

**OCTOBER
2023**

AMBROSIA

**2ND
EDITION**

EXPLORE BIOLOGY

**THE MAYO COLLEGE
BIOLOGY & GENERAL
SCIENCE SOCIETY**

AMBROSIA IS BACK

**THE 2ND EDITION OF
THE BIOLOGY SOCIETY
NEWSLETTER**

PG'23

**VASUDHAIVA
KUTUMBAKAM**







- EDITOR'S NOTE
- PG EXHIBITION 2023
- THE BIOLOGY SOCIETY
- RECENT
BREAKTHROUGHS
- ARTICLES
- SPECIAL THANKS
- THE TEAM



CONTENTS

Editor's Note



We are delighted to present the second edition of Ambrosia, a publication that continues to encapsulate the spirit of curiosity, discovery, and passion for biology within our school community.

In this edition, we delve into the theme for this academic year, 'Vasudhaiva Kutumbakam,' and the projects initiated by the society over the course of this year, as well as an introduction to this year's Prize Giving exhibition.

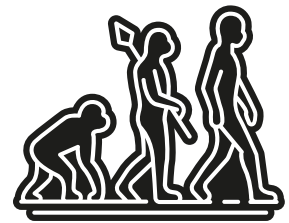
You will find an array of content that is both informative and inspiring, from in-depth articles on the latest breakthroughs in biological research to reports on activities that the society was engaged in.

We hope to spark your interest in the captivating world of biology. Our commitment to promoting interdisciplinary understanding is exemplified in features that bridge biology with other scientific disciplines, fostering an all-encompassing exploration of life sciences.

Abishay Santram
President
Biology Society

PG EXHIBITON '23

The theme for the 'Prize Giving' this year, taken up by the institution, is 'Vasudhaiva Kutumbakam' - 'The World is One Family,' in honor of this year's G20 agenda. Correlating this theme with the Biology Society, we felt it was the perfect moment to take up two very important topics.



HUMAN EVOLUTION-

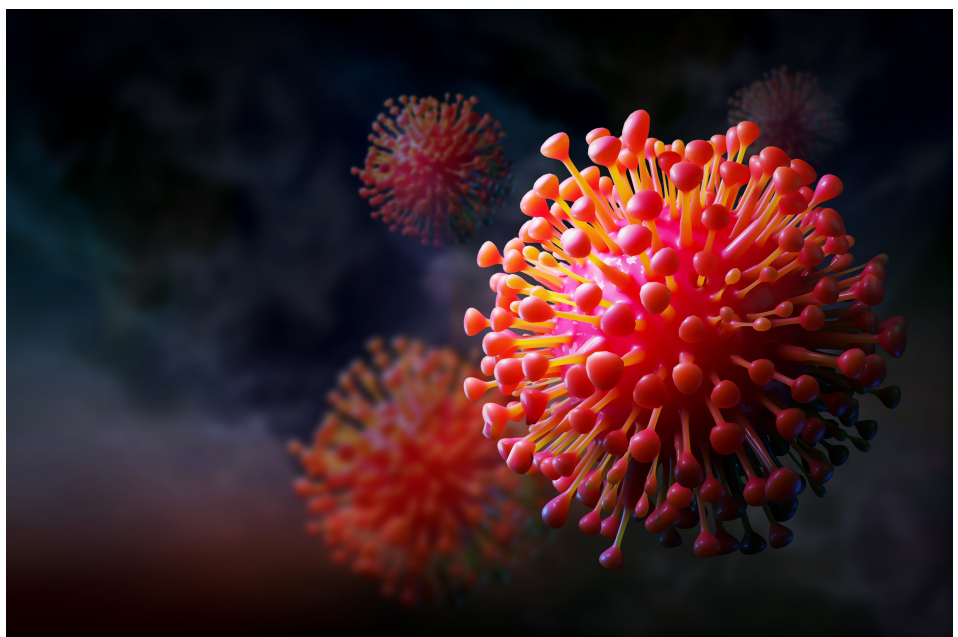
What better way to promote unity than reminding people that we all come from the same place! Our origins are the same! Everyone knows that our ancestors were apes, but what does that mean? What does it mean to evolve from a species? These are the questions that will be answered by the PG exhibition—an explanation of the origins of mankind.



