Swami Rama Himalayan University

REPORT

2025

Centre of Excellence for Cancer Biology and Immunology Lab

Swami Rama Himalayan University

AIM & OBJECTIVES

To understand the cellular, molecular, and immunological mechanisms that govern cancer initiation, progression, metastasis, and immune response, and to translate these discoveries into innovative diagnostic, prognostic, and therapeutic strategies.

The lab was set up through DHR and University joint funding and maintains more than seven cancerous cell lines like Lungs, Liver, Breast, Skin and Macrophages. The lab focuses on cancer biology, epigenetic study on cancer, cancer Immunology and cancer biomarker discovery. In last one year lab has secured 2 Intramural and 1 extramural (Industry) funding.

- Provide hands-on training in advanced molecular and immunological laboratory techniques such as flow cytometry, ELISA, cell culture, sequencing, immune profiling, and animal modelling to build technical and conceptual proficiency.
- To unravel molecular and evolutionary networks driving tumour initiation, progression, metastasis, and therapeutic resistance.
- To characterize the cellular and molecular bases of anti-tumour immunity, including innate and adaptive immune interactions, immune checkpoint pathways, and mechanisms of immune evasion.
- To Identify and validate biomarkers (e.g., tumour-associated antigens, serum autoantibodies, immune cell signatures) for early detection, prognosis, and treatment monitoring.
- To employ in vivo (e.g., genetically engineered mouse models) and in silico (e.g., computational tumour evolution models) systems to simulate cancer development, metastasis, and immune dynamics.

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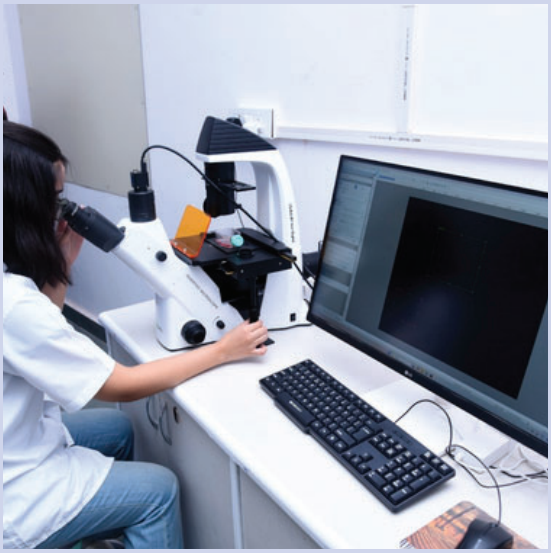
FACILITIES/INSTRUMENTAION AVAILABLE

Name of the Instrument	Image of the Facility
Inverted cum Fluorescence Microscope A specialized microscope where the objective lenses are below the light source and condenser. This design is ideal for viewing live cell cultures. The fluorescence capability allows researchers to observe labelled biomolecules with high specificity, making it widely used in molecular and cellular biology.	
Gradient PCR Gradient PCR is a technique that allows for the simultaneous testing of multiple annealing temperatures in a single PCR experiment. This is particularly useful for optimizing PCR conditions and ensuring the amplification of specific DNA sequences.	

