

Animal Cell Science Lab

Area of specialisation: Natural Drug discovery, cancer research and nano bioscience

Research focus

The major focus of our lab is isolating (biomolecules and essential oils) from medicinal plants and finds its potential for various therapeutic biological activities (such as antibacterial, antifungal and anticancer activities) using various molecular, cell biological and functional approaches. We plan to prepare and develop some novel essential oil-based as well as active biomolecules based nano-formulations that may find use in agriculture (management of disease pathogenesis) and medical sector.

More recently, we have been interested in understanding the molecular basis of cancer biology and the role of cell signalling networks in therapeutics of melanoma, a highly lethal and therapeutically resistant form of skin cancer. We have been trying to understand the role of natural products and new chemical entities (NCEs) in modulating endoplasmic stress (ER)-mediated autophagy in melanoma and other cell culture models. While, an important aspect of cancer progression is metastasis, an ability of cancer cells to relocate from their primary niche to distant sites. At the core of metastasis lies the phenomenon called Epithelial to Mesenchymal Transition (EMT), an evolutionary conserved process, drives cells to attain a mesenchymal phenotype thereby enhancing their invasive and migratory properties. Our focus is also to understand the underlying signaling mechanisms involved in the EMT cascade such that novel therapies can be designed to target metastasis.

Stars of Animal Cell science Research Lab

Ph.D



1. Dr. Sahil Gupta (awarded)

PhD thesis title: Characterization of antimicrobial and antioxidant metabolites from *Pinusgerardiana* and *Piceasmithiana* growing in North-Western Himalayas

Registration No.: 37905-GJ-03

Date of Award: 18. 02.2017/ Microbiology

Area of Specialization: Natural product chemistry



2. Dr Rasleen Sudan (awarded)

PhD thesis title: Identification and characterization of potential anti -proliferative and antioxidant secondary metabolites from *Arisaemajacquemontii* and *Rosa brunonii*

Registration No. : 1.11.2012

Date of Award: 27.04.2018

Area of Specialization:



Natural Product Research

3. Monica Sangral (Enrolled)

Title of Phd: Charaterization of active phytoconstituents of *Berberislycium* Royle and *Jurinea macrocephala* Benth. for anticancer potential and sustainable release

Reg No: 21WG34

Area of specialisation: Cancer research

4. RythemAnand (Enrolled)



PhD thesis title: Studies on the development of eco-friendly nanoformulations for efficient delivery of agrochemicals in *Crocus sativus* L."

Area of specialization : Nanobiotechnology , Microbiology

Regn no. : 24WG09



5. Mir Mohd Faheem

PhD thesis title: Studies on the role of oncogenic MDM2 activation in p53 deficient cancer cells.

Area of Specialization: Metastasis and cancer cell signaling

Registration No: 63-Ph.D-18 dated 23-0802017

M.Phil



1. Sakshima Thusoo (awarded)

M.phil dissertation Title - Phytochemical and antioxidant potential of some wild edible berries of Jammu and Kashmir

Area of specialisation- Biotechnology

***Result declaration date*:** 2012



2. Ms. Shayana Rajput (awarded)

M.phil dissertation Title- Biological potential of *Rheum emodi* rhizome and its synthesised nanopartocles.

Area of specialisation- Biotechnology

***Result declaration date*:** 25-4-16



Name : Ajay Kumar (Awarded)

M.Phil dissertation Title: Bio-prospecting essential oil of *Cedrus deodara* (Roxb.)G. Don from north western Himalayas.

Registration number: 186-M.Phil.2017

Area of Specialization: Microbiology

Completion on: February, 2019

Post Doctoral



Dr Rafiq Ahmad Rather

National Postdoc Project title: *Exploring the role of natural product based new chemical entities (NCEs) in targeting melanoma therapy resistance through endoplasmic reticulum (ER) stress mediated autophagy*

Date of Joining: 17 April 2017

Mentor: Dr Madhulika Bhagat

Sr. Assistant professor, School of Biotechnology, University of Jammu