

PROMOTIONS



Dr. Teena Jacob, Department of Microbiology has been promoted to Assistant Professor from 2nd September 2024.

Research Centre News

Guest Lecture at Dr. N.G.P. Arts and Science College, Coimbatore

Dr. Aniket Naha, Scientist, Pushpagiri Research Centre, delivered a Guest Lecture to the students of Microbiology Department, Dr. N.G.P. Arts and Science College, Coimbatore on the topic "Advanced In-Vitro and In-Silico Strategies to Combat Antimicrobial Resistance in Priority Pathogens" on 12th September 2024. Around 230 undergraduate and post graduate students attended the Guest Lecture.



Dr. N.G.P. ASCL Dept. Of Mbio
INVITED LECTURE
12.09.2024 09:45

Hands-on-Workshop at Karunya Institute of Technology and Sciences, Coimbatore

Dr. Aniket Naha, Scientist, Pushpagiri Research Centre conducted Hands-on-Workshop on "Mastering Sequence Alignment and Phylogenetic Analysis: Tools and Techniques for Evolutionary Insights" for the Ph.D. students of the Department of Biotechnology and Department of Microbiology at Karunya Institute of Technology and Sciences, Coimbatore on 13th September, 2024. The workshop included hands-on-training on sequence retrieval from biological databases, sequence alignment (pair-wise and multiple) and phylogenetic analyses using standalone softwares.

Division of Biotechnology

Hands-On-Workshop

Mastering Sequence Alignment and Phylogenetic Analysis: Tools and Techniques for Evolutionary Insights

Dr. Aniket Naha
Scientist & Student Coordinator,
Medical Biotechnology and Computational
Drug Designing Laboratory
Pushpagiri Institute of Medical Sciences
and Research Centre, Tiruvalla, Kerala

Venue: BT Gallery Hall,
Date: 13/09/2024
Time: 09:15 AM

Convener
Dr. Jibu Thomas
Professor & Head

Staff Coordinator's
• Dr. Murgan S. (Associate Professor)
• Dr. C. Vani (Assistant Professor)

Solving Human Problems



Guest Lecture at Vellore Institute of Technology, Vellore

Dr. Aniket Naha, Scientist, Pushpagiri Research Centre was invited to deliver a Guest Lecture on the topic "In-silico Approaches to Understand Antimicrobial Resistance in Clinically Important Bacterial Pathogens" to the Post Graduates students of the Department of Biotechnology, School of Bio Sciences and Technology, Vellore Institute of Technology, Vellore on 26th September, 2024 from 9:00 A.M. – 11:00 A.M.

VIT
Vellore Institute of Technology

School of Bio Sciences and Technology

8th Module Expert Lecture

Topic: "In-silico Approaches to Understand Antimicrobial Resistance in Clinically Important Bacterial Pathogens"

Dr. Aniket Naha
Scientist, Medical Biotechnology and Computational Drug Designing Laboratory, Pushpagiri Research Centre, Pushpagiri Medical Society, Tiruvalla-689101, Kerala, India

Date: 26th September, 2024
Time: 09:00 A.M. to 11:00 A.M.
Venue: SMV-209 (Smart Classrooms)

Dr. Anand Asherara, Coordinator
Dr. Ramnath Patten M, Head of the Department
Dr. R. Siva, Dean, SBST



Following which he also was invited to deliver a Guest Lecture on the topic “Understanding the Molecular Basis of Multidrug Resistance in ESKAPE Pathogens” to the Post Graduates students of the Department of Biosciences, School of Bio Sciences and Technology, Vellore Institute of Technology, Vellore on 26th September, 2024 from 03:00 P.M. – 04:00 P.M.


VIT
 Vellore Institute of Technology
Established by the Government of Tamil Nadu in 1984

School of Bio Sciences and Technology

8th Module Expert Lecture

Topic: “Understanding the Molecular Basis of Multidrug Resistance in ESKAPE Pathogens”

Dr. Aniket Naha
 Scientist, Medical Biotechnology and Computational Drug Designing Laboratory, Pushpagiri Research Centre, Pushpagiri Medical Society, Tiruvalla-689101, Kerala, India

Date: 26th September, 2024
Time: 03:00 P.M. to 04:00 P.M.
Venue: SMV- 209 (Smart Classroom)


Dr. Sudha Ramalakshmi
 Coordinator
Dr. Sudha Ramalakshmi, M.Sc., M.Phil., Ph.D., Professor, Department of Biosciences, School of Biosciences and Technology, Vellore Institute of Technology, Chennai-600 026, Vellore - 632 014


Dr. Arnold Emerson I
 Head of the Department
 Department of Biosciences
Head of the Department, Department of Bio-Sciences, School of Bio-Sciences & Technology (SBST), Vellore Institute of Technology (VIT), Chennai-600 026, Vellore, Tamil Nadu, India


Dr. R. Siva
 Dean, SBST
Dean, School of Bio-Sciences & Technology (SBST), Vellore Institute of Technology (VIT), Chennai-600 026, Vellore, Tamil Nadu, India



He wined wined up his guest lectures with the last talk on “Systems Biology and Structural Bioinformatics to Elucidate Novel Therapeutic Biomarkers and Effective Lead Molecules Against Priority Bacterial Pathogens” to the Undergraduates students with specialization in Bioinformatics of the Department of Biosciences, School of Bio Sciences and Technology, Vellore Institute of Technology, Vellore on 26th September, 2024 from 04:00 P.M. – 06:00 P.M.


