



हिमालयन जैवविज्ञान स्कूल

स्वामी राम हिमालयन विश्वविद्यालय की एक शैक्षणिक इकाई

Himalayan School of Biosciences

A Constituent Academic Unit of Swami Rama Himalayan University



Date: 1 March 2025

To

Dr. Smita Chandra
Head
Department of Pathology
Himalayan Institute of Medical Sciences
Swami Rama Himalayan University
Dehradun, Uttarakhand

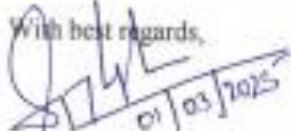
Subject: Acknowledgment and Appreciation for Flow Cytometry Workshop

Respected Madam

I extend my sincere gratitude to the Department of Pathology, Himalayan Institute of Medical Sciences, SRHU for organizing the one-day session on Flow Cytometry on 1 March 2025 as part of the 4 Weeks Training Program on "Modern Biology: Advanced Molecular Tools for Healthcare" from 10th February 2025 -8th March 2025 sponsored by Department of Health Research, Ministry of Health and Family Welfare, Govt. of India. Your initiative in conducting this workshop has significantly contributed to the learning and skill enhancement of the participants. This session provided an excellent platform for our trainees to gain hands-on experience and deepen their understanding of its applications. The expertise shared by the resource persons and the interactive discussions were immensely beneficial, enriching the overall training experience.

We deeply appreciate your support, collaboration, and commitment to academic excellence. We look forward to future opportunities to work together in fostering scientific knowledge and skill development among our students and researchers.

With best regards,


01/03/2025

Dr. Sanjay Gupta
Principal
Himalayan School of Biosciences
Swami Rama Himalayan University

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IMPORTANT INFORMATION

- Fully Sponsored Program
- Accommodation available for outstation candidates, food and transport excluded
- Caution fee of ₹1000, fully refundable to be deposited in:
Bank Details:
AC No. 31280223643
State Bank of India, HRI, Jolly Grant, Dehradun
IFSC Code: SBIN0018590
- No training fee
- Certificates for lectures and hands-on training after successful completion
- Registration Link:
<https://docs.google.com/forms/d/1oD7Lg7Wt-qm12d1632-4et1qg61wzsv16H1wR0H6164t>

ELIGIBILITY

- Clinicians, Medical Faculty, Scientists, Research Scholars, & PG Students
- 30 seats per batch

IMPORTANT DATES

- Last Date of registration: 20th Jan 2025
- Announcement of selected participants on university website: 30th Jan 2025

CONTACT US

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NAAC A+



**MODERN BIOLOGY
ADVANCED MOLECULAR TOOLS FOR HEALTHCARE**

Organised by Himalayan School of Biosciences
Swami Rama Himalayan University

Sponsored by
Department of Health Research
Ministry of Health & Family Welfare, Govt. of India

30-DAY WORKSHOP
10th February to 8th March 2025

srhju.edu.in

ABOUT THE UNIVERSITY

SRHJ NAAC A+ is a leading university of Uttarakhand, located at Jolly Grant, Dehradun. Over 3 decades of legacy and with 200 acres of campus, it houses multi-specialty Himalayan Hospital, Cancer Research Institute, Agrivada Centre, Rural Development Institute, and schools in major educational streams.





ABOUT HSBS

The Himalayan School of Biosciences (HSBS), established in 2012, is committed to translational research and industrial applications with a focus on sustainability. HSBS offers advanced education and training in Biotechnology, Microbiology, and Biochemistry through interdisciplinary programs. From molecular and cellular research to ecosystem and biodiversity studies, the school is driving new perspectives and innovations. With state-of-the-art facilities and expertise, it leads pioneering research in animal, plant, and microbial sciences, shaping the future of scientific discovery.

