

# Newsletter



*School of Biological Sciences*

## AIPH University



November 2024



# Newsletter

## *School of Biological Sciences*

### EDITORIAL DESK

Welcome to the latest edition of the Newsletter from School of Biological Sciences, AIPH University. We are excited to present the remarkable achievements and milestones of our students and faculty and share about the different activities carried by the school during the month of November 2024.

This edition highlights the achievement and accomplishments spearheaded by our students, showcasing their dedication and passion for advancing the field of biological sciences.

Besides academic activities the students with great enthusiasm celebrated World Antimicrobial Awareness Week on November 22, 2024, with a series of advocacies and educational events organized by AIPH University in association with Microbiologists Society, India (MBSI).

To add to the list another unique event in the month of November, Prof. Pradeep Naik, Sambalpur University visited the School of Biological Sciences, engaging with students and faculty in inspiring discussions about research and academic pursuits.

Not only the student activities, this newsletter also features updates on faculty research and initiatives. Our faculty members are at the forefront of scientific analysis, and their work continues to inspire and mentor the next generation of scientists.

We hope you enjoy reading about the exciting developments within our school. Your advice and encouragements are invaluable for us.

We appreciate your continued support and involvement in our journey..

Warm regards,

**[Prof. Padan Kumar Jena]**

Chief Editor

#### Editorial Team

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*November 2024*



## Uniting Against AMR: AIPH University's Week of Awareness and Action

School of Biological Sciences, AIPH University in association with Microbiologists Society, India (MBSI) observed World Antimicrobial Awareness Week on November 22, 2024, with a series of advocacies and educational events. These events aimed at raising awareness about antimicrobial resistance (AMR). The event was held at the Administrative Block which showed enthusiastic participation from students, faculty, and staff.



The function was honored by the presence of esteemed Chief Guest, **Dr. Samarendra Nath Panda**, Director, Krishna Vikash. **Dr. Usha Agrawal**, Vice Chancellor, AIPHU, **Prof. Padan Kumar Jena**, Dean School of Biological Science, AIPHU, **Dr. Ashok Kumar Nayak**, Registrar, AIPHU, **Prof. Pradeep Kumar Panda**, Dean School of Public Health, **Dr. Dhiraj Kumar Nanda**, Assistant Professor, SBS, AIPHU, and faculty-in-charge of the event.



## AMR Event Highlights

Various competitions were organized to engage participants and spread awareness about AMR. More than 60 contestants participated in these competitions to highlight some of the events are:

### 1. Go Blue: Social media campaign

Under the edges of WHO "Go Blue" social media campaign participants shared their Go Blue themed informative posts on social media platforms; the color blue symbolizes the fight against antimicrobial resistance.



The campaign reached a wide audience. Sparking conversations and encouraging people to join the cause.



**Winners:** Ms. Lipsa Patel, MSc Micribiology and Ms.Shruti Patel, MSc Microbiology with esteemed Chief Guest, Vice Chancellor, Registrar, Deans and Judges of the competition.



## 2. Quiz competition (Theme: Antimicrobial Resistance)

Participants showcased their knowledge about AMR and its implications in answering the questions in audio visual mode in highly enthusiastic Quiz competition.



**1st Prize: Group 06:** Mr. Sarda Prasad Panda; Ms. Arpita Panigrahi; Mr. Atul Tripathy, Ms. G Dharitri Vishalini and Ms. Sanghamitra Das



**2nd Prize: Group 03:** Mr. Sitanshu Shekhar Rout; Mr. Abinas Swain; Mr. Suryanarayan Das; Mr. Arman Pattnaik.



**3rd Prize: Group 01:** Ms. Itismita Thakur; Ms. Sai Shreekrishna Mohanty; Mr. Sudhansu Sekhar Parida; Mr. Sushree Chinmayee Mohakul



### 3. Rangoli competition (Theme: Educate. Advocate. Act Now.)

During the AMR Week celebrations at AIPH University, a vibrant Rangoli competition on the theme "Educate. Advocate. Act Now." showcased stunning designs that emphasized the importance of awareness and action against antimicrobial resistance.



Guests and Judges in the Rangoli competition.