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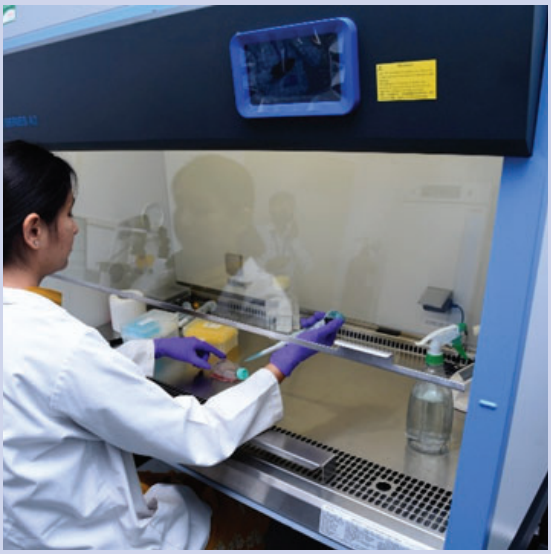
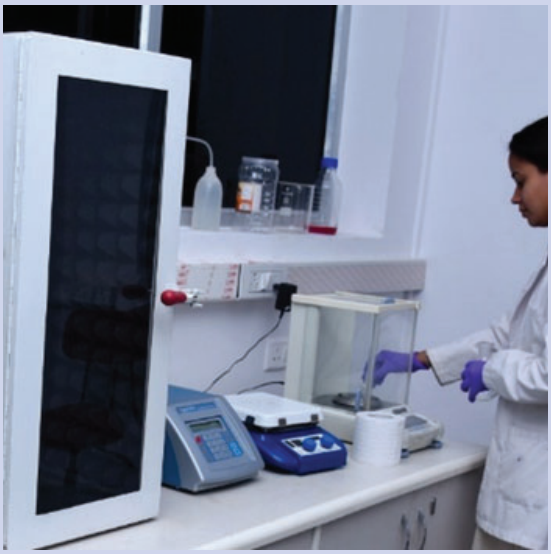
FACILITIES/INSTRUMENTAION AVAILABLE

Name of the Instrument	Image of the Facility
Microplate Reader A laboratory device used for detecting biological, chemical, or physical reactions in microplates. It is essential in applications like ELISA, enzyme kinetics and cell viability assays by measuring absorbance, fluorescence or luminescence of the sample.	
CO_2 Incubator It maintains optimal conditions for cell and tissue culture growth, primarily by controlling temperature, humidity, and CO_2 levels. It ensures a stable and sterile environment to support sensitive biological samples.	

Swami Rama Himalayan University

FACILITIES/INSTRUMENTAION AVAILABLE

Name of the Instrument	Image of the Facility
Biosafety Cabinet A ventilated laboratory workspace designed specifically for protection purpose of the personnel, the environment, and the materials inside the cabinet. The biosafety cabinet is mainly used for handling numerous infectious or hazardous biological components.	
Probe Sonicator It maintains optimal conditions for cell and tissue culture growth, primarily by controlling temperature, humidity, and CO_2 levels. It ensures a stable and sterile environment to support sensitive biological samples.	

Swami Rama Himalayan University

RESEARCH INITIATIVES

INTRAMURAL PROJECTS

Name of the PI/CO-PIs	Title of the Project	PIN No.
Dr. Gourav Kumar, Dr Smita Chandra, Dr Rakhee Khanduri, Dr M. Chhebi, Dr V.S. Jadon, Dr. Geeta Bhandari, Dr. Sanjay Gupta	Regulation of lung adenocarcinoma glycolysis by EGFR dependent RSK4: molecular mechanisms	SRHU/FA/SM/ 2025-26/031
Dr. Gourav Kumar, Dr Smita Chandra	Mutational study of lung adenocarcinoma for glycolysis metabolism by EGFR dependent RSK4	SRHU/FA/SM/ 2025-26/005
Dr. Archna Dhasmana, Dr. Vishal Rajput, Dr. Abha Srivastava, Dr. Sanjay Gupta	Development of Bioengineered grafts for treatment of Spinal Cord Injury.	HSBS/2023/10

