



**School of Biotechnology,
Devi Ahilya Vishwavidyalaya, Indore**

**Organizes a
“Value Added Hands-on Training Program”
On
“Neurobiology and Metabolic Disorders”
24th-30th Sep.’ 2024**



Patron
Dr. Renu Jain
Vice Chancellor,
DAVV, Indore



Registrar
Dr. Ajay Verma
DAVV, Indore



Resource Person
Dr. Hem Chandra Jha
Associate Professor
IIT, Indore



Coordinator & Resource Person
Dr. Hamendra Singh Parmar
Head, School of Biotechnology
DAVV, Indore

Participants: M.Sc. Students and Research Scholars.

Registration Link: https://docs.google.com/forms/d/1GWdJz0YRMOI2DnsLnavsMtRvzqf2-Q_AMS-OhxU2kZc/edit

Venue: School of Biotechnology, Devi Ahilya Vishwavidyalaya, Takshshila Campus, Indore

The School of Biotechnology - Devi Ahilya Vishwavidyalaya, Indore, organized a value-added hands-on training programme on Neurobiology and Metabolic Disorders from September 24 to September 30, 2024. The workshop provided students with comprehensive exposure to the field of neurodegenerative diseases and metabolic disorders through theoretical and practical sessions.

The event commenced with a lamp lighting ceremony, followed by Kulgeet. The students were motivated and showed great enthusiasm in actively participating throughout the programme. They eagerly engaged in the interactive lectures and hands-on sessions, gaining valuable insights and advanced skills in neurobiology and related fields.

Day-wise Overview of the Workshop:

Day 1:- The workshop began with an introduction by Dr. Hemendra Singh Parmar, Head of the Department, School of Biotechnology, who provided an overview of the programme's objectives. A keynote lecture was delivered on neurodegeneration and the development of models to study neurodegenerative diseases. Neurobehavioral studies were demonstrated, including tests such as the Morris Water Maze, Elevated plus Maze, object recognition, Y arm, radial arm and Light-Dark Box for cognition deficiency, anxiety, depression, and neurodegeneration scoring.

Day 2:- Students conducted an acetylcholine esterase activity test as part of their neurobiological training. BACE1 inhibitor screening was performed, allowing students to identify potential drug candidates for Alzheimer's disease. A lecture on Thioflavin S staining was also conducted to provide insight into techniques for detecting amyloid plaques in neurodegenerative disorders by Vaishali Saini PhD scholar at IIT Indore.

Day 3:- Thioflavin S staining and Congo red binding assays for amyloid-beta detection were conducted, enabling students to apply diagnostic techniques used in Alzheimer's disease research. Dr. Anand Krishna Singh delivered a lecture on mental health, highlighting its importance in the context of neurodegeneration. Dr. Tarun Prakash Verma conducted an interactive session, where he introduced students to GHS symbols, good laboratory practices, and data analysis, enriching their understanding of safety and scientific methodologies.

Day 4:- Students explored the development of animal models for Type 1 and Type 2 diabetes and conducted dipeptidyl peptidase-4 (DPP-4) activity and inhibitor screening to understand metabolic disease pathways. In vitro and in vivo assays were performed, giving students practical knowledge of screening methods used in metabolic research. Theory lecture was conducted on different assay with respect to Alzheimer disease by Meenakshi Kandpal, PhD scholar at IIT Indore.

Day 5:- A continuation of molecular biology techniques was conducted, starting with RNA isolation and primer design, followed by cDNA synthesis, PCR, RT-PCR, and qPCR. These sessions provided a comprehensive understanding of genetic tools and their applications in modern research. Students performed an insulin ELISA as part of their hands-on experience in studying metabolic enzymes.

Day 6:- The day was dedicated to microscopy analysis and image analysis using ImageJ & different bioinformatics tools helping students develop skills in the visualization and analysis of biological samples with a focus on research applications.

Day 7:- The final day featured a theory lecture by Vaishali Saini, a research scholar at IIT Indore, who discussed stem cell differentiation into neurons, giving students an overview of regenerative medicine techniques. An MCQ-based exam was conducted to evaluate the students' knowledge and understanding of the content covered during the workshop. The day concluded with an interactive session with Dr. Hem Cha Jha Associate professor at IIT Indore, followed by the distribution of certificates to the participants.

Overall, the workshop received an overwhelmingly positive response from PhD scholars, and all participants. It was highly regarded for its informative content and practical exposure, providing students with invaluable skills and knowledge in neurobiology and metabolic disorders. The programme concluded with the distribution of certificates, marking the successful completion of the workshop.

Reported by –

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