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School of Bio Sciences and Technology

8th Module Expert Lecture

Topic: “Systems Biology and Structural Bioinformatics to Elucidate Novel Therapeutic Biomarkers and Effective Lead Molecules Against Priority Bacterial Pathogens”

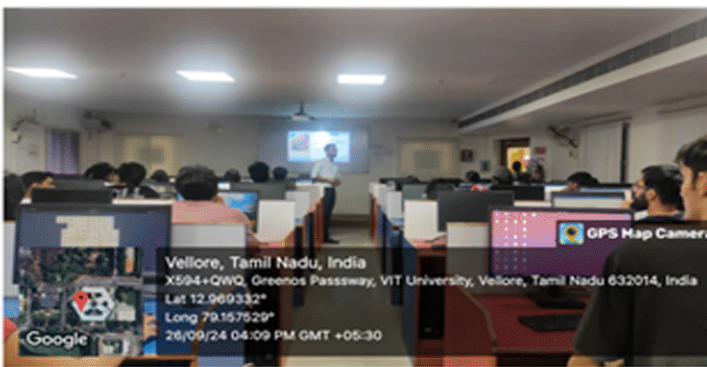
Dr. Aniket Naha
 Scientist, Medical Biotechnology and Computational Drug Designing Laboratory, Pushpagiri Research Centre, Pushpagiri Medical Society, Tiruvalla-689101, Kerala, India

Date: 26th September, 2024
Time: 04:00 P.M. to 06:00 P.M.
Venue: SMV- G15


Dr. Sudha Ramalakshmi
 Coordinator
Dr. Sudha Ramalakshmi, M.Sc., M.Phil., Ph.D., Professor, Department of Biosciences, School of Biosciences and Technology, Vellore Institute of Technology, Chennai-600 026, Vellore - 632 014


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 Head of the Department
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Research article

Oral health status and dental treatment needs in children with autism spectrum disorder

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Oral health status
Oral behaviors

ABSTRACT

Objective: To evaluate oral health care practices, health status, and dental treatment needs in children with Autism Spectrum Disorder (ASD).

Methods: This cross-sectional study included 96 children diagnosed with ASD per the DSM-V criteria and 96 typically developing healthy children. The WHO form assessed oral health status and dental treatment needs.

Results: Over 50 % of ASD children had mild/moderate autism, 35.4 % had severe autism, and 13.5 % had autistic traits. ASD children experienced more toothbrushing difficulties compared to non-ASD children. Based on Nyvad's criteria and decayed/filled teeth (dft) index, non-ASD children had higher caries prevalence than ASD children, indicating less need for restorative treatments in the ASD group. However, ASD children had poorer plaque scores than non-ASD children. A significantly higher percentage of ASD children exhibited harmful oral behaviors, including mouth breathing, lip biting, bruxism, nail biting, object biting, and self-injury ($p < 0.001$). ASD children also showed increased traumatic dental injuries compared to non-ASD children.

Conclusion: Compared to non-ASD peers, children with ASD have lower dental caries prevalence and less need for restorations, yet poorer plaque control. They also demonstrate more frequent oral self-injuries. ASD status appears related to toothbrushing difficulties. These findings highlight the need for tailored oral health interventions for children with ASD.

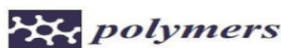
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Review

Novel Fucoïdan Pharmaceutical Formulations and Their Potential Application in Oncology—A Review

Nikolay Zahariev ^{1,2}, Plamen Katsarov ^{1,2,*}, Paolina Lukova ³ and Bissera Pilicheva ^{1,2}

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Abstract: Fucoïdan belongs to the family of marine sulfated, L-fucose-rich polysaccharides found in the cell wall matrix of various brown algae species. In the last few years, sulfated polysaccharides have attracted the attention of researchers due to their broad biological activities such as anticoagulant, antithrombotic, antidiabetic, immunomodulatory, anticancer and antiproliferative effects. Recently the application of fucoïdan in the field of pharmaceutical technology has been widely investigated. Due to its low toxicity, biocompatibility and biodegradability, fucoïdan plays an important role as a drug carrier for the formulation of various drug delivery systems, especially as a biopolymer with anticancer activity, used for targeted delivery of chemotherapeutics in oncology. Furthermore, the presence of sulfate residues with negative charge in its structure enables fucoïdan to form ionic complexes with oppositely charged molecules, providing relatively easy structure-forming properties in combination with other polymers. The aim of the present study was to overview essential fucoïdan characteristics, related to its application in the development of pharmaceutical formulations as a single drug carrier or in combinations with other polymers. Special focus was placed on micro- and nanosized drug delivery systems with polysaccharides and their application in the field of oncology.