Swami Rama Himalayan University

RESEARCH INITIATIVES

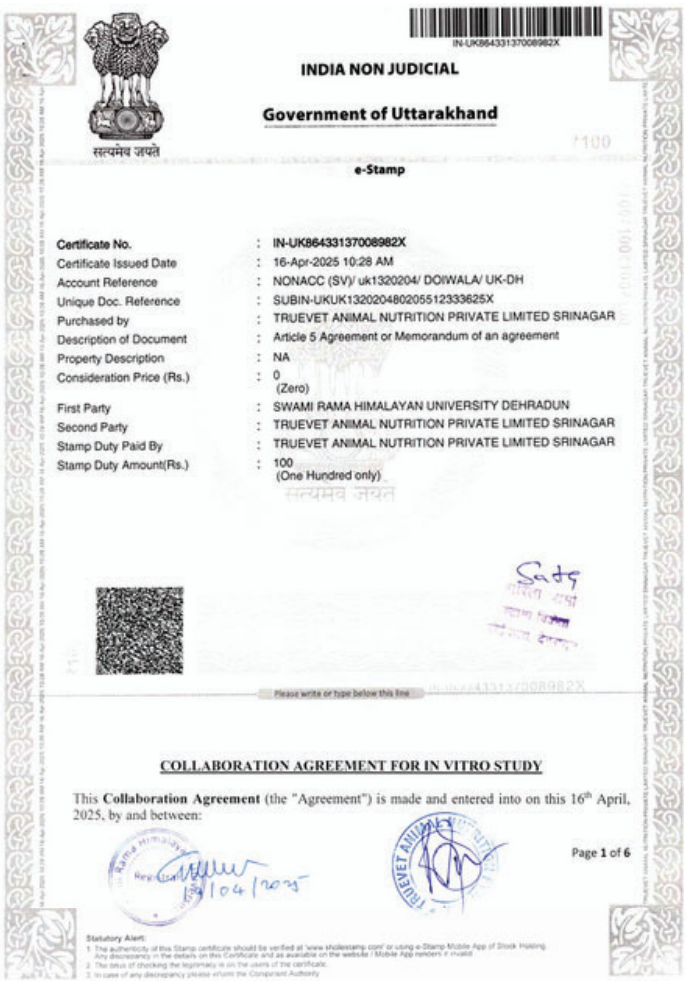
EXTRAMURAL PROJECTS

Name of the PI	Title of the Project	Total Cost	Sanctioning Agency
Dr. Geeta Bhandari	Modern Biology: Advanced Molecular Tools for Healthcare – A Comprehensive Training Module	Rs 62,27,500/-	Department of Health Research, Ministry of Health & Family Welfare, Govt. of India

RESEARCH INITIATIVES

MoUs and Collaborations

Title of MoU	Name of the partnering Institution/ industry /research lab/corporate house	Total Cost Sanctioned for the Study	Duration
COLLABORATION AGREEMENT FOR IN VITR0 STUDY	Swami Rama Himalayan University and Truvit Animal Nutrition Private Limited, Srinagar	Rs 550000/-	21-04-25 to 20-12-25



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Government of Uttarakhand

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Certificate No.	:	IN-UK8643313700898 2X
Certificate Issued Date	:	16-Apr-2025 10:28 AM
Account Reference	:	NONACC (SV)/ uk1320204/ DOIWALA/ UK-DH
Unique Doc. Reference	:	SUBIN-UKUK1320204802055123336 25X
Purchased by	:	TRUEVET ANIMAL NUTRITION PRIVATE LIMITED SRINAGAR
Description of Document	:	Article 5 Agreement or Memorandum of an agreement
Property Description	:	NA
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First Party	:	SWAMI RAMA HIMALAYAN UNIVERSITY DEHRADUN
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Stamp Duty Paid By	:	TRUEVET ANIMAL NUTRITION PRIVATE LIMITED SRINAGAR
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

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COLLABORATION AGREEMENT FOR IN VITRO STUDY

This **Collaboration Agreement** (the "Agreement") is made and entered into on this 16th April, 2025, by and between:

Page 1 of 6

Statutory Alert:

RESEARCH INITIATIVES

RESEARCH PATENTS

Name of the Inventer	Title of the Project	Application Number	Status
Vikash Singh Jadon	Machine Learning and Image Processing based approaches for Lung Tumor Classification and Prediction	202341037702 A	Published
Vikash Singh Jadon	Diagnosis and Therapy of Cancer Using Advanced Multifunctional Magnetic Nanostructures Integrated with Artificial Intelligence	20234103893 3 A	Published

