantly decreased carrageenan-induced mice paw oedema and reduced effectively IL-1β levels in cell culture, whereas *Fraxinus angustifolia* extracts showed good healing capacity against wounds when applied topically on rabbits. *Pistacia lentiscus* and *Fraxinus angustifolia* extracts showed good neuro-protection and restored cognitive functions in mice, while *Clematis flammula* extracts showed potent anti-ulcerogenic activity. HPLC-MS and NMR analyses allowed the identification and structural elucidation of several known and new anthocyanins, flavonols and flavanols whose biological activities have been established.

Therefore, *Pistacia lentiscus*, *Fraxinus angustifolia* and *Clematis flammula* could be used in palliative treatments against inflammatory conditions and diabetes complications, as well as against deterioration of cognitive functions.

Biography

Professor Djebbar Atmani is a senior lecturer at the Faculty of Nature and Life Sciences, University of Bejaia (Algeria). He obtained his Master of Science degree from California State University, Los Angeles (USA) in 1987 and his PhD from the University of Sétif (Algeria) in 2004. His research interest is focusing on natural products from medicinal plants and their potential use in human medicine. He published over sixty papers in high impact scientific journals and attended several seminars and symposia worldwide and has been serving as reviewer in several reputed journal.

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Suppressing notch wear by changing the tool path in the side milling of a Ti-6Al-4V alloy

Rodrigo Henriques Lopes da Silva[1,2], Ricardo Henrique Inácio[1], Igor Cézar Pereira[3] and Amauri Hassui[1]

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[2]Department of Mechanical Engineering, Federal Technological University of Paraná, Brazil
[3]Department of Mechanical Engineering, Federal University of Ouro Preto, Brazil

Despite many advantages offered by titanium alloys compared to other conventional materials in the industry, several manufacturing challenges arise, and they are associated with titanium's mechanical, thermal, and chemical properties. As a result of these characteristics, titanium alloys are low-machinability materials. Machining path strategies have proven their influence over surface finishing, machining forces, and tool life to reduce machinability-related problems. Most studies have shown the impact of the path strategies on frontal or end milling processes, and few are related to side (tangential) milling. Finally, based on the self-propelled rotary tool (SPRT) technique, which alters the cutting tool portion during machining, this work evaluates surface finishing behavior, machining forces, and tool life using two different tool path strategies (sinusoidal and linear) on the side milling of Ti-6Al-4 V alloy. The results show that the association between an adequate tool path strategy (sinusoidal) and the cutting parameters improves surface finishing (more than 130%), decreases cutting forces (about 20%), changes tool wear mechanisms, and increases tool life significantly (4–5 times) without productivity loss. Wear mechanisms that promote notch wear were suppressed, and uniform flank wear predominated. Consequently, the sinusoidal path has brought benefits to the cutting process. It is a technology that can have great interest and is easily applicable in the industry.

Biography

Mechanical Engineer (2008) and Master in Mechanical Engineering (2010) from the Federal University of Uberlândia (UFU). Doctor (2017) from the State University of Campinas (Unicamp) with a sandwich period at the Institute for Sustainable Manufacturing at the University of Kentucky in the United States of America. Since 2010, he has been a professor at the Federal Technological University of Paraná (UTFPR), where he served as Coordinator of the Mechanical Engineering course and was a member of the Undergraduate and Professional Education Council of that University and course collegiate. Currently, he is the Assistant Coordinator of the Multicampi Master's Programme in Mechanical Engineering at the Cornélio Procópio and Ponta Grossa campuses. He works in Machining and Manufacturing Processes, developing research on process characterization, surface integrity, tool wear, and trajectory. His primary focus is on sustainable manufacturing.

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Kinetics of alcohol ethoxylation reaction taking into account the influence of the association

B.Ya. Stul

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The ethoxylation reaction of alcohols can be represented by the following scheme

$$ROH \xrightarrow[k_0,obs.]{C_2H_4O} ROC_2H_4OH \xrightarrow[k_1,obs.]{C_2H_4O} RO(C_2H_4O)_2H \xrightarrow[k_2,obs.]{C_2H_4O} \text{etc}$$

This is an irreversible alcohol-sequential reaction that can have many stages, but in this case we are mainly talking about the first stage of the reaction, characterized by the rate constant k0,obs. The objects of study were primary alcohols of the normal structure C_1-C_7 and C_{10}. The kinetics of this reaction was studied under the conditions of basic catalysis at t=80-180°C and P=1.5 MPa. It was shown that under these conditions in a flow-through mixing reactor, the reaction rate is described by the equation

$$W = (Co^o - Co)/\tau = k_{o,\ obs.}\ C_k\ Co\ (Cc^o - nC_1)$$

where W is the reaction rate, determined by the decrease in EO; C_o^0 and C_o are the EO concentrations in the initial mixture and in the reactor, respectively; τ is the residence time of the reaction mixture in the reactor; $k_{o,\ obs}$ -observed rate constant of the first stage of the reaction; C_k and C_1 are the concentrations in the reactor of the catalyst and the first reaction product, respectively; C_{co} is the concentration of alcohol in the initial mixture; n is a constant depending on temperature and alcohol concentration, which can be further interpreted as the average number of alcohol molecules in a linear chain alcohol associate. For such an interpretation, three assumptions must be satisfied.

