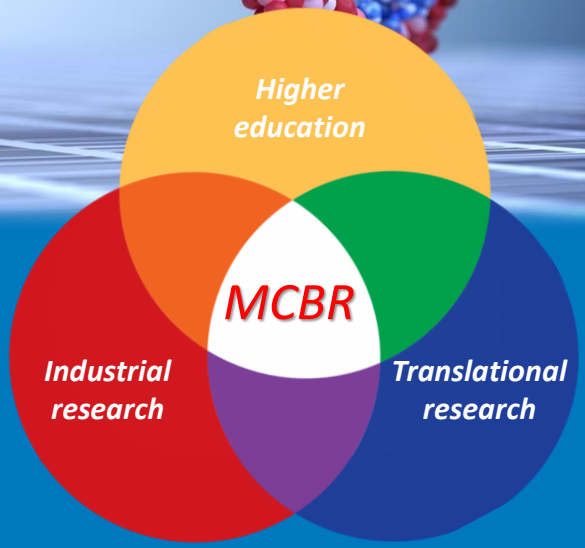
Vol: 7 July-Sept, 2023

Biotheracues

Quarterly Newsletter of Manipal Centre for Biotherapeutics Research, MAHE



MANIPAL
ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)
INSPIRED BY LIFE

Contents

Message from the Chief Editor

Dear friends and well-wishers of MCBR,

Another busy three months passed and I am again back to present you with the seventh volume of our newsletter, *Biotheracues*.

During this quarter, our second batch of MSc students started their journey at MCBR and proceeded to the first sessional examination. Our first batch of students who are pursuing industrial and academic research for their internships also moved into the third semester of their course.

The current edition of our newsletter will delve into the various dimensions of MCBR's academic progress. MCBR hosted one workshop on the state-of-the-art digital PCR platform in collaboration with Eppendorf India Pvt. Ltd. Our faculty strength grew by two during this period: one associate professor and one international professor; we all welcome them. Our patent filing number tripled during this quarter. Both our faculties and PhD scholars presented their research work at multiple international conferences.

At the same time, we had many interactive and fun events to rejuvenate our spirit, starting from the celebration of *Onam* to visiting nearby waterfalls to have some recreation from the serious business of research life.

Your comments and ideas for improving our newsletter are always welcome.

Warm regards.

Dr. Souvik Dey

Commencement of MSc Classes for the 2nd Batch of Students

M.Sc. Orientation week – DAY 1

MCBR, MAHE, Manipal, welcomed the new batch of M.Sc. By Research in Biotherapeutics students in an Orientation Program held on 1st August 2023. MAHE Vice Chancellor Lt. Gen. Dr. M D Venkatesh was the Chief Guest and MAHE Pro Vice-Chancellor (Strategy and Planning) Dr. N N Sharma was the Guest of Honor.

M.Sc. Orientation week – DAY 2

Dr P Giridhar Kini, Registrar of MAHE, Manipal, was the Chief Guest for the 2nd day of the 'Orientation Week' at MCBR, MAHE, Manipal. He shared his thoughts with the new batch of students of M.Sc. By Research in Biotherapeutics and enthused them to deep dive into research.

M.Sc. Orientation week – DAY 3

Dr Satish Rao, Director, Directorate of Research, MAHE, Manipal, was the Chief Guest for the 3rd day of the 'Orientation Week' at MCBR, MAHE, Manipal. He instilled creative thinking in the minds of the new batch of students of M.Sc. By Research in Biotherapeutics and inspired them to pursue cutting-edge research in Biotherapeutics.

M.Sc. Orientation week – DAY 4 & 5

Prof. Dr. Karunakar A. Kotegar, Director, International Collaborations, MAHE, Manipal, was the Chief Guest for the 4th day of the 'Orientation Week' at MCBR, MAHE, Manipal. He instilled global thinking in the minds of the new batch of students of M.Sc. By Research in Biotherapeutics and inspired them to explore internship opportunities outside India during their 3 semester internship at MCBR.

Dr Geetha Maiya, Director, Student Affairs, MAHE, Manipal, was the Chief Guest for the 5th and last day of the 'Orientation Week' at MCBR, MAHE, Manipal. She shared her experience dealing with various issues faced by students on the campus and advised new students to stay focused on their goals.

ACTIVITIES AT MCBR

STILLA CRYSTAL DIGITAL PCR WORKSHOP

A 3-day hands-on workshop on ***Stilla Crystal Digital PCR*** was organized at MCBR between 24/07/23 to 26/07/23 by Eppendorf India Ltd. The main resource person for this workshop was Ms. Priya Sundararajan, Technical Sales Manager Automation and Business Development Manager for Stilla products in Eppendorf, India.

