

Dr. Juhi Rais

CSIR-Research Associate

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Qualification

2021–Present

CSIR- Research Associate (Cancer Biology) • Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, under the supervision of Prof. Sanjay Gambhir and Dr. Manish Dixit. Work Title: *Natural product as a Tyrosine Kinase Inhibitor (TKI) and their efficacy in inducing Radioactive Iodine ¹³¹I uptake in Thyroid Cancer.*

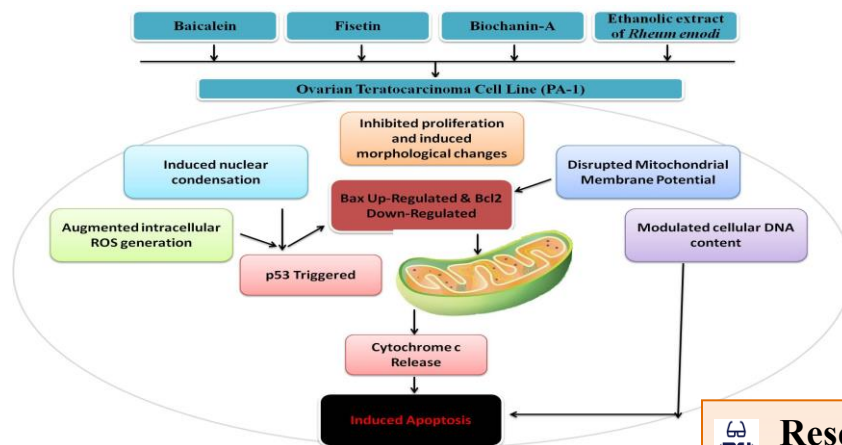
Study Rationale

- ❖ Finding drugs to revert the RAI-refractoriness would be valuable in treating patients with advanced thyroid cancer.
- ❖ Natural Products like Apigenin, Berberine and Epigallocatechin-3-gallate, carry MAPK inhibitory activity and participate in activation of NIS that leads the induction of Iodine uptake in thyroid carcinoma.

2013–2019

Ph.D. (Zoology/Cancer Biology) • Department of Zoology, University of Lucknow, Lucknow, India. Thesis Title: *“Role of Selected Phytochemicals on Proliferation and Apoptosis of Ovarian Cancer Cell Lines”*

1. Interdisciplinary research work carried out during my doctoral study was mainly focused on evaluating the **mechanistic anti-carcinogenic roles** of selected phytochemicals viz. **Fisetin, Baicalein, Biochanin A and ethanolic extract of Rheum emodi (RE)** on **human ovarian carcinoma PA-1 cells** through the cell viability assay, cellular apoptosis, disruption of mitochondrial membrane potential (MMP), involvement of ROS, cell cycle kinetics, and expression of apoptosis-related genes. Phytochemical content of RE is screened through GC-MS analysis.
2. Ovarian cancer by far remains one of the most taxing diseases to treat. The results of the experiments showed that the compounds significantly **induce morphological alterations in PA-1 cells in a dose- dependent manner** and thus inhibits cell to proliferate. Significant induction of **apoptosis** in PA-1 cells by the compounds is evident by **nuclear fragmentation, accumulation of ROS, loss of MMP, Annexin V positive cells** and **cell cycle** is arrested at its different phases. The **up-regulated expression of apoptosis-related genes viz. p53 and Bax**, and **down-regulation of Bcl-2** further signifies that the selected compounds effectively induce apoptosis in PA-1 cells via. p53 mediated apoptosis.
3. The findings from this study contribute greatly to the existing knowledge regarding treatment and prevention options for ovarian carcinoma. These **promising compounds may be used as potent anti-ovarian cancer agents that inhibit proliferation and induce apoptosis in human ovarian carcinoma PA-1 cells**. Thus, this study provides future prospects in the development of anti-ovarian cancer drugs and therapies.
4. The major key points of my work are summarized below:



Research Interests

- Cancer Biology
- Cell Biology
- Molecular Biology
- Structural Biology
- Neurodegenerative Diseases
- Drug delivery system
- Drug targeted therapies
- Drug Resistance
- Phytochemicals/Nutraceuticals
- Molecular tracers
- Fluorescent Imaging
- Apoptotic pathways

2012–2013

Worked as an **Ad hoc Lecturer of Zoology** in GSPG College, Sultanpur, U.P. , India from August 2012 to October 2013.