PROGRAM HIGHLIGHTS

- Introduction to Molecular Biology techniques in healthcare
- Comprehensive Hands-on Training: nucleic acid extraction, gene amplification and gene expression
- Expression study of proteins
- Tissue engineering and cell culture techniques
- Data analysis and interpretation via bioinformatics tools in healthcare

Modern Biology: Advanced Molecular Tools for Healthcare: A Comprehensive Training Module

4 Weeks Training Program Sponsored by Department of Health Research, Ministry of Health and Family Welfare, Govt. of India

(10th February 2025 -8th March 2025)

Organized By Himalayan School of Biosciences, Swami Rama Himalayan University, Dehradun, Uttarakhand

Schedule of the Training Module (Tentative)

Week	Day	Date	Topic	Details
Week One	1	10.2.25 (Monday)	Introduction to Molecular Biology Techniques in Healthcare	Registration of the Participants Inaugural Ceremony
	2	11.2.25 (Tuesday)		Technical Session: Introduction to Molecular Techniques in Healthcare
	3	12.2.25 (Wednesday)		Technical Session: Hands on Training on DNA & RNA extraction from clinical samples (cell/tissue)
	4	13.2.25 (Thursday)		Technical Session: Hands on training on Nucleic acid quantification and agarose gel electrophoresis
	5	14.2.25 (Friday)		Technical Session 1: Introduction to PCR and its types and their application in Healthcare Technical Session 2: Hands on training on cDNA Synthesis and PCR amplification
	6	15.2.25 (Saturday)		Technical Session 1: Hands on training on cDNA Synthesis and qPCR amplification Technical Session 2: Hands on training on Agarose gel electrophoresis of the amplified product
	7	16.2.25 (Sunday)		Technical Session 1: Nanostring: Next Generation Profiling Technical Session 2: GeneNat System: Revolutionizing point of care diagnostics Technical Session 3: HemaVision: Modern Techniques for Oncology Profiling Technical session 4: Introduction to ddPCR and its applications
Week Two	8	17.2.25 (Monday)	PCR & Cloning Approaches for Healthcare	Online Assignment
	9	18.2.25 (Tuesday)		Technical Session 1: Data Interpretation and Result Analysis of Qualitative PCR (Hands on Training) Tech. Session 2: Troubleshooting Common Issues in PCR Technical Session 3: Implementing Quality Control Measures in the PCR Lab
	10	19.2.25 (Wednesday)		Technical Session1: Introduction to Blotting Methods: Southern, Northern, and Western Blotting
	11	20.2.25 (Thursday)		Technical Session 1: Protein extraction from tissue/Cell (Hands on Training) Technical Session 2: Gel Electrophoresis (Hands on Trg.)
	12	21.2.25 (Friday)		Technical Session 1: Primer and Probe designing Technical Session 2: Overview and latest application of RT-PCR in diagnostics
	13	22.2.25 (Saturday)		Technical Session 1: Sanger Sequencing
	14	23.2.25 (Sunday)		Technical Session 1: Next Generation Sequencing (NGS)
			Online Assignment	

Week Three	15	24.2.25 (Monday)	Cell culture Techniques	Technical Session 1: Introduction to animal tissue culture Technical Session 2: Basics of cell culture
	16	25.2.25 (Tuesday)		Technical Session 1: Basics of cell culture (Hands-on-training) Technical Session 2: In vitro evaluation of cells (Theory and Demonstration)
	17	26.2.25 (Wednesday)		Online Assignment
	18	27.8.25 (Thursday)		Technical Session 1: In vitro cell culture (Cell growth log, morphological, etc.) Technical Session 2: Cytotoxicity assay, live-dead assay, antibody staining, cytoskeletal staining
	19	28.2.25 (Friday)		Demonstration: Oxford Nanopore
	20	1.3.25 (Saturday)		Demonstration: Flow Cytometry
	21	2.3.25 (Sunday)		Online Assignment
Week Four	22	3.3.25 (Monday)	Bioinformatics Tools in Healthcare	Technical Session1: Introduction to Bioinformatics and Its Applications in medical Technical Session 2: Navigating Bioinformatics Databases (NCBI, EMBL, DDBJ)
	23	4.3.25 (Tuesday)		Technical Session 1: DNA Sequence Analysis Tools Technical Session 2: Hands-on DNA Sequence Alignment (BLAST) and Phylogeny Determination
	24	5.3.25 (Wednesday)		Technical Session 1: Introduction to Python Technical Session 2: Hands on Training on Basics of Python
	25	6.3.25 (Thursday)		Role of Tissue engineering in Healthcare
	26	7.3.25 (Friday)		Technical Session1: Statistical Modelling of Healthcare data Session 2: Yoga Session 3: Summary and Feedback
	27	8.3.25 (Saturday)		Valedictory Function and distribution of certificates