PhD students and faculties from MCBR, different departments of KMC, Manipal, and MSLS, MAHE, and Manipal participated in this workshop.

At the end of the event, everyone was provided the participation certificates.

FACULTY RECRUITMENT

MCBR proudly welcomes **Dr. Abhishek Kumar Singh** as Associate Professor, effective from 24th July 2023. Dr Abhishek Singh secured his PhD in Biotechnology from CSIR-Indian Institute of Toxicology Research, Lucknow & Jamia Hamdard, New Delhi, and Post-doctoral training at WSU, Spokane, USA; NIT-Rourkela, Odisha & University of Allahabad. He holds teaching experience of 6+ years at Guru Ghasidas Central University and Amity University, Noida. His areas of expertise include the development of anti-aging strategies targeting the autophagy process for brain aging and age-related neurodegenerative disorders.

MCBR, MAHE, Manipal proudly announces the appointment **of Dr. Sreesha P Srinivasa** as Professor, effective 18th September 2023. Dr Sreesha holds PhD in Molecular Cell Biology and Biochemistry from Washington Univ. School of Med., St. Louis, USA. He has 25+ years of Biopharma experience including Pfizer, Gilead, Piramal, Biocon, and Oblique, in the US, Europe, and India. Areas of his expertise are Cancer biology, early discovery, preclinical development, translational research, and clinical development of small molecule, protein, and antibody therapeutics.

Research Progress

Publications:

- **Kirthanashri S V,** Shwetambara Verma, Varadharajan Srivasan. Recent development in nano-phase change materials and their applications in enhancing thermal capacity of intelligent buildings: A state of the art review – ***Journal of Materials Research***. 2023. DOI: 10.1557/s43578-023-00907-z (**Q2_IF: 3.08**)

- Amal Alotaibi1, Veerendra P. Gadekar2, Pranav Swaroop Gundla, Sumana Mandarthi, Nidhi Jayendra, Asna Tungekar, B. V. Lavanya, Ashok Kumar Bhagavath, Mary Anne Wong Cordero, Janne Pitkaniemi, Shaik Kalimulla Niazi, **Raghavendra Upadhya**, Asmatanzeem Bepari and Prashantha Hebbar. Global comparative transcriptomes uncover novel and population-specific gene expression in esophageal squamous cell carcinoma. 2023, **Infect Agents Cancer** 18: 47 DOI: 10.1186/s13027-023-00525-8. (**Q3_IF: 3.69**)

- Attaluri S, Jaimes Gonzalez J, Kirmani M, Vogel AD, **Upadhya R**, Kodali M, Madhu LN, Rao S, Shuai B, Babu RS, Huard C, Shetty AK. Intranasally administered extracellular vesicles from human induced pluripotent stem cell-derived neural stem cells quickly incorporate into neurons and microglia in 5xFAD mice. Front Aging Neurosci. 2023 Jun 22;15:1200445. (**Q2_IF: 5.2**)

- Alok Ghosh Chaudhuri, Saptadip Samanta, Monalisha Dey, Raviraja N S, **Souvik Dey***. Role of Alpha-fetoprotein in Pathogenesis of Cancer**.** ***Journal of Environmental Pathology, Toxicology and Oncology***. (Accepted for publication; Article ID: JEP(T)-49145); (**Q3_IF: 2.4**). *Corresponding author.

- Alotaibi A*, Gadekar VP*, Gundla PS, Mandarthi S, Ravi S, Mallya D, Thungekar A, Lavanya BV, Bhagavath AK, Cordero MW, Pitkaniemi J, **Raviraja NS**, Bepari A, Hebbar P., A comprehensive analysis of mRNA expression profiles of Esophageal Squamous Cell Carcinoma reveals downregulation of Desmoglein 1 and crucial genomic targets., Cancer Biomarkers, 2023, 4th Sept. Accepted. (**Q2_IF: 3.8**)

Patents applied:

- Synthesis of GelMA as ink for 3D printing tubular structures. Vidhi Mathur, S V Kirthanashri, Varadharajan S, Raviraja NS. Application No. 202341045531 dated 06 July 2023.

- Process for the maturation of mouse preantral follicles using stem cell secretome. Ramya Nair M.T., Raviraja N. S., Jahnavy Madhukar Joshi, Guruprasad Kalthur. Application No. 202341049385 dated- 21 July 2023.