Keywords: polysaccharides; fucoïdan; biological activities; micro- and nanoparticles; targeted drug delivery

1. Introduction

Cancer is one of the major causes of death worldwide. The possible complications during therapy, which can be due to inadequate biodistribution of chemotherapeutics in the organism, should not be underestimated. Current pharmaceutical technology aims at developing drug delivery systems with improved biodistribution of the chemotherapeutics, reduced therapy-related side effects and toxicity and therefore improving the therapeutic efficacy. In recent years the rapid development of micro- and nanotechnologies has led to the formulation of innovative drug systems, which take their place in contemporary oncological therapeutic approaches. Much of the research nowadays is focused on the utilization of natural polymers such as polysaccharides, proteins and lipids as drug carriers for chemotherapeutic agents. Biopolymers are preferred materials for developing drug formulations due to their biocompatibility, biodegradability, low toxicity and low immunogenicity [1]. Natural polymers can be conjugated with specific ligands leading to the formation of pharmaceutical systems with improved functional properties and targeted drug delivery. Some biopolymers possess biological activities and, in addition to being carriers, they can also show a synergistic therapeutic effect with the incorporated active substances [2]. Marine polysaccharides, more specifically, have recently been an object of great scientific interest due to their unique structural and physicochemical properties.



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Congratulations

Dr.Nebu on being accepted as a Postdoctoral Fellow!!!



UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
INSTITUTO DE MACROMOLÉCULAS PROFESSORA ELOISA MANO
TRADIÇÃO, SOLIDEZ E INOVAÇÃO.

Rio de Janeiro, 05/08/2024

Certificate of Acceptance for Postdoctoral

From: Professor Paulo H. S. Piccliani

To: Dr. Nebu George Thomas

This is to certify that Dr. Nebu George Thomas has been accepted as a Postdoctoral Fellow in the Biopolymers and Sensors Lab at the Macromolecules Institute, UFRJ, to be conducted remotely. Dr. Nebu George Thomas will work with us between 05 August 2024 and 04 August 2025, with the possibility of renewal upon request.

Dr. Nebu George Thomas will participate in the project titled "Core-Shell Nanocomposite Membranes: Advancing Wound Healing Through Polymer Functionalization." The project aims to develop core-shell nanocomposite membranes for the treatment of diabetic foot ulcers through polymer functionalization. The methodology includes the electrospinning process, material characterization using SEM, TEM, FTIR, TGA, DSC, in vitro cytotoxicity assays, and in vivo biocompatibility and wound healing studies.

Dr. Nebu George Thomas's extensive expertise in tissue engineering and biomaterials, including skills in electrospinning, MTT cytotoxicity assay, scratch wound healing assay, osteoblast cell line assays, hemocompatibility, acute toxicity, and biocompatibility assessments, will significantly contribute to the successful execution of this project. Machine Learning modeling will be supervised by Professor Fernando Come (IMA UFRJ) while all other project steps will be supervised by Professor Saby Thomas (Mshatma



Dr. Yogesh Bharat Dalvi
Reaches 1,000 Citations on Google Scholar

CONGRATULATIONS...

We are excited to share the wonderful news that Dr. Yogesh Bharat Dalvi, a Scientist at Pushpagiri Research Centre (PRC), has achieved a significant milestone—1,000 citations on Google Scholar!

Dr. Dalvi has made important contributions to research, with over 30 published research papers, 10 book chapters, and 2 Indian patents. His work focuses on molecular biology, regenerative medicine, and tissue engineering. Many of his papers have been published in highly respected journals and have been widely referenced by other scientists in their work, which has helped him reach this incredible citation count.

This achievement highlights not only Dr. Dalvi's hard work and dedication but also reflects the supportive research environment at PRC. Our center's policies and opportunities have enabled researchers like Dr. Dalvi to thrive and make an impact on the global scientific community. We are proud that his success is a direct result of the strong research culture we promote at Pushpagiri Research Centre.

We are incredibly proud to have Dr. Dalvi as part of our Pushpagiri family. His passion for research and innovation is an inspiration to us all. We look forward to celebrating many more achievements and breakthrough discoveries from Dr. Dalvi in the future!

Warm Regards,
Pushpagiri Research Centre