2009–2011

M.Sc. (Zoology) • Dr. RML. Avadh University, Faizabad, India

- Major Courses: Chordates & Non-Chordates, Physiology, Biochemistry, Molecular Biology, Cytogenetics, Biostatistics, Animal Development, Endocrinology, Animal Behavior, Fish & Fisheries.

2003–2006

B.Sc. (Botany, Zoology & Chemistry) • Dr. RML. Avadh University, Faizabad, India



Work Experience

2021–Till Now

CSIR- Research Associate (Cancer Biology) • Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow

2020–2021

Guest Faculty • College of Medical Technology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow

2012–2013

Ad hoc Lecturer • Ganpat Sahay Post Graduation College, Sultanpur, India

Responsibilities

- Research work
- Teaching at UG and PG level (Biological Science)
- Supervising Laboratory
- Academic responsibilities



Skills

Cell Culture Techniques

- Maintenance of cancerous cell lines in the laboratory and evaluation of Cytotoxic effects/ Anti-cancerous activity of various potent Phytochemicals via various parameters viz. MTT assay for cell viability, Reactive Oxygen Species, Nuclear Fragmentation, Mitochondrial Membrane Potential, Annexin V-FITC assay, DNA fragmentation, Comet Assay, Caspase detection and Cell Cycle Analysis.
- Primary chondrocyte culture and primary osteoblast culture.
- Expertise in performing surgeries and histological preparation of temporary and permanent slides.

Microscopy

Florescence and light microscopy

Screening of Phytochemicals

Preparation of Plant Extract by Soxhlet apparatus, Phytochemical screening of various medicinal plants by GCMS analysis, HPLC and evaluation of various secondary metabolites by biochemical parameters.

Molecular Biology

Expertise in basic techniques of molecular biology such as primer designing using Primer 3 software, Genomic DNA isolation from animal cells and plant cells. Total RNA isolation, cDNA synthesis, PCR amplification, qPCR, Agarose gel electrophoresis, Polyacrylamide gel electrophoresis.

Nuclear Biology

In vitro and in vivo assays (well counter and PET/SPECT Imaging) assessing new radio labelled scaffolds and molecular tracers to combat dreadful diseases like cancer and neuro degenerative diseases.

Biochemistry

Quantification of phytoconstituents (phenols and flavonoids), antioxidant capacity through DPPH, FRAP, RP, NO and TAC assays.

Analytical methods

Titration, Spectrophotometry, Chromatography, Soxhlet apparatus for plant extract preparation, HPLC and GC-MS.

Computer Skill/Bioinformatics

Knowledge of computational and statistical analysis of biological system using available softwares like GraphPad Prism 5, Image J.



Awards

- Awarded “**CSIR-Research Associate**” (**Lifesciences**) on 18th March, 2021 by Council of Scientific & Industrial Research
- “**Emerging Scientist Award**” for Out Standing contribution in Zoology in International Conference in Recent Trends in Science, Technology, Agriculture and Management on October 20-21st, 2019 at FDDI, Fursatganj, Amethi, U.P., India by Society for Science and Nature.
- “**Young Zoologist Award**” for Out Standing contribution in Zoology in 1st International Conference on Environment and Society on December 22-23rd, 2019 at Harcourt Butler Technical University, Kanpur, U.P., India by Asian Zoological Research Foundation.
- **Best Poster Award (First)** in *International Conference On Advances In Zoological Research & Workshop On Real-Time PCR* 9th-10th March, 2019 Department of Zoology, A.M.U., Aligarh
- **Best Poster Award (Third)** in *National conference on impact of environmental Xenobiotics on human health and biodiversity*, March 30-31, 2018, Department of Zoology University of Lucknow
- **Best Poster Award (First)** in *International symposium on current trends in biological sciences*, March 27-28, 2018, Department of Zoology University of Lucknow.
- DST-INSPIRE Fellowship on 29th May, 2014 by Department of Science and Technology, India
- Qualified **GATE-2013** in Life Sciences
- Qualified **UP Ph.D. CET** 2012
- **Received Gold Medal (Chancellor’s Medal)** in Post Graduation(Zoology)
- **Received Gold Medal (College’s Medal)** in Graduation.
- **Best Student** Award in the year 2003-04 in School
- Held the post of **Discipline Captain** in the year 2002-03 in School
- **Declared District Science Student** By Chintana Science Congress, Karnataka in the Year 2000
- Participated in many Science, Mathematics & G.K Olympiad