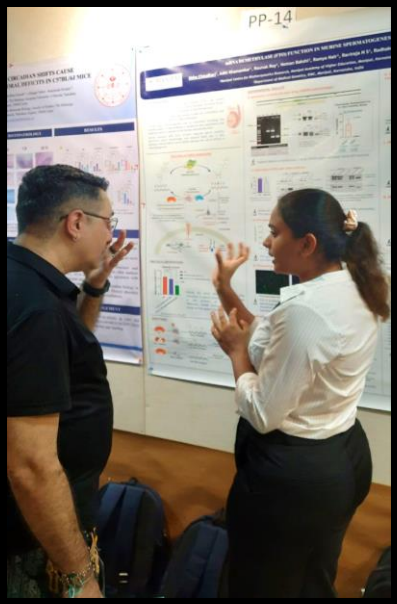
Faculty & Scholar Updates

- Dr Raviraja N S and Dr Raghavendra Upadhya of MCBR attended the "Series of Advancements in Cell Therapy- 2023" International Symposium and Workshop Series at ACTREC, Tata Memorial Centre, Kharghar, Navi Mumbai.

- Prof. Raviraja NS was a Chairperson for a session on "How to Elevate Early Your Process Optimization and Analytics for Faster Approval" on 29th September 2023. He was also a panel member in a discussion on "Lack of Commercialization in Cell Therapy: Can we Achieve Harmonization" on 30th September.

Dr. Souvik Dey, DBT-Ramalingaswami Fellow and Assistant Professor, MCBR, MAHE, Manipal, delivered an oral presentation titled "Centromere Protein V (CENPV) Mediates GSK3a Activity in Mammalian Sperm" at the 40th Annual Meeting of the SRBCE & 'International Conference on Molecular Medicine, Reproduction and Endocrinology 2023'. The conference was held at Navarachana University, Vadodara, Gujarat between 14th to 16th September 2023.

Ms. Neha Choudhari, Dr TMA Pai PhD Scholar representing the Reproductive Biology group of MCBR presented her poster titled "mRNA Demethylase (FTO) Function in Murine Spermatogenesis" during the same event.



Dr. Souvik Dey judged a poster session at the **Manipal Pharmaceutics Conference** (MPCON 2023), a national-level scientific conference organized by the Manipal College of Pharmaceutical Sciences at MMMC on September 29, 2023.

STAFF ACHIEVEMENT

Our staff, Mr. Avinsh and Mr. Preetesh made MCBR proud by becoming runner-up at the MAHE staff annual carrom competition – on August 21, 2023.

ONLINE TALKS AT MCBR

- Dr. Soumyabrata Roy, a Scientist in the R&D Department, PopVax Pvt. Ltd., Hyderabad delivered an online talk on "Frontiers in Human Diseases: Journey from Cancer Immunotherapy to mRNA Vaccine Development“ on July 22, 2023.

- Dr. Anand Kamal Singh, a Research Scientist at the MD Anderson Cancer Center presented his online talk on August 18, 2023.

- Dr. Sitaram Harihar, Assistant Professor in the Department of Genetic Engineering, SRM University, Chennai delivered an online talk on August 24, 2023.

- Dr. Abhayraj Joshi, a Postdoctoral research fellow at The Novo Nordisk Foundation Center for Biosustainability (DTU Biosustain), DTU, Denmark presented a virtual talk on September 5, 2023.

Alotaibi *et al. Infectious Agents and Cancer* (2023) 18:47
https://doi.org/10.1186/s13027-023-00525-8

Infectious Agents and Cancer

RESEARCH Open Access

Global comparative transcriptomes uncover novel and population-specific gene expression in esophageal squamous cell carcinoma