Swami Rama Himalayan University

RESEARCH INITIATIVES

RESEARCH PATENTS

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2023

(21) Application No.202341038933 A

(43) Publication Date : 30/06/2023

(54) Title of the invention : DIAGNOSIS AND THERAPY OF CANCER USING ADVANCED MULTIFUNCTIONAL MAGNETIC NANOSTRUCTURES INTEGRATED WITH ARTIFICIAL INTELLIGENCE TECHNIQUE

(51) International classification	:A61K 380000, A61K 390000, A61P 350000, G02B 213600, G16H 150000
(86) International Application No Filing Date	:PCT// :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)Name of Applicant :
1)Dr Harishchander Anandaram
Address of Applicant :Assistant Professor, Centre for Computational Engineering and Networking, Amrita School of Artificial Intelligence, Coimbatore, Amrita Vishwa Vidyapeetham, India Coimbatore ---------- ----------
2)Dr. Vikash Singh Jadon
3)Dr. Deepanshu Rana
4)Dr. Ranjana Choudhary Ahirwar
5)Rajesh Babu Ahirwar
6)Abhijeet Gopal Chormale
7)Sweeti Sagar Dhanavade
8)Dr Shiva Tushir
9)Ashwini Vaibhav Waghachaure
10)Mamta Rani
11)Mohan S
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5)Rajesh Babu Ahirwar
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6)Abhijeet Gopal Chormale
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9)Ashwini Vaibhav Waghachaure
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12)Dr. Mukesh Kumar Meena
Address of Applicant :Assistant Professor, Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur, Rajasthan-313001 Udaipur ---------- ----------

RESEARCH INITIATIVES

RESEARCH PATENTS

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :31/05/2023

(21) Application No.202341037702 A

(43) Publication Date : 16/06/2023

(54) Title of the invention : Machine Learning and Image Processing based approaches for Lung Tumor Classification and P

(51) International classification	:C12N 151130, G06K 096200, G06N 030800, G06N 050400, G06N 200000
(86) International Application No Filing Date	:PCT// :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**

1)Kandan. M

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2)Mr Sreenu Banoth

3)Vikash Singh Jadon

4)Dr. Deepanshu Rana

5)Rajalaxmi Padhy

6)Chinmayee Rout

7)Dhanshri Sanjay Kachare

8)Rajesh Babu Ahirwar

9)Dr. Ranjana Choudhary Ahirwar

10)Dr Mohd Umar Farooq

11)Bhagyashali Janardan Pawar

12)Mrs. Sweeti Sagar Dhanavade

Name of Applicant : NA

Address of Applicant : NA

(72)**Name of Inventor :**

1)Kandan. M

Address of Applicant :Assistant Professor, Department of Computing Technologies, School o College of Engineering and Technology, SRM Institute of Science and Technology, Kattanku Chengalpattu District, Tamil Nadu, India. ---------- ----------

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4)Dr. Deepanshu Rana

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Address of Applicant :Assistant Professor, Computer Science and Engineering, Ajay Binay In Technology, Cuttack,753014, Odisha, India. ---------- ----------

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9)Dr. Ranjana Choudhary Ahirwar

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10)Dr Mohd Umar Farooq

Address of Applicant :Professor & Head, Department of Computer Science Engineering, Sha College of Engineering and Technology, Hyderabad, Telangana, India ---------- ----------

11)Bhagyashali Janardan Pawar

Address of Applicant :Principal At Shreeyash Institute of Pharmacy, Aurangabad, Maharasht ---------- ----------

12)Mrs. Sweeti Sagar Dhanavade

Address of Applicant :Assistant Professor, Pharmaceutical Chemistry, Dr. Shivajirao Kadam Pharmacy, Kasbe Digraj, Sangli, Maharashtra, India. ---------- ----------