PG EXHIBITON '23

HUMANITY'S FIGHT AGAINST COVID-19 AND COMMITMENT TO BETTER HEALTHCARE-

The COVID-19 pandemic highlighted the interconnectedness of the world and the need for international cooperation. Nations came together to share knowledge, resources such as testing kits, medicines, vaccines, oxygen tanks, and research to combat the virus. This cooperation has shown humanity's capacity for unity in the face of a common threat. India, itself, has been a major contributor to the world for vaccines and medicines, not only during the pandemic but for many years prior. Although we were able to control the virus, its emergence has underscored the need for increased international collaboration in the field of medicine. Many ailments still lack a cure or treatment, and as a result, nations have initiated various efforts to enhance healthcare infrastructure, promote telemedicine, advance research, and bolster preparedness.



THE BIOLOGY SOCIETY



ESTABLISHMENT OF A LABORATORY

At Mayo College, students are instilled with the values of support and empowerment for those around them. It is a crucial lesson in leadership development.

This is precisely why the Biology Society embarked on a project to establish a biology lab in a school serving underprivileged children. The Society's core values are rooted in the promotion of improved and efficient education.

DISEASE AWARENESS

In the wake of the COVID-19 pandemic, the Biology Society has remained vigilant in ensuring that safety precautions against communicable diseases are rigorously adhered to, especially during times when certain diseases, such as conjunctivitis (pinkeye/eye flu), dengue, and malaria, have seen an uptick in cases.

The Biology Society has taken on the responsibility of spreading awareness about preventive measures for these infections, particularly in rural areas.



‘JAL SE JEEVAN’

An inspiring student-led initiative by the Biology Society of Mayo College, Ajmer, dedicated to the installation of electric water pumps in tube wells for rural villages near Ajmer. This project not only combats water scarcity and waterborne diseases but also uplifts these communities by providing them with access to clean water. Moreover, it is a shining example of youth-led efforts in effecting positive change, all while promoting sustainability and raising awareness. The participants and the organizing committee for this project were applauded by the local village leaders and people for organizing such a project, which is beneficial for the villagers as well as for the animals.



BEFORE AND AFTER



RECENT BREAKTHROUGHS



Trivia

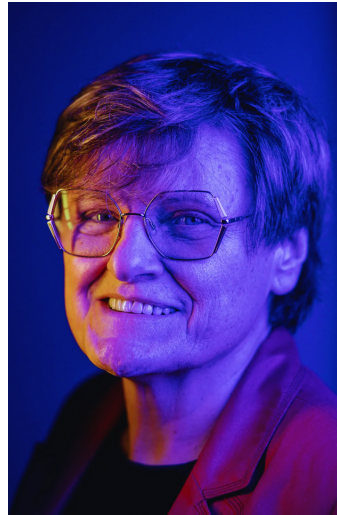
India is currently the world's largest supplier of vaccines and medicines due to their efficacy and affordability, with the Serum Institute of India Ltd being the biggest institute.

Humans have existed on this planet for the past 200,000 years. Dinosaurs, on the other hand, were here for 180 million years!

The liver makes up 2-3 percent of your body mass.

99.9 percent of all human DNA is identical. Additionally, more than 60 percent of our DNA is the same as that of a banana.

Euglena, a microorganism, is considered to be the connecting link between the plant and animal kingdoms.

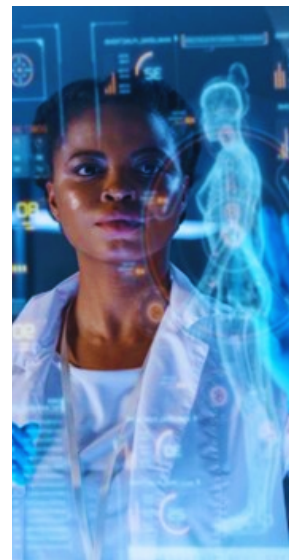


Nobel Prize in Physiology or Medicine 2023-

The Nobel Prize in Medicine this year was awarded jointly to Katalin Kariko and Drew Weissman for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19. It was their discovery that enabled the quick development of the COVID-19 vaccines.

AI in Medicine-

The topic of AI is at an all-time high, and with its vast capabilities, it is influencing many various fields, with Medicine being one of them. OpenCap is an AI app developed at Stanford University that can perform biomechanical analysis in minutes. It grants you the ability to accurately simulate musculoskeletal forces with a constrained biochemical model from your smartphone. All you need to do is open the app and scan your movement.