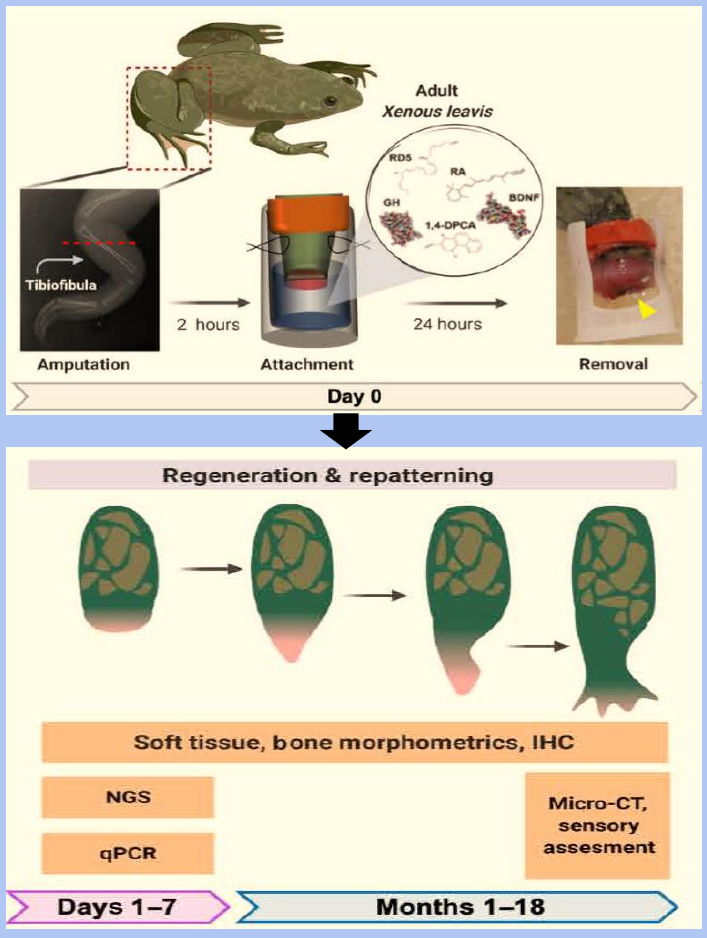
Amal Alotaibi[1†], Veerendra P. Gadekar[2†], Pranav Swaroop Gundla[2], Sumana Mandarthi[2,8], Nidhi Jayendra[2], Asna Tungekar[2], B. V. Lavanya[2], Ashok Kumar Bhagavath[3], Mary Anne Wong Cordero[1], Janne Pitkaniemi[4,5], Shaik Kalimulla Niazi[6], Raghavendra Upadhya[7], Asmatanzeem Bepari[1*] and Prashantha Hebbar[2,7,8*]

Esophageal squamous cell carcinoma (ESCC) is characterized by a bleak prognosis and ranks among the most lethal gastrointestinal tumors. Despite the existence of multiple transcriptomics research aimed at comprehending the molecular underpinnings of this disease, the influence of population-specific variations on its manifestation has yet to be investigated. The objective of this study was to examine the variations in gene expression patterns among samples of esophageal squamous cell carcinoma (ESCC) from six different populations worldwide. The study aimed to identify genes that are differentially expressed (DEGs) and their corresponding pathways, as well as to identify potential biomarkers that could be used for the diagnosis and prognosis of ESCC. Furthermore, this study aims to analyze and interpret the microbiological and chemical risk factors that are specific to the population affected by ESCC. These researchers conducted a comparative analysis of gene expression patterns in samples of ESCC derived from six distinct global populations. This analysis was performed by examining microarray datasets. In order to identify DEGs, the scientists implemented rigorous quality control measures and utilized linear modeling techniques. They conducted a comparative analysis of the DEG lists obtained from each group, in conjunction with the ESCC ATLAS, in order to uncover both known and novel DEGs. A survival analysis was conducted utilizing these data from the Cancer Genome Atlas Program (TCGA) to ascertain possible biomarkers for the diagnosis and prognosis of ESCC among the newly identified DEGs.

Subsequently, a comparative functional enrichment and toxicogenomic analysis was conducted. In this study, the researchers present findings on 19 genes that exhibit unique expression patterns across different groups, suggesting the presence of population-specific variants in ESCC. Furthermore, a total of 166 previously unidentified DEGs were identified in our study. Notable examples of these novel DEGs include ENDOU, SLCO1B3, KCNS3, and IFI35, among others. The survival analysis conducted in this study revealed the presence of three previously unidentified genes (CHRM3, CREG2, H2AC6) that have a crucial role in the survival of individuals with ESCC. Significantly, their research findings revealed a notable enrichment of gene ontology categories and pathways linked to extracellular matrix (ECM) among the DEGs in ESCC. Population-specific changes in immune response and microbial infection-related pathways were identified in our study. These pathways were shown to be enriched with genes associated with Human Papillomavirus (HPV), Ameobiosis, Leishmaniosis, and Human Cytomegaloviruses. The toxicogenomic analysis conducted in their study revealed that cigarette smoking emerged as the predominant risk factor, while cisplatin was identified as the principal drug chemical that interacted with the highest number of DEGs across various populations. The chemical compound exhibits the highest degree of interaction with the biggest number of DEGs across various populations.