Publications

1. **Juhi Rais**, Asif Jafri, Sahabjada Siddiqui, Madhu Tripathi, Md Arshad. Phytochemicals in the treatment of ovarian cancer. *Frontiers in Bioscience, Elite*, 2017; 9: 67-75. **IF 4.009**
2. **Juhi Rais**, Asif Jafri, Shabana Bano, Neelam Shivnath, Madhu Tripathi, Md Arshad. Anti-proliferative and apoptotic effects of *Rheum emodi* on human breast adenocarcinoma, MCF-7 Cells, and antimicrobial effectiveness against selected bacterial strains. *Pharmacognosy Magazine*. 2019 Jul 1;15(64):237.. **IF 1.085**
3. Chowrasia, Deepak, Asif Jafri, Iqbal Azad, **Juhi Rais**, Nisha Sharma, Fahad Khan, Ajay Kumar, Sudhir Kumar, and Md Arshad. "In vitro and in silico growth inhibitory, anti-ovarian & anti-lung carcinoma effects of 1, 5 diarylpenta-1, 4-dien-3-one as synthetically modified curcumin analogue." *Journal of Biomolecular Structure and Dynamics* (2021): 1-18. **IF 3.310**
4. Neelam Shivnath, Vineeta Rawat, Sahabjada, Sushma Verma, Pragya Gupta, Khan Mohd, **Juhi Rais**, Md. Arshad "Antiosteoarthritic effect of *Punica granatum* L. Peel Extract on Collagenase Induced Osteoarthritis Rat by Modulation of COL-2, MMP-3, and COX-2 Expression," *Environmental Toxicology*. 2020;1–11, **IF 3.11**
5. Asif Jafri, Sahabjada Siddiqui, **Juhi Rais**, Md Sultan Ahmad, Sudhir Kumar, Tabrez Jafar, Mohammad Afzal, Md Arshad. Induction of apoptosis by piperine in human cervical adenocarcinoma via ROS mediated mitochondrial pathway and caspase-3 activation. *EXCLI Journal*, 2019; 8, 154-164. **IF 4.068**
6. Deepak Chowrasia, Nisha Sharma, Ajay Kumar, Vinod Dohrey, Md Arshad, Asif Jafri, **Juhi Rais**, Madhu Gupta. Antiproliferative and antibacterial activity of some para-substituted benzylideneacetophenones and establishing their structure activity relationship. *Current Science* (00113891). 2018 Jan 25;114(2). **IF 1.102**
7. Chowrasia, Deepak, Nisha Sharma, Ajay Kumar, Md Arshad, Sahabjada Siddiqui, Asif Jafri, and Juhi Rahis. "Synthetic modulation including structure establishment, antiproliferative activity of some p-aryl substituted (Z)-2-cyano- ethylideneacetohydrazides, and their structure activity relationship." *CURRENT SCIENCE* 115, no. 12 (2018): 2287. **IF 1.102**
8. Asif Jafri, Shabana Bano, **Juhi Rais**, Fahad Khan, Neelam Shivnath, A.K.Sharma, & Arshad, Md. Phytochemical screening of *Sterculia foetida* seed extract for anti-oxidant, anti-microbial activity, and detection of apoptosis through reactive oxygen species (ROS) generation, mitochondrial membrane potential (MMP) decrease, and nuclear fragmentation in human osteosarcoma cells. *Journal of Histotechnology*, 2019; 1-12. **IF .34**
9. Neelam Shivnath, Vineeta Rawat, Sahabjada, Asif Jafri, **Juhi Rais**, Habiba Khan, Md. Arshad. Antioxidant and Anti-Apoptotic Activities of Phytochemically Validated Fruit Extract of *Solanum xanthocarpum* in Primary Chondrocytes. *Journal of Ecophysiology and Occupational Health*. Volume 18, Issue 3-4, December 2018.