Swami Rama Himalayan University

RESEARCH INITIATIVES

RESEARCH PUBLICATIONS

Name of the Author	Title of the Publication	Name of the Journal	Year	DOI
Ashok Dogra, Archana Prakash, Meenu Gupta & Sanjay Gupta	Prognostic significance classification of triple negative breast cancer: a systematic review.	European Journal of Breast Health	2025	http://dx.doi.org/10.4274/ejbh.galenos.2025.2024-10-29.
Archna Dhasmana	Synthesis of fungal polysaccharide-based nanoemulsions for cancer treatment	RSC Advances	2025	https://doi.org/10.53555/jaz.v45iS3.4490
Ashok Kumar Dogra, Archana Prakash, Sanjay Gupta, Meenu Gupta	Vitamin D and Vitamin D Receptor FokI, ApaI, and BsmI Gene Polymorphisms and their Relation with the Risk of Breast Carcinoma: A Case-control Study	Journal of Clinical and Diagnostic Research	2024	10.7860/JCDR/2024/69296.1924
Tenguria M, Rajput V, Gupta M, Sharma N & Gupta S	Clinical application of liquid biopsy in CNS tumours with reference to exosomes and Mirna	Journal of Chemical Health Risks	2024	
Tenguria M, Rajput V, Gupta S & Gupta M	A comprehensive analysis on the association between the ki 67 and p 53 markers and different types of brain tumour.	Nanotechnology Perceptions	2024	https://doi.org/10.62441/nano-ntp.vi.2925
Vijay Kumar, Bindu Naik, Vivek Kumar	Harnessing probiotic foods: managing cancer through gut health	Food Science and Biotechnology		https://doi.org/10.1007/s10068-024-01638-5

Swami Rama Himalayan University

RESEARCH INITIATIVES

RESEARCH PUBLICATIONS

Name of the Author	Title of the Publication	Name of the Journal	Year	DOI
Archana Dhasmana, Vikash Singh Jadon, Geeta Bhandari, Nupur Joshi, Sanjay Gupta	Revitalizing elixir with orange peel amplification of alginate fish oil beads for enhanced anti-aging efficacy	Scientific Reports	2024	http://dx.doi.org/10.4274/ejbh.galenos.2025.2024-10-29.
Archna Dhasmana	Nanotherapeutic approaches for delivery of long non-coding RNAs: an updated review with emphasis on cancer	Nanoscale	2025	https://doi.org/10.1039/D3NR05656B
Gourav Kumar	Engineering CAR-T Cells Overcoming Tumor Microenvironment Barriers in Non-Small Cell Lung Cancer Immunotherapy	Anti-Cancer Agents in Medicinal Chemistry	2025	Under Review
Gourav Kumar	Upregulation of Collagen I synthesis through activation of α-Prolyl hydroxylase and Lysyl hydroxylase by Patanjali Nutrela Collagenprash and Veg collagen builder	Journal of Agricultural and Food Chemistry	2025	Under Review
Gourav Kumar	Upregulation of PI3K/AKT, RUNX, ALP, and Osteocalcin in osteoblast-like model cell lines treated with Nutrela Orthocare	Journal of Free Radical Research	2025	Under Review

Swami Rama Himalayan University

WORKSHOP ORGANISED

Modern Biology: Advanced Molecular Tools for Healthcare – A Comprehensive Training Module Sponsored by Department of Health Research, Ministry of Health and Family Welfare (MoHFW)
10th Feb to 8th March 2025

Modern Biology: Advanced Molecular Tools for Healthcare – A Comprehensive Training Module Sponsored by Department of Health Research, Ministry of Health and Family Welfare (MoHFW)
7 th July to 2 nd August 2025

Swami Rama Himalayan University

WORKSHOP ORGANISED

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

Sponsored by Department of Health Research, Ministry of Health and Family Welfare (MoHFW)