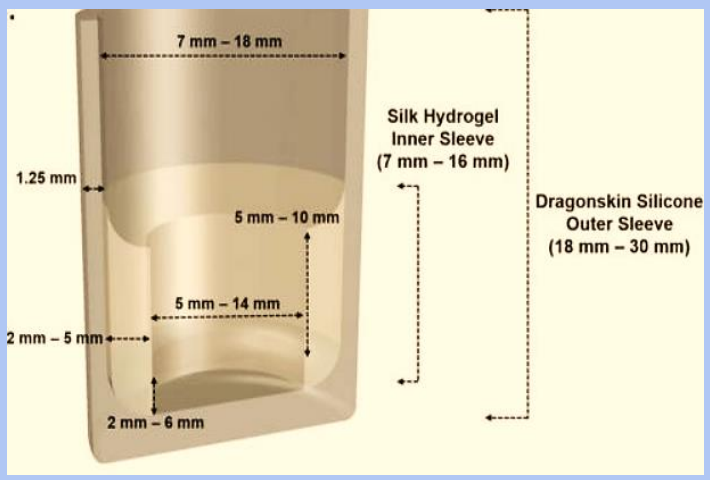
BioDome: a step forward to regenerative medicine

-***Shweta Verma,*** *Dr. TMA Pai Research Scholar, MCBR, MAHE*



Due to limb amputation in various diseases or trauma such as diabetes, peripheral artery disease, or war and trauma survivor quality of life of patients is retarded. Despite advancements in clinical practice, there is still a lack of tools for recovery or reversal of tissue loss. The only solution that remains is prosthetics that limits the functionality of an individual. Largely regeneration-stimulating experiments were performed on fully or partially regenerative models. Limited success is reported in nonregenerative organisms. Scientists from Tufts University and Wyss Institute, Harvard University developed a novel multidrug wearable device that helped regrow the amputated hind limb in the nonregenerative limb of adult *Xenopus laevis*. *X. laevis* have regenerative capability before metamorphosis in tadpoles but this ability declines with maturation. Bone morphogenic protein (BMP), Fibroblast growth factor (FGF), Shh, Wnt, and TGF-β signaling pathways are required for the regeneration. Researchers prepared BioDome- a wearable bioreactor to provide a controlled microenvironment of wounds *in vivo.*

The BioDome was composed of silicon-containing silk hydrogel as a drug carrier for the controlled release of the drug. The multidrug cocktail included brain-derived neurotropic factor (BDNF), resolving D5, growth hormone, retinoic acid, and 1,4-dihydrophenonthrolin-4-one-3carboxylic acid (1,4-DPCA) that maintained endogenous morphogenic cascade in device that eliminated the micromanagement by modulating inflammation, promoting neural sparing and regeneration and growth of tissue. Brief exposure of amputated hind limb with BioDome containing these five small molecules infused in silk protein displayed gain of sensory motor function, tissue patterning and outgrowth. Treated group of animals were followed up for 18 months and they showed delayed wound closure along with increase in bone length, neuromuscular repair and patterning of soft tissue. Their study also displayed reorganization of ECM, presence of nerves and integration of blood vessels by smooth muscles. Regenerated bone showed characteristic wild-type morphology and distal limb displayed digit like projections. This study moved us a step closer to the goal of regenerative medicine and demonstrated that with a brief chemical trigger at target site can induce regeneration in nonregenerative adult *Xenopus laevis*.



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Sperm Motility: Target for Therapeutic Advancements

*-**Aditi Khamamkar,** Dr. TMA Pai Research Scholar, MCBR, MAHE*

Within the elaborate tapestry of human reproduction lies a microscopic marvel: the spermatozoa. Universally recognized as the male gamete, spermatozoa represent the initiation of a new generation. Central to this role is the phenomenon of sperm motility, the dynamic movement that propels this gamete on its journey to unite with the female egg. Human sperm exhibit two primary types of motilities: progressive and non-progressive.

It is the progressive motility that is of paramount importance, attributing to the undulation/whip-like nature of the sperm tail. Conditions such as asthenozoospermia (which refers to reduced sperm motility), oligozoospermia (referring to a low sperm count), and azoospermia (denotes the absence of sperm in the ejaculate) represent just a fraction of the sperm-related disorders that can contribute to male infertility.

