

Dr. Ashok Kumar

M.Sc. Gold Medalist, Ph.D

Present Position: Assistant Professor,
Department of Bio-chemistry,
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Educational Qualification

B.Sc. Medical (1ST Division) from University of Jammu, Jammu, J&K, India.

M. Sc. Biochemistry (Gold Medal) from University of Jammu, Jammu, J&K, India.

Ph.D. Biological sciences from Indian Institute of Integrative Medicine (IIIM-CSIR) Jammu, Academy of Scientific and Innovative Research (AcSIR), New Delhi, India.

Area of Interest

- Cancer cell signaling and Cancer drug discovery.
- Ultrastructural studies of human cancer cells to ascertain the effect on ultrastructure of cells and to study the mechanism of cell death such as apoptosis, autophagy etc. for anticancer drug discovery.
- Live cell imaging, fluorescence, immunofluorescence and confocal microscopic studies of human cancer cells for anticancer drug discovery.

Awards and Achievements

- Awarded INSPIRE-Senior Research Fellowship from Sept. 2013 to August 2016 for Ph.D.
- Awarded INSPIRE-Junior Research Fellowship from Sept. 2011 to Aug. 2013 for Ph.D.
- Qualified CSIR-UGC test for Junior Research Fellowship and Eligibility for Lectureship (NET) in 2011.
- Awarded Gold Medal for M.Sc. Biochemistry in 2010.

Most Significant Scientific Contributions of Ashok Kumar

- Discovered novel Colchicine based molecules with mechanistic evaluation that has been patented. Evaluated in detail the anti-cancer potential and mechanism of action of novel colchicine based molecules against various validated targets.

Patent

Ram Vishwakarma, Sandip Bharate, Ajay Kumar, Baljinder Singh, **Ashok Kumar**, Prashant Joshi, Santosh Guru, Suresh Kumar, Aashiq Hussain, Asif Qazi, Parduman Sharma, Shashi Bhushan, Sonali Bharate, Abid Hamid, Ajit Saxena, Dilip Mondhe, Zahoor Wani, Girish Mahajan. 10-substituted colchicinoids as potent anticancer agents.

Indian and US Patent: 0059NF 2014, 2929DEL2014 dt. 14.10.2014: (WO Patent Application No. PCT/IN2015/050135).

Research Publications (20 International Research Publications)

- 1) **Ashok Kumar**, PR Sharma and DM Mondhe (2017). Potential anti-cancer role of colchicine based derivatives: An overview. *Anti-cancer Drugs* **28**: 250-262.
- 2) Mytre Koul, **Ashok Kumar**, Ramesh Deshindi, Bhawal Ali Shah, Parduman Raj Sharma, Sandeep Jaglan, Shashank Singh. (2017) Cladosporol A from *Cladosporium cladosporioides*, a unique microtubule depolymerizer triggers ROS-mediated apoptosis through mitochondrial pathway and autophagy in breast cancer cells. *BMC Cell Biology* **26**:1-15.
- 3) Samsher Singh, Nitin P. Kalia, Prashant Joshi, Ajay Kumar, Parduman R. Sharma, **Ashok Kumar**, Sandip B. Bharate and Inshad A. Khan (2017). Boeravinone B, A Novel Dual Inhibitor of NorA Bacterial flux Pump of *Staphylococcus aureus* and Human P- lycoprotein, Reduces the Biofilm Formation and Intracellular Invasion of Bacteria. *Frontiers in Microbiology*. **8**:1-12.
- 4) Neha Sharma, **Ashok Kumar**, P.R. Sharma, Arem Qayum, Shashank K. Singh, Prabhu Dutt, Satya Paul, Vivek Gupta, M.K. Verma, N.K Satti and R. Vishwakarma

- (2017). A new clerodane furano diterpene glycoside from *Tinospora cordifolia* triggers autophagy and apoptosis in HCT-116 colon cancer cells. *Journal of Ethnopharmacology*. **211**: 295-310.
- 5) Vidushi Khajuria, Shilpa Gupta, Neha Sharma, **Ashok Kumar**, Nazir A. Lone, Mowkshi Khullar, Prabhu Dutt, Parduman Raj Sharma, Asha Bhagat and Zabeer Ahmed. (2017). Anti-inflammatory potential of hentriacontane in LPS stimulated RAW 264.7 cells and mice model. *Biomedicine & pharmacotherapy*. **92**: 175-86.
- 6) Sonia Sharma, Santosh Kumar Guru, Sudhakar Manda, **Ashok Kumar**, Mubashir J. Minto, Venna Deva Prasad, Parduman R. Sharma, Dilip M. Mondhe, Sandip B. Bharate and Shashi Bhushan (2017). A marine sponge alkaloid derivative 4-chloro faspaplysin inhibits tumor growth and VEGF mediated angiogenesis by disrupting PI3K/Akt/mTOR signaling cascade. *Chemico-biological interactions*. **275**: 47-60.
- 7) Mudassier Ahmad, Mushtaq Aga, Javeed Bhat, Brijesh Kumar, Abdul Rouf, Neena Capalash, Mubashir Javeed Minto, **Ashok Kumar**, Priya Mahajan, Dilip Manikrao Mondhe, Amit Nargotra, Parduman Raj Sharma, Mohmmad Afzal Zargar, Ram A Vishwakarma, Bhahwal Ali Shah, Subhash Chandra Taneja, and Abid Hamid (2017). Exploring Derivatives of Quinazoline Alkaloid L-Vasicine as Cap Groups in the Design and Biological Mechanistic Evaluation of Novel Antitumor Histone Deacetylase Inhibitors. *Journal of Medicinal Chemistry* **60**:3484-97.
- 8) Anup Pathania, Santosh Guru, Suresh Kumar, **Ashok Kumar**, Masroor Ahmad, Shashi Bhushan, Parduman Sharma, Priya Mahajan, Bhahwal Shah, Simmi Sharma, Amit Nargotra, Ram Vishwakarma, Korkaya Hasan and Fayaz Malik (2016). Interplay between cell cycle and autophagy induced by boswellic acid analog. *Scientific Reports* **6**: 1-14.
- 9) **Ashok Kumar**, Baljinder Singh, Girish Mahajan, PR Sharma, SB Bharate, Mubashir J. Minto and DM Mondhe (2016). A novel colchicine based microtubule inhibitor exhibits potent antitumor activity by inducing mitochondrial mediated apoptosis in MIA PaCa-2 pancreatic cancer cells. *Tumour Biology* **37**: 13121-36.
- 10) Noor Alam, Arem Qayum, **Ashok Kumar**, Vaibhav Khare, PR Sharma, SS Andotra, Shashank Singh, Surinder Koul, PN Gupta (2016). Improved efficacy of cisplatin in