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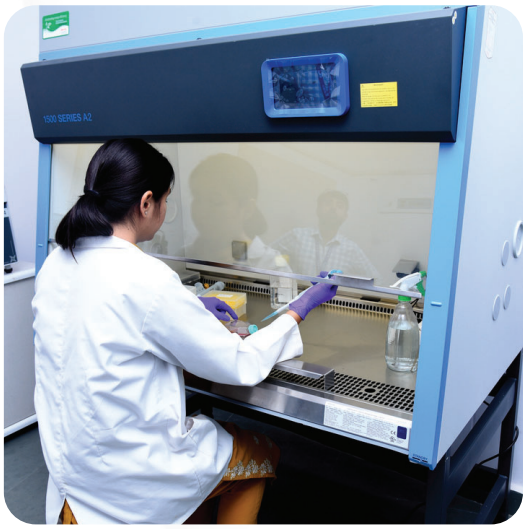
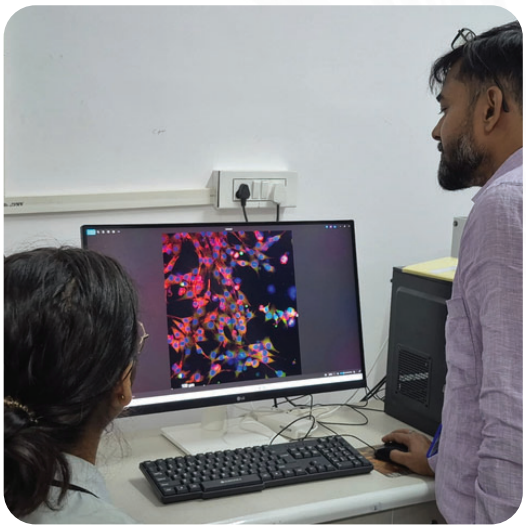




Cancer Biology and Immunology Laboratory

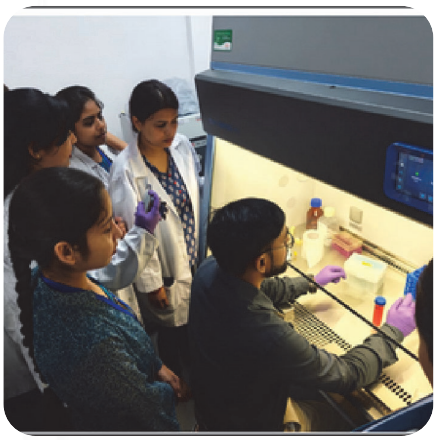
Swami Rama Himalayan University

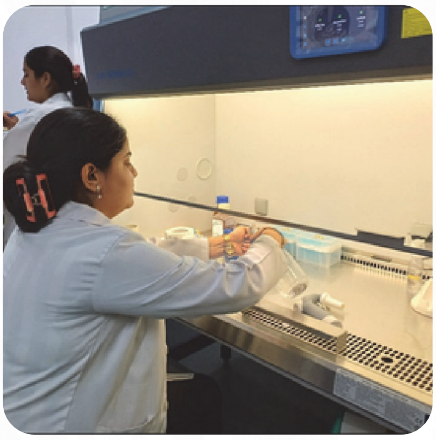
WORKSHOP ORGANISED

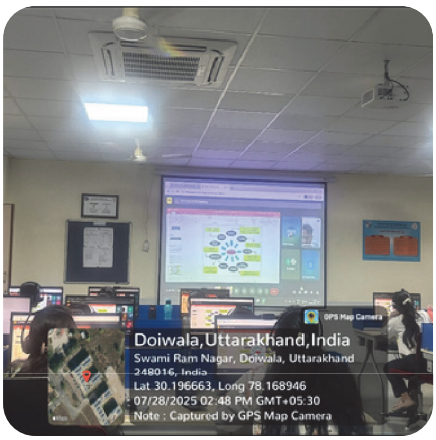
Modern Biology: Advanced Molecular Tools for Healthcare – A Comprehensive Training Module

Sponsored by Department of Health Research, Ministry of Health and Family Welfare (MoHFW)