Sperm motility is influenced by a myriad of intrinsic and extrinsic factors. Its significance in male fertility cannot be overstated, as it directly determines the ability of spermatozoa to reach and fertilize the egg. Structural abnormalities such as misshapen heads or flagellar defects impede the sperm's ability to swim efficiently. Additionally, mitochondrial function is essential as sperm rely on the energy they generate; any disruption in this energy can lead to reduced motility. The structural integrity of the sperm's plasma membrane is equally vital, as is the sperm's DNA integrity, as any fragmentation can hinder motility. One prominent extrinsic factor is temperature; sperm are highly sensitive to variations in scrotal temperature.

Hormonal imbalances also play a crucial role, with factors such as testosterone, follicle-stimulating hormone (FSH), and luteinizing hormone (LH) directly affecting the sperm.

Therapeutic strategies may involve the enhancement or restoration of sperm motility. Innovative approaches include pharmacological interventions that stimulate mitochondrial function or improve the integrity of the sperm's flagellum. Furthermore, gene therapy holds the potential to address genetic factors that may be responsible for impaired movement. Assisted reproductive techniques like intracytoplasmic sperm injection (ICSI) may also increase the chances of successful conception. The same avenues hold true for developing contraceptives using inhibitors. Inhibitors can selectively target key components of the sperm's motility machinery. These inhibitors may include compounds that interfere with ion channels or enzymes that are critical for motility. By hindering certain targets, researchers aim to reduce sperm motility without compromising overall sexual function or hormonal balance. Another advantageous aspect of such a contraceptive method is its potential reversibility. Some proteins and enzyme targets that researchers have been focussing on are dynein (a motor protein found in the axoneme of the sperm's flagellum), adenosine triphosphatases (ATPases), CatSper (calcium channels), and protein kinase A. These and many other proteins are interlinked via signaling pathways and perform motility functions in tandem.

As scientific advancements continue to expand, scientists continue to explore emerging technologies and research trends, thus offering a glimpse into the future of spermatozoa and motility-related studies. This not only holds the promise of enhancing comprehension of the intricate process but also revolutionizes clinical practices related to infertility, contraception, and assisted reproductive technologies.

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- Image courtesy: https://www.cloudninefertility.com

GUT-BRAIN AXIS AND ITS THERAPEUTIC SIGNIFICANCE

Microorganisms in the human digestive system form a complex ecological community known as the gut microbiota which establishes important communication between the gut and brain through the gut-microbiota-brain axis or gut-brain-axis (GBA). A balanced intestinal microbe maintains homeostasis by strengthening the host immune system, regulating hormonal signaling, and secreting a plethora of metabolites (Liu et al., 2022). However, altered gut microbiota has an imperative impact on the enteric nervous system and overall brain functions such as pain, cognitive dysfunction, neurodegenerative disorders, and cerebrovascular diseases (Zhu et al., 2020). Recently, gut microbiota for maintaining brain health has become a "hot spot" research topic.

Studies also suggest that the alterations in gut microbiota may affect age-related cognitive decline and therefore represent an emerging therapeutic target to manage brain health during aging. Moreover, gastrointestinal (GI) functions are disrupted during aging leading to weakened gut barrier function, altered intestinal immunity, and level of neurotransmitters (Bosco and Noti, 2021). These changes in GI functions culminate in alterations to the gut microbiota, which may in turn influence brain aging. It has been demonstrated that microbiota is altered with aging; yet no evidence is available to confirm whether the altered microflora is healthy, unhealthy, stable, or vulnerable. Gut microbiota coexisted and coevolved with their host and are recognized for their contributions to maintaining the health of their host throughout the lifespan, including healthy brain functions.

A fecal microbiota bank from diseased patients can help in the analysis of fecal microbiota through a non-invasive neurodegenerative disease diagnosis. Similarly, the nervous system and blood-brain barrier (BBB) become weaker with aging, thus, it is essential to understand how the vulnerability of neurons and BBB affects GBA modulation. Gut microbiota produces neurotransmitters and neuromodulators such as serotonin, GABA, short-chain fatty acids, and their metabolites and derivatives in the circulation (Chen et al., 2021). These bioactive factors are transported to the brain via blood vessels after crossing the BBB and modulate cognitive development and various brain-mediated performance activities (Figure 1).

The gut-brain communicates bidirectionally through several mechanisms, including endocrinal, nervous, immune, and microbial metabolite-dependent pathways.

Evidence indicates that the gut microbiota is altered in neurodegenerative diseases known as dysbiosis (Kandpal et al., 2022). Maintenance of delicate gut microbiota balance is the top priority goal of dysbiosis prevention. Therefore, modifying the gut microbiota may affect neurodegeneration (Sun et al., 2021), and at the same time manipulating the intestinal microbiome with host-friendly bacteria causes delayed cognitive decline. In germ-free rodents, which completely lack all microbes after antibiotics treatment, fecal microbiota transplantation and microbiota administration have enabled a deeper understanding of how the gut microbiota influences the biological functions of the brain (Manca et al., 2020). Fecal microbiota transplantation (FMT) is a promising therapeutic option for gut dysbiosis.