Manuscripts in Process

Juhi, et al., In-vitro elucidation of anti-proliferative and apoptotic effects of biochanin A via cell cycle arrest, ROS generation and upregulation of p53, Bax, Puma and Noxa in human ovarian carcinoma PA-1 cells (Submitted in Phytotherapy Research)

Juhi, et al., Baicalein-induced apoptosis in human ovarian carcinoma cells triggered by reactive oxygen species, loss of membrane integrity and regulated by apoptosis mediated genes (To be Submitted)

Juhi, et al., Evaluation of anti-proliferative and apoptotic potentials of Fisetin on human ovarian carcinoma cells (To be Submitted)

Juhi, et al., Evaluation of anti-proliferative and apoptotic potentials of Ethanolic extract of *Rheum emodi* on human ovarian carcinoma cells (writing phase)



Book Chapter

1. **Juhi Rais**, Asif Jafri, Madhu Tripathi and Md Arshad: Culture and Maintenance of Human Ovarian Carcinoma Cells for Scrutinizing Anti-cancerous Activities of Various Compounds via Some Potent Molecular Markers. **Protocols used in Molecular Biology (Bentham Science)** 2020, eISBN: 9789811439315, 2020, ISBN: 9789811439292, DOI: 10.2174/97898114393151200101.
2. Asif Jafri, **Juhi Rais**, Sudhir Kumar and Md Arshad: Osteosarcoma Cell Culture and Maintenance to Detect the Apoptotic Effect of Some Promising Compounds by Potent Markers viz. DNA Fragmentation and Caspase-3 Activation **Protocols used in Molecular Biology (Bentham Science)** 2020, eISBN: 9789811439315, 2020, ISBN: 9789811439292, DOI: 10.2174/97898114393151200101.
3. Habiba, **Juhi Rais**, Neelam Shivnath, Eman Fatma, Khursheed Ahmad and M. Arshad Effect of Major Phytochemicals from Indian Medicinal Plants in Cancer Prevention, Therapy and Management Secondary Metabolites of Medicinal Herbs, **Biochemistry and therapeutics**, 2020 ISBN: 978-93-88854.
4. **Juhi Rais**, Madhu Tripathi and Md Arshad; Scrutinizing Ovarian Carcinoma: An Unwrapped Gynecological Malignancy. **Xenobiotics, Environment And Functional Biology** 2019, ISBN 978-93-84533-51-9.
5. **Juhi Rais**, M. Serajuddin, Madhu Tripathi and Md Arshad: Alzheimer's disease: A Veiled Killer. **Biodiversity, Environment and Functional Biology** 2015, ISBN: 978-93-84935-15-3: 336-345



References

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Workshops & Conferences Organized

1. Organized an *International Webinar on Forensic Entomology and Its Relevance in Legal Proceedings* on 29-30 June, 2020, Department of Zoology, University of Lucknow, Lucknow.
2. Organized a *National Conference on Impact of Environmental Xenobiotics on Human Health and Biodiversity* on 30-31 March, 2018, Department of Zoology, University of Lucknow, Lucknow.
3. Instructed in *4th Seminar cum Training Workshop on Recent Techniques in Molecular & Cell Biology*, November 23-26, 2016, Molecular and Human Genetics Laboratory at Department of Zoology, University of Lucknow, Lucknow
4. Organized an *International Conference on Faunal Biodiversity and their Conservational Strategies impact of environmental Xenobiotics on human health and biodiversity* on 22-23 March, 2014, Department of Zoology, University of Lucknow, Lucknow.