7 th July to 2 nd August 2025







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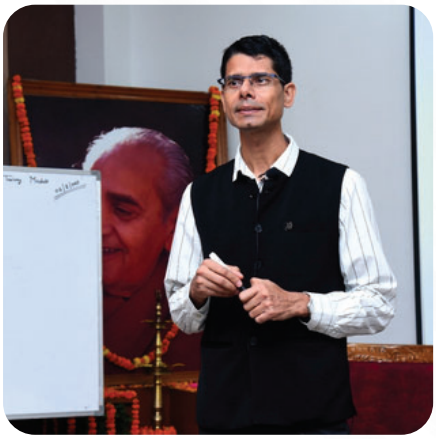


NATIONAL SCIENCE DAY

Report on National Science Day

Date: 28 February 2024

Activities: On February 28, 2024, Swami Rama Himalayan University (SRHU) celebrated National Science Day, commemorating the discovery of the "Raman Effect" by Sir C.V. Raman. The theme for this year, announced by Minister for Science & Technology Dr. Jitendra Singh, was **"Indigenous Technologies for Viksit Bharat,"** emphasizing India's commitment to innovation and self-reliance. Chief Guest Dr. Vijendra D. Chauhan provided insights into SRHU's comprehensive ecosystem, which includes hospitals, medical colleges, and research initiatives focused on indigenous technologies for healthcare, agriculture, and environmental safety.

The event featured a range of activities, including a Quiz, Posters, and Rangoli competitions, organized in collaboration with the Himalayan School of Bioscience. Prizes were awarded to winners, with cash prizes for the Quiz sponsored by the NASI, Uttarakhand chapter. Additionally, a Research Conclave was held for faculty and researchers to present short research proposals for seed money, with forty proposals received and several shortlisted for funding. These activities highlighted SRHU's dedication to advancing research and technology in line with the National Science Day theme.

Place of the Event: Himalayan School of Biosciences Auditorium

Participants: Students, Staff and Faculty members of the University

No. of Participants: 132

NATIONAL SCIENCE DAY

Report on National Science Day Celebration at SRHU, 28th Feb 2025

National Science Day was celebrated with great enthusiasm on 28th February to commemorate the discovery of the Raman Effect by Sir C.V. Raman in 1928, for which he was awarded the Nobel Prize in Physics in 1930. This day is observed across the country to promote scientific temper and encourage innovation among students.

The event was organized by Swami Rama Himalayan University, the venue of this activity was Himalayan School of Biosciences, and featured various activities to engage students in scientific learning. A Science Quiz Competition was conducted, where participants showcased their knowledge in the contemporary advancements of science. The quiz aimed to enhance critical thinking and analytical skills among students. Total 14 teams participated in the quiz competition and positions were 1st HSST, 2nd HIMS and 3rd HSST.

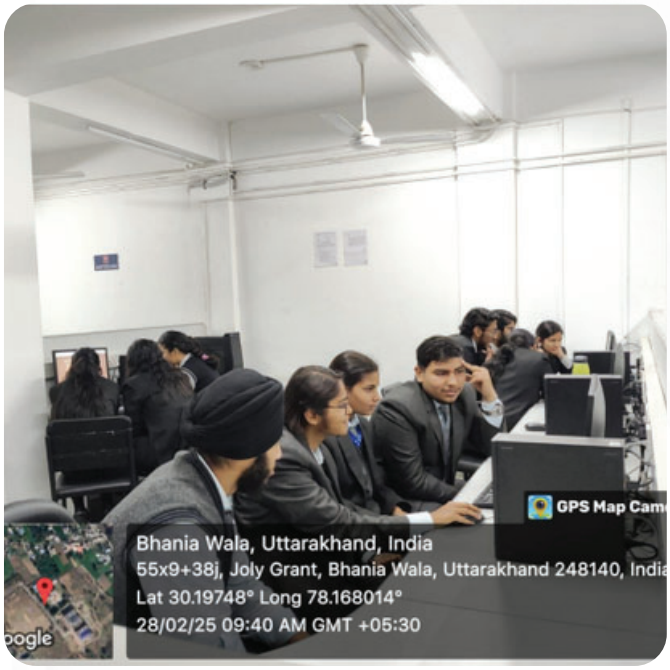
Additionally, a Poster Competition was organized on the theme "*Empowering Indian Youth for Global Leadership in Science and Innovation for Viksit Bharat*" student's creatively depicted scientific advancements and their role in addressing global challenges. The best posters were awarded as 1st HSST, 2nd HCN and 3rd HSPS.