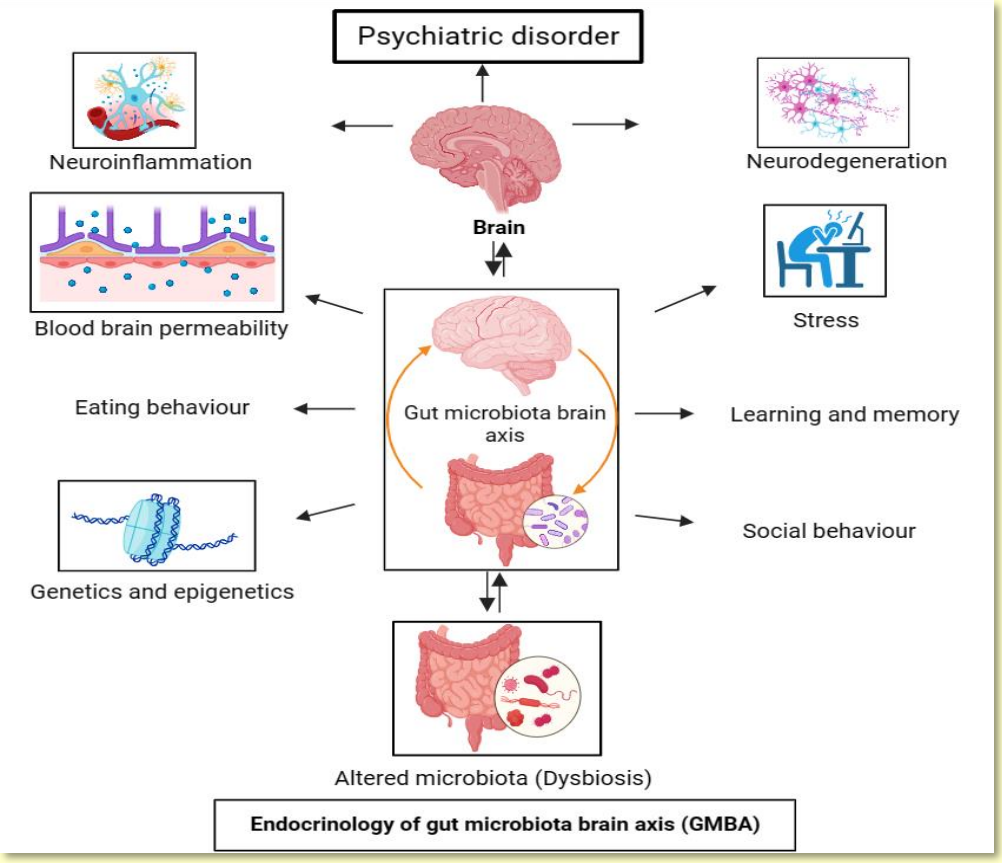

Figure 1: Crosstalk between gut microbiota and brain through gut-brain axis and its effect on brain physiology.

Researchers have shown that transplanting feces from a healthy one into a patient diagnosed with a neurological disorder can alleviate the pathological conditions, signs, and symptoms (Biazzo and Deidda, 2022). Further studies are required to validate this novel therapeutic method in humans with neurological disorders, as FMT can revolutionize the treatment of these conditions. Dysbiosis damage the intestinal barrier causing gut microbes to enter the circulation leading to leaky gut. Higher concentrations of the leaky gut markers zonulin and α1-antitrypsin has been discovered in feces from PD patients.

Several experimental and clinical studies point to a functional connection between intestinal microbiota and neurogenesis through GBA (Cerdó et al., 2020). However, this connection between gut microbiota and neurogenesis is not well explored. As the number of studies on the microbiota-gut-brain axis continues to grow, the research on the interaction between the microbiota and neurogenesis will lead to a more detailed understanding of bacterial roles in adult neurogenesis. Especially the research on the relation of neurotrophic factors to microbiota could be of interest to future studies.

An abundance of "good bacteria" such as *Bifidobacterium* or their products, *Enterococcus* and others have generally been believed to be beneficial, while "bad bacteria" such as *Clostridium* are assumed to be detrimental. *Escherichia coli* and *Salmonella enterica* are among the many bacterial strains that express and secrete amyloid-beta and contribute to AD pathogenesis. Gut microbiota-mediated regulation of hippocampus-dependent learning and memory have opened a new window for understanding the onset and progression of AD (Tang et al., 2020).