Report on Flow Cytometry Workshop

Date: 1st March 2025

Event: Flow Cytometry Workshop (Single Day)

Organized by: Hematology Section, Department of Pathology, HIMS, SRHU

Training Program: "Modern Biology Advanced Molecular Tools for Healthcare" organized by Himalayan School of Biosciences, SRHU

Introduction:

On 1st March 2025, a specialized workshop on **Flow Cytometry** was held by the **Hematology Section under the Department of Pathology**. This workshop was part of the larger training program titled "*Modern Biology Advanced Molecular Tools for Healthcare*" organized by the Himalayan School of Biosciences, SRHU. The workshop aimed to provide participants with advanced knowledge and practical insights into the powerful technique of flow cytometry and its applications in healthcare, particularly in the diagnosis and research of hematological disorders.

Objectives of the Workshop:

The primary objectives of the workshop were:

- To introduce participants to the principles and practical applications of flow cytometry in clinical and research settings.
 - To demonstrate how flow cytometry is used in diagnosing hematological disorders and in various other fields of healthcare.
 - To explore the integration of flow cytometry with other molecular tools in advanced healthcare research.
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Key Sessions:

1. **Welcome Address by Dr. Smita Chandra**, Professor & HOD, Department of Pathology, HIMS

The Flow Cytometry Workshop began with an insightful introductory session delivered by the Head of Department (HOD) of Department of Pathology. The session set the stage for the day's proceedings, outlining the significance of flow cytometry in modern biological research and healthcare diagnostics.

2. **Introduction & Principle of Flow Cytometry by Dr. Mansi Kala**, Professor, Department of Pathology, HIMS

The workshop began with an introductory session explaining the fundamental principles of flow cytometry. The session covered the technique's history, working principles, and its significance in cell analysis.



3. **Fluorochrome & Panel designing by Dr. Sumit Garg**, Assistant Professor, Department of Pathology, HIMS

This session predominantly explain & give brief knowledge of different fluorochrome and how essential their role for panel designing. In addition, he also explains the basic processing and different processing protocol for sample processing.

4. **Technical Demonstration by Mr. Sohan Lal Raturi & Mr. Amit Bhatt**, Technician

Participants were provided with a live demonstration of a flow cytometry experiment, including sample preparation, data acquisition, and analysis. This hands-on session allowed attendees to better understand the practical aspects of the technique.

5. **Applications in Hematology by Dr Monika Singh**, Assistant Professor, Department of Pathology, HIMS

A detailed session focused on the use of flow cytometry in hematology, emphasizing its role in diagnosing various blood cancers such as leukemia and lymphoma. Real-world case studies were discussed to highlight the relevance of this technique in clinical practice.

Outcome and Impact:

The workshop successfully provided in-depth knowledge and practical exposure to flow cytometry, a critical tool in modern biological research and diagnostics. Participants gained a clear understanding of its role in healthcare, especially in diagnosing and understanding hematological conditions. The interactive sessions also fostered collaborative learning, allowing participants to engage directly with experts in the field.