1. Alcohol molecules are linked by hydrogen bonds into linear chain associates with an average number of molecules equal to n.
2. Of all the molecules of the chain associate, only one of the two terminal alcohol molecules (terminal) enters the reaction, the hydrogen atom of the hydroxyl group of which does not participate in the formation of a hydrogen bond.
3. The ethylene glycol monoether molecule formed as a result of the reaction remains in the composition of the associate as a terminal molecule and, having a lower reactivity, "locks" this associate, as it were, and actually turns it into a separate molecule.

It can be shown that, in accordance with this equation, the reaction rate is of the first order not in terms of the gross alcohol concentration and by the concentration of linear chain alcohol associates.

Thus, by studying the kinetics of the alcohol ethoxylation reaction, along with the kinetic parameters, one can find the association parameters of alcohols, their temperature dependences, behavior in solvents, the pharmacological activity of various associates, etc.

It is interesting to note that if point 3 of the accepted assumptions is not met, then the speed has the first order in terms of the gross alcohol concentration. This may be the cause of some kinetic anomalies.

Biography

Head of the laboratory at the Research Institute "Syntez", Moscow. The main activity is chlorination and ethoxylation of organic compounds.

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Transformation of immunosuppressive mtKRAS tumors into immunostimulatory tumors by Nerofe and Doxorubicin

Yoram Devary[1], Joel Ohana[1], Uziel Sandler[1,2] and Orly Devary[1]

[1]Immune System Key (ISK) Ltd., Israel
[2]Lev Academic Center (JCT), Israel

Members of the rat sarcoma viral oncogene (RAS) subfamily KRAS are frequently mutated oncogenes in human cancers and have been identified in pancreatic ductal, colorectal, and lung adenocarcinomas.

In this study, we show that a derivative of the hormone peptide Tumour Cell Apoptosis Factor (TCApF), NerofeTM (dTCApFs), in combination with Doxorubicin (DOX) substantially reduces viability of tumour cells. It was observed that the combination of Nerofe and DOX downregulated KRAS signalling via miR217 upregulation, resulting in enhanced apoptosis of tumour cells. In addition, the combination of Nerofe and DOX also resulted in activation of the immune system against tumour cells, manifested by an increase in the immunostimulatory cytokines IL-2 and IFN-γ as well as the recruitment of NK cells and M1 macrophages to the tumour site.

Biography

In the beginning, as an expert in drug development, Dr. Devary was responsible for Nerofe' technology and Research & Development activities only. Dr. Devary is an expert in the molecular mechanisms by which physical and chemical agents transform cells and has published groundbreaking findings relating to the cause of cancer.

Dr. Devary holds a Ph.D. degree in Biotechnology from the University of California, San Diego (UCSD). Dr Devary published several papers in distinguished journal such as Cell and Science.

Later on Dr. Devary, became involved in fundraising and he was responsible for raising 18M$ for the company to support its clinical development and other activities.

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A network pharmacology-based treatment analysis of Luteolin for regulating Pyroptosis in acute lung injury

Xiaowei Yuan[2] and **Danying Zhang**[1]

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[2]*University of Shanghai for Science and Technology, China*

Acute lung injury (ALI) and its severe manifestation, acute respiratory distress syndrome, are complicated pulmonary inflammatory conditions for which standard therapeutics are still not well established. Although increasing research has indicated the anti-inflammatory, anticancer, and antioxidant effects of luteolin, especially in lung diseases, the molecular mechanisms underlying luteolin treatment remain largely unclear. We explored the potential targets of luteolin in ALI by using a network pharmacology-based strategy and further validated in a clinical database. The relevant targets of luteolin and ALI were first obtained, and the key target genes were analyzed using a protein-protein interaction network, Gene Ontology, and Kyoto Encyclopedia of Genes and Genomes pathway enrichment analyses. The targets of luteolin and ALI were then combined to ascertain the relevant pyroptosis targets, followed by Gene Ontology analysis of core genes and molecular docking of key active compounds to the antipyroptosis targets of luteolin in resolving ALI. The expression of the obtained genes was verified using the Gene Expression Omnibus database. *In vivo* and *in vitro* experiments were performed to explore the potential therapeutic effects and mechanisms of action of luteolin against ALI. Fifty key genes and 109 luteolin pathways for ALI treatment were identified through network pharmacology. Key target genes of luteolin for treating ALI via pyroptosis were identified. The most significant target genes of luteolin in ALI resolution included AKT1, NOS_2, and CTSG. Compared with controls, patients with ALI had lower AKT1 expression and higher CTSG expression. Luteolin simply reduced systemic inflammation and lung tissue damage in septic mice. Furthermore, we blocked AKT1 expression and found luteolin reduced the degree of lung injury and affected NOS_2 levels.

Biography

Xiaowei Yuan, born in 1993, graduated from Second military medical university in 2016. After my graduation, I have finished the Standardized training of Residents in the department of icu, Shanghai Changzheng Hospital. In 2022, I started my postgraduate study in the University of Shanghai for Science and technology, whom co-educated by the Navy medical university. My aim of study is mainly about the theory of MODS and ARDS.

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