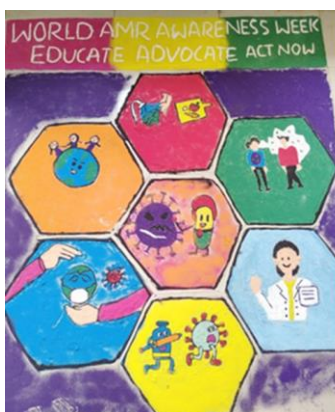
## Winners of the Rangoli competition



**1<sup>st</sup> Prize:** Group 05: Shruti Patel; Subhasmita Swain; Moliska Pattnaik and Anisha Bardhan



**2nd Prize:** Group 02: Subhashree Sahoo; Payal Sinha; Sanskriti Bhagat and Pratyush Patel



**3rd Prize:** Group 03: Manika Chand; Padmini Pradhan; G Dharitri Vishalini; Sanghamitra Das and Komolika Sahu.



**Organizing team, AMR Week Event, AIPHU**



## Prof. Pradeep Naik's Visit to AIPH University

### Inspiring Research and Collaborations: Fostering Research Excellence

**Prof. Pradeep Naik**, a distinguished academic from Sambalpur University, recently graced the School of Biological Sciences at AIPH University. His visit provided a unique opportunity for students to delve into the realm of research and explore promising career paths. Through insightful discussions, Prof. Naik shared invaluable knowledge about research opportunities, guiding students on potential avenues to pursue their academic and scientific aspirations.



Additionally, he engaged with faculty members, exchanging ideas on innovative project concepts and discussing potential funding sources.



This interaction fostered collaborative spirit and inspired new research directions, further elevating the academic and research landscape of the institution.

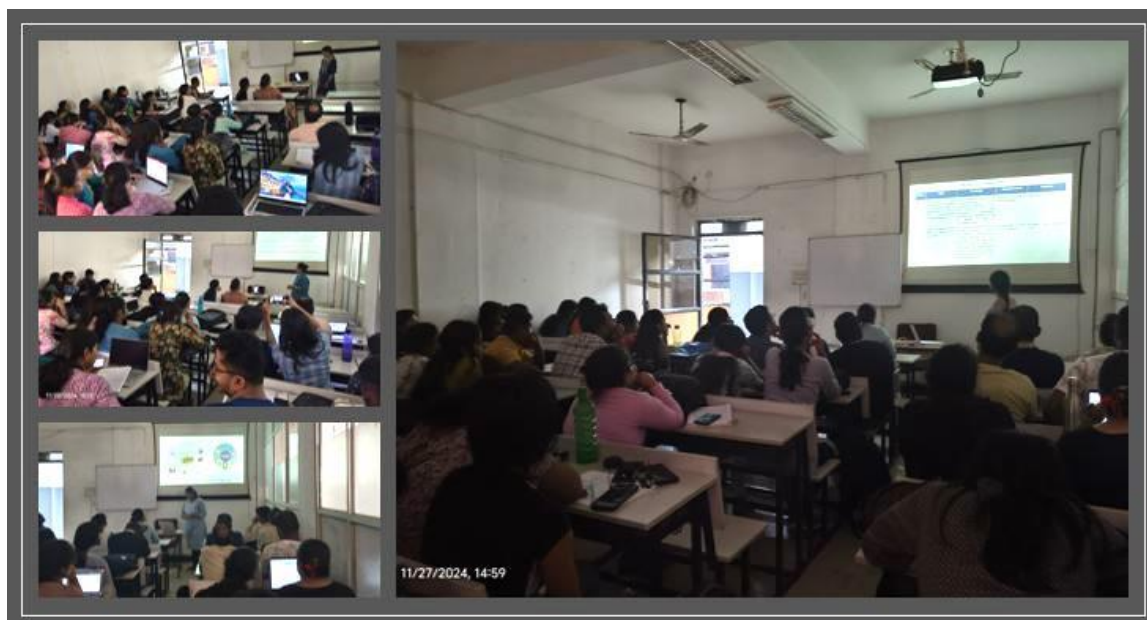


## Student activity

### Weekly Student's Seminar, at SBS, AIPH University

#### Research Proposal Seminar

The School of Biological Sciences at AIPH University hosts a dynamic weekly seminar series, providing a platform for students to present their research and engage in scholarly discussions. In this month, the 3rd semester SBS students presented their research proposal in weekly seminar series in the presence of Research Committee Members.



The Research Proposal and Seminar course in the 3rd semester provides early exposure to research methodologies, mentorship, and collaborative opportunities, enabling students to initiate their research projects in the 4th semester and achieve significant research output.