Conclusion:

The Flow Cytometry Workshop on 1st March 2025 was a significant component of the "Modern Biology Advanced Molecular Tools for Healthcare" program, contributing to the participants' understanding of cutting-edge diagnostic techniques. The collaboration between the Hematology Section, Department of Pathology, and the Himalayan School of Biosciences helped bridge the gap between theoretical knowledge and practical application, ultimately enhancing the skills and knowledge of healthcare professionals in this field.

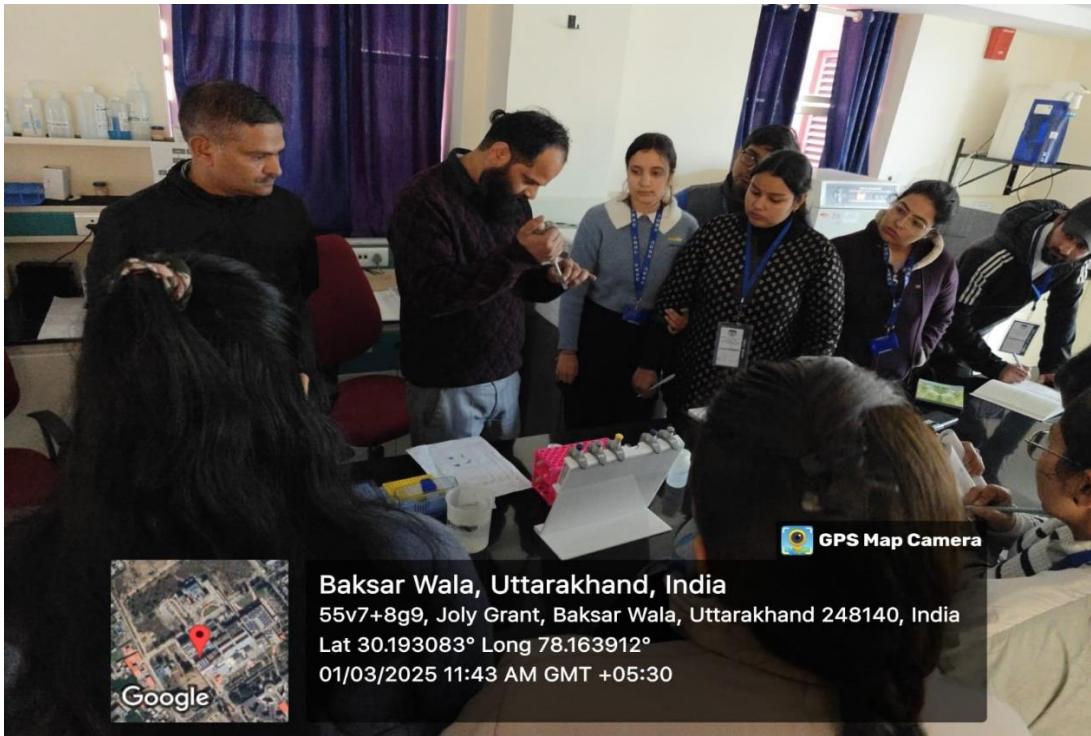
Monika Singh
Monika Singh

Sohan Lal Raturi

Lita
Dr. SMITA CHANDRA
Professor & Head, Department of Pathology,
Himalayan Institute of Medical Sciences,
Swami Rama Himalayan University,
Dohwala, Dehradun, Uttarakhand-248015

Photographs of Flow Cytometry Workshop





GPS Map Camera



Baksar Wala, Uttarakhand, India
55v7+8g9, Joly Grant, Baksar Wala, Uttarakhand 248140, India
Lat 30.193083° Long 78.163912°
01/03/2025 11:43 AM GMT +05:30



GPS Map Camera



Baksar Wala, Uttarakhand, India
55v7+695, Joly Grant, Baksar Wala, Uttarakhand 248140, India
Lat 30.192803° Long 78.163554°
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