Evidence also suggest the ability of the gut microbiota to influence various aspects of adult hippocampal neurogenesis (Iseli et al., 2023), and thus the gut microbiota may be a viable therapeutic target for treating and preventing neurodegenerative diseases as it can alter adult hippocampal neurogenesis (Sarubbo et al., 2022). Thus, modulation of the gut microbiota has been regarded as a preventive and therapeutic target against this worldwide challenge. However, how the gut microbiota affects the structure and function of the hippocampus is far from clear. Specific microbial molecule modulation in gut-brain signaling both chemically and physically may provide a therapeutic approach targeted on microbiome effects. All these still require further experimental evidence, and human observational or interventional data to propose any clinical recommendations.

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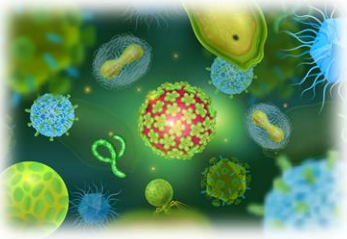

NOTABLE VISITORS

A group of scientists lead by Dr. Fu-Jen Kao of National Yang-Ming University, Taipei, Taiwan visited on 3rd August 2023; the team appreciated the research infrastructure of MCBR.

Dr. Rajeev Varshney, Director, Defense Institute of Physiology & Allied Sciences (DIPAS), DRDO, and Dr. Asheesh Gupta, Addl. Director, DIPAS-DRDO made a short visit to MCBR on September 15, 2023.

MCBR faculties and research scholars got an opportunity to learn more about start-up ecosystems during the visit of Dr. Nutan P, Team Lead, Advancement Programs Center for Cellular and Molecular Platforms (C-CAMP), Bangalore, on September 19, 2023.

Dr. Vasan Sambandamurthy, Senior VP– Strategy & Global Operations at Bugworks Research Inc, also a member of the BoS, MCBR, MAHE, Manipal, visited us on 21-22nd Sept. and interacted with faculty, researchers, and students and delivered a very inspiring talk on “Bio Therapeutics - Lifesaving innovations”.

INTERACTIVE EVENTS

POTLUCK LUNCH

On July 29, 2023, we had a potluck lunch. All the students, faculties, and staff cooked some food or the other – paneer and dessert items were the superhits! Family members of the faculties also joined this fun event. It was followed by playing some indoor games.

MCBR GETS TOGETHER TO WATCH THE LUNAR LANDING OF CHANDRAYAN 3 EVENT

23rd August 2023 was a historic day in the calendar for all the Indians. Most faculty members and students were eagerly waiting to witness the history be made live and finally, at 6:04 PM that moment arrived when Chandrayaan-3 made its soft landing around the south pole area of the Moon's surface. Everyone celebrated this proud moment with lots of cheers.

MCBR CELEBRATES *ONAM*

On 29th August 2023, students and faculties of MCBR celebrated 'Onam' organized by the 'ArTure' club under the guidance of Dr. Kirthanashree.

OFF THE TRAIL ACTIVITY – VISIT TO ARBI FALLS

On 2nd September 2023, students, faculties, and staff of MCBR went for an outdoor activity- to Arbi Falls, Manipal, under the guidance of Dr. Abhishek Kumar Singh. Among the *'Off the Trail'* club members, Mr. Chirag and Ms. Ruchita lead the masters' students.

TEACHERS' DAY CELEBRATION AT MCBR

On 5th September Teachers' Day was celebrated by cutting a cake by all the faculties. The classrooms were decorated by the students. The celebration included a science quiz contest for the faculties.

An interesting part of this celebration was imitating our Monday Morning Meetings with the students with a small drama!

G20 UNIVERSITY CONNECT EVENT

The Hon'ble Prime Minister interacted with the Vice-Chancellors, Principals, Faculty Members, and students of the Universities/Colleges on 26th September, during the G20 University Connect Event, from the Bharat Mandapam, New Delhi

The arrangements for the live telecast of this event were made in the MCBR conference room for all the faculty members, research scholars, and interns.

FUN MOMENTS

MCBR celebrated the birthdays of our staff, research scholars, and faculties with cakes, claps and cheers!

Dr Kirthana–

7th July

Ms Shweta –

10th August

Dr Abhishek –

11th August

Mr. Preetesh –

20th September

Ms Vidhi –

26th September

MANIPAL
ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)

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