These seminars foster a vibrant academic environment, encouraging the exchange of ideas and latest scientific findings among peers and faculty. It's an integral part of the curriculum that not only enhances the learning experience but also prepares students for future scientific endeavours and collaborations. This initiative reflects AIPH University's commitment to academic excellence and its pursuit of creating a stimulating educational atmosphere.



## Faculty's Column

### Cancer Drug Resistance: Mechanisms and Challenges

Dr. Munmun Panda

Assistant Professor, School of Biological Sciences, AIPH University

Cancer, a formidable disease, has been a persistent threat to human health. While advancements in medical science have led to significant improvements in cancer treatment, one of the most significant challenges remains: drug resistance.

Drug resistance occurs when cancer cells develop the ability to survive and proliferate despite exposure to chemotherapy or targeted therapy drugs. This phenomenon can lead to treatment failure, disease progression, and ultimately, poorer patient outcomes. Resistance can develop through various mechanisms, including genetic mutations, changes in drug targets, increased drug efflux, the activation of alternative signaling pathways etc.

A prevalent mechanism is genetic mutations in drug targets. For example, if a drug targets a specific protein required for cancer cell survival, mutations in that protein may render the drug ineffective. Another significant aspect is the up regulation of drug-efflux pumps, which are proteins that actively transport drugs out of cancer cells, reducing drug concentration and efficacy within the cell. Furthermore, cancer cells may activate alternate signaling pathways to avoid the drug's effects, allowing continuing growth and survival even after therapy.

The tumor microenvironment plays an important influence on drug resistance. Poor blood flow and immune cells can impede drug transport and action, reducing their therapeutic effects. Furthermore, cancer tumors are highly heterogeneous, thus, certain cells may be intrinsically resistant to treatment. These resistant cells survive and proliferate, resulting in disease recurrence.

Combating drug resistance requires a multi-faceted approach:

- **Combination Therapy:** Using multiple drugs with different mechanisms of action can reduce the likelihood of resistance development.
- **Targeted Therapies:** Precisely targeting specific molecular alterations in cancer cells can improve treatment efficacy and minimize side effects.
- **Immunotherapy:** Harnessing the power of the immune system to fight cancer can offer a novel approach to overcome resistance.
- **Novel Drug Development:** Continuous research and development of innovative drugs, such as antibody-drug conjugates and targeted protein degraders, can help address emerging resistance mechanisms.
- **Precision Medicine:** Tailoring treatment to individual patients based on their genetic and molecular profiles can optimize therapy and reduce resistance.

While drug resistance remains a significant hurdle, ongoing research and technological advancements offer hope. By understanding the underlying mechanisms of resistance and developing innovative therapeutic strategies, we can improve patient outcomes and ultimately conquer cancer.





## Research & Innovation

### Seminar/Conference Participation

**Dr. Jyoti Ranjan Rout**, Assistant Professor, School of Biological Sciences and **Mr. Anil Kumar Sahoo**, PhD Scholar participated in the National Seminar on 'Research & Innovations in Industrial & Marine Biotechnology: A Circular Economy (RIIMBCE-2024) during October 26-28 at Siksha 'O' Anusandhan University.

**Mr. Anil Kumar Sahoo**, PhD Scholar, School of Biological Sciences, AIPH University presented his research work entitled **“Isolation and characterization of pesticide degrading bacteria from farmland soil”** in the poster competition event. His research work highlighted the isolation and characterization of pesticide-degrading bacteria from farmland soil, demonstrating their potential for bioremediation of pesticide-contaminated environments.



### Publications



1. **Dash, S. R.**, Karjee, P. K., Patra, B., Bal, R., & Kar, A. (2024). Chemical constituent, essential oil and biological activities of different species of Lamiaceae and their effect on human health. *African Journal of Biomedical Research*, 27(3s), 5361–5370.
2. Mohanta, A. K., Sahoo, C., Jena, R., Sahoo, S., Bishoyi, S. K., Patra, B., **Dash, S. R.**, & Pradhan, B. (2024). Effect of inappropriate solid waste on microplastic contamination in Balasore district and its aquatic environment. *Bulletin of the National Research Centre*, 48(1), 120.

Collaborators of AIPHU :



# AIPH University

Established by the State Legislature vide  
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