Presentation at Conferences

1. **Juhi Rais**, Asif Jafri, Neelam Sivnath, Habiba, Madhu Tripathi and Md Arshad Evaluation of Antiproliferative and Apoptotic Potentials of Baicalein on Human Ovarian Carcinoma Cells PA-1 International Conference On Advances In Zoological Research & Workshop On Real-Time PCR 9th-10th March, 2019 Department of Zoology, A.M.U., Aligarh.
2. **Juhi Rais**, Sahabjada Siddiqui, Asif Jafri, Madhu Tripathi and Md Arshad. Potentials of Biochanin Anticancerous A on Human Ovarian Carcinoma Cells. International symposium on current trends in biological sciences, March 27-28, 2018, Department of Zoology University of Lucknow.
3. **Juhi Rais**, Sahabjada Siddiqui, Asif Jafri, Madhu Tripathi and Md Arshad. Baicalein induces apoptosis and inhibits cell proliferation on Human Ovarian Carcinoma Cells. National conference on impact of environmental Xenobiotics on human health and biodiversity, March 30-31, 2018, Department of Zoology University of Lucknow.
4. **Juhi Rais**, Asif Jafri, Madhu Tripathi and Md Arshad Biochanin A induces cellular apoptosis and inhibits cell proliferation of human ovarian carcinoma cells, PA-1., International conference on Cell Death in Cancer and Toxicology, February 20-22, 2018, IITR, Lucknow.
5. **Juhi Rais**, Asif Jafri, Sahabjada Siddiqui, Madhu Tripathi, Md Arshad. Biochanin A inhibits proliferation of human ovarian carcinoma cells PA-1. "International Conference on Updates in Cancer Prevention and Research (ICUCPR-2017)" p-15,16, February 14-16, 2017, BBAU, Lucknow.
6. **Juhi Rais**, Asif Jafri, Sahabjada Siddiqui, Madhu Tripathi, Md Arshad. Rheum emodi induces antiproliferative activity on MCF-7 cells human breast adenocarcinoma. "International Symposium on Role of Herbals in Cancer Prevention and Treatment" p-92. Feb 9-10, 2016, School of Life Sciences, Jawaharlal Nehru University, New Delhi.
7. **Juhi Rais**, Asif Jafri, Sahabjada Siddiqui, Madhu Tripathi, Md Arshad. Anti-cancer potentials of Rheum emodi extract on human ovarian carcinoma cells PA-1. "National Seminar on Paradigm Shifts in Biochemistry: Emerging Trends and New Vistas" p-30, September 10, 2016, Department of Biochemistry, University of Lucknow, Lucknow.
8. **Juhi Rais**, Asif Jafri, Madhu Tripathi and Md Arshad. Phytochemicals: new trend for cancer treatment. "International Conference on Biotechnological Advancements in Free Radical Biology and Medicine-2015" p-11, Nov 14-16, 2015, Department of Bio-Sciences and Bio-Engineering, Integral University, Lucknow.
9. **Juhi Rais**, Sahabjada Siddiqui, Asif Jafri, Madhu Tripathi and Md Arshad, Ovarian Cancer History And Its Subtypes, National Conference on Biotechnological Developments and Societal Benefits Present Status and Future Prospects, p-25, 2015, Sky Institute, Lucknow.
10. **Juhi Rais**, Saima Amjad, Sahabjada Siddiqui, Neelam Shivnath Asif Jafri, Madhu Tripathi, M Arshad, Ovarian cancer: An Overview, National Seminar on Life and Life Processes: Sustainable Development, p81, February 19-21, 2015, Goa University Taleigao Plateau, Goa.

Declaration

I hereby declare that the above-mentioned details are true to the best of my knowledge.



(Juhi Rais)