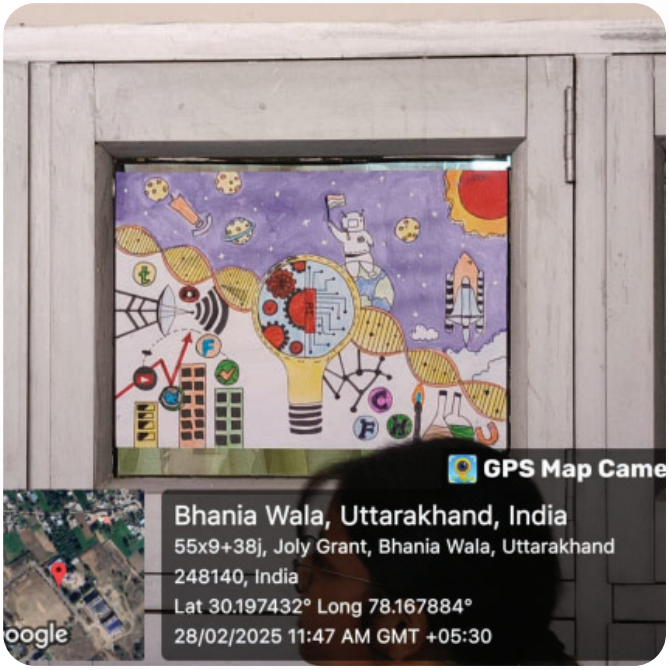
Hon'ble Vice Chancellor, Director General Academics, Director Research, Advisors, Principals of different Academic Units delivered inspiring talks, emphasizing the significance of research and innovation. The event concluded with a felicitation ceremony for the winners and participants.

The celebration successfully instilled scientific curiosity among students and reinforced the importance of science in everyday life. It was a fitting tribute to the legacy of Sir C.V. Raman and his invaluable contributions to the field of science.

Swami Rama Himalayan University

NATIONAL SCIENCE DAY





Swami Rama Himalayan University

Center of Excellence for Cancer Biology and Immunology					
S.No	**Name of the Project**	**Name of the investigator**	**Academic Unit**	**Duration**	**Amount in lakhs**
1	Hydroponic technology to enhance commercial-scale productivity of *Origanum vulgare* from Uttarakhand, West Himalaya	Dr. Sanjay Gupta Dr Arti Bist Dr Vikash Singh Jadon	SBS	24 Months	16.40
2	Mutational study of lung adenocarcinoma for glycolysis by EGFR dependent RSK4	Dr. Gourav Kumar Dr Smita Chandra	SBS	24 Months	12.00
3	Regulation of lung adenocarcinoma glycolysis by EGFR dependent RSK4: molecular mechanism	Dr. Gourav Kumar Dr Smita Chandra Dr Rakhi Khanduri Dr Madiwalesh Chhebbi Dr Vikash Singh Jadon Dr. Sanjay Gupta Dr. Geeta Bhandari	SBS	24 Months	53.00
4	Omics-Based Study of Drug-Resistant Acinetobacter: Unraveling Molecular Mechanisms and Identifying Therapeutic Targets	Dr. Vijay Kumar Dr. Barnali Kakati Dr. Vivek Kumar	SBS	18 Months	16.20
5	Omics study of Non-ribosomal Peptide and Polyketide antifungal metabolites from actinobacteria isolated from leaf cutters ants	Dr. Vijay Kumar Dr. Barnali Kakati Dr. Vivek Kumar	SBS	24 Months	20.00
Total			**117.60**		