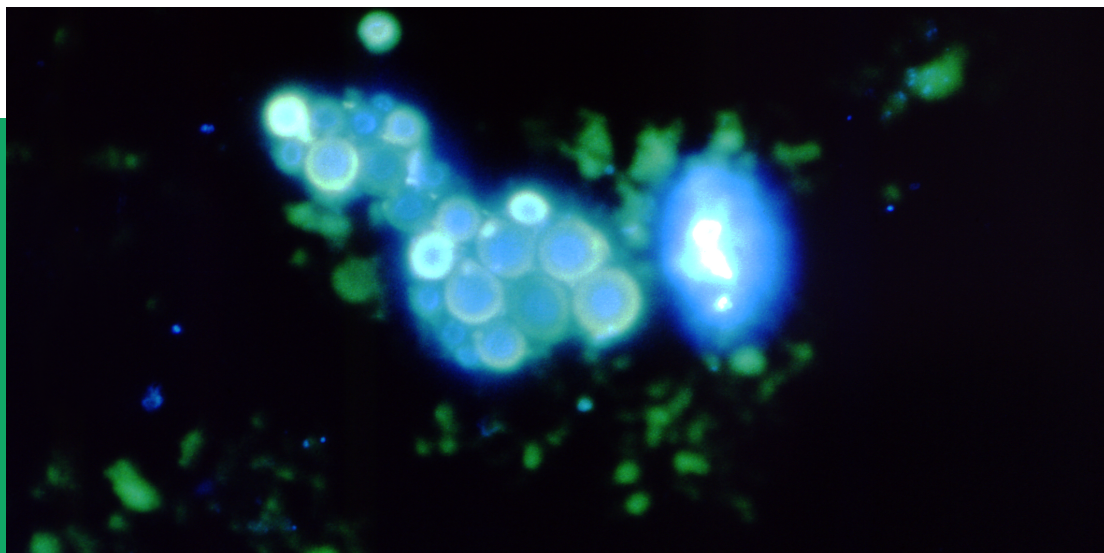
A Case Study on Meningitis by Dhruvank Solanki

In our case, the victim, Dylan, fell off a ladder while screwing in a lightbulb and was found with brain swelling. We believe that the cause of his swelling is meningitis as it is a common form of brain swelling that aligns with the report. There are many types of meningitis, such as bacterial, viral, amoebic, parasitic, etc. (CDC). However, in this case, there is no clarity on whether it is bacterial or amoebic.

As Naegleria Fowleri commonly known as the 'Brain-eating amoeba' and E. coli bacteria are found in eco-ponds, like the one that is found in Dylan's backyard. Infection by either can cause meningitis, the only difference being Naegleria Fowleri is amoebic and E. coli is bacterial.



After careful analysis and study of the contents of the pond water in Dylan's backyard, it was found that Naegleria fowleri was present, but E. coli was not. Thus, we can conclude that Dylan is suffering from amoebic meningitis. Amoebic meningitis can be found in a multitude of areas, including dirty water. Amoebic meningitis causes inflammation and eventual destruction of the brain and brain linings.



CRISPR- A gene editing tool- Research by Abishay Santram

CRISPR, which stands for Clustered Regularly Interspaced Short Palindromic Repeats, is a gene editing tool that was discovered in 2012 by Jennifer Doudna and Emmanuelle Charpentier. It works on a simple principle that was initially observed in bacteria as an immune mechanism. It was recognized as a landmark invention due to its simplicity and affordability. The two inventors were also awarded the Nobel Prize in 2020 for their work.

It is thought of as biological scissors of sorts that can cut and remove a part of the genome and replace it with the desired sequence with the help of certain guide and messenger RNAs. The technology allows for precise editing of the DNA in cells, which can be used to correct genetic mutations responsible for diseases. In early-stage clinical trials, researchers were testing the safety and efficacy of CRISPR-based gene editing for treating this condition. Since the inception of its invention, CRISPR-based gene editing has shown promising potential for treating various ailments and diseases, like cancer, sickle cell anemia, and many others.



THE TEAM

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Dhruvank Solanki – Secretary

Atharva Mahajan – Editor-in-chief



SPECIAL THANKS

Lt. Gen. S. H. Kulkarni – Director, Mayo College

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Mr. Arvind Nahar – Director of Academics

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