- combination with a nano-formulation of pentacyclic triterpenediol. *Materials Science and Engineering: C*. **68**:109-16.
- 11) **Ashok Kumar**, Baljinder Singh, PR Sharma, SB Bharate, AK Saxena and DM Mondhe (2016). A novel microtubule depolymerizing colchicine analogue triggers apoptosis and autophagy in HCT-116 colon cancer cells. *Cell Biochemistry and function* **34**: 69-81.
 - 12) Aashiq Hussain, AK Qazi, Nagaraju Mupparapu, SK Guru, **Ashok Kumar**, PR Sharma, Shashank Singh, Paramjit Singh, MJ Dar, SB Bharate, Zargar Afzal, QN Ahmed, Shashi Bhushan, RA Vishwakarma, Abid Hamid (2016). Modulation of glycolysis and lipogenesis by novel PI3K selective molecule represses tumor angiogenesis and decreases colorectal cancer growth. *Cancer Letters* **374**: 250-60.
 - 13) Mytre Koul, Samdarshi Meena, **Ashok Kumar**, PR Sharma, Venugopal Singamaneni, Riyaz Hassain, Abid Hamid, Asha Chaubey, Prasoon Gupta, Shashank Singh (2015). Secondary Metabolites from Endophytic Fungus *Penicillium pinophilum* induces ROS-mediated Apoptosis through Mitochondrial Pathway in Pancreatic Cancer Cells. *Planta Medica* **82**:344-55.
 - 14) Aashiq Hussain, AK Qazi, Nagaraju Mupparapu, **Ashok Kumar**, Mubashir J. Minto, Girish Mahajan, PR Sharma, Shashank Singh, SB Bharate, Zargar Afzal, QN Ahmed, RA Vishwakarma, Abid Hamid (2016). A novel PI3K axis selective molecule exhibits potent tumor inhibition in colorectal carcinogenesis. *Molecular carcinogenesis* **55**: 2135-2155
 - 15) ZA Wani, SK Guru, AV Rao, Sonia Sharma, Girish Mahajan, Akanksha Behl, **Ashok Kumar**, PR Sharma, Ahmed Kamal, Shashi Bhushan, DM Mondhe (2016). A novel quinazolinone chalcone derivative induces mitochondrial dependent apoptosis and inhibits PI3K/Akt/mTOR signaling pathway in human colon cancer HCT-116 cells. *Food and Chemical Toxicology* **87**:1-11.
 - 16) Baljinder Singh, **Ashok Kumar**, Prashant Joshi, Santosh Guru, Suresh Kumar, Zahoor Wani, Girish Mahajan, Aashiq Hussain, Asif Qazi, Kumar Ajay, Parduman Sharma, Shashi Bhushan, Sonali Bharate, Hamid Abid, Ajit Saxena, Sandip Bharate, Ram Vishwakarma (2015). Colchicine derivatives with potent anticancer activity and

- reduced P-glycoprotein induction liability. *Organic & Biomolecular Chemistry* **13**:5674-89.
- 17)** Ravindra Dubey, Noor Alam, Ankit Saneja, Vaibhav Khare, **Ashok Kumar**, Shagun Vaidh, Girish Mahajan, Parduman Sharma, Shashank Singh, Dilip Mondhe, PN Gupta (2015). Development and evaluation of folate functionalized albumin nanoparticles for targeted delivery of gemcitabine. *International Journal of Pharmaceutics* **492**:80-91
- 18)** Noor Alam, Ravindra Dubey, **Ashok Kumar**, Koul Mytre, Sharma Neelam, PR Sharma, BK Chandan, Shashank Singh, Gurdarshan Singh, PN Gupta (2015). Reduced toxicological manifestations of cisplatin following encapsulation in folate grafted albumin nanoparticles. *Life Sciences* **142**:76-85.
- 19)** Udita Agarawal, Gousia Chasoo, PR Sharma, **Ashok Kumar**, AK Saxena., PS Vyas (2015). Tailored polymer–lipid hybrid nanoparticles for the delivery of drugconjugate: Dual strategy for brain targeting. *Colloids and Surfaces B: Biointerfaces* **126**: 414-425
- 20)** Udita Agarawal, Gousia Chasoo, PR Sharma, **Ashok Kumar**, AK Saxena, PS Vyas (2014). RGD-modified anticancer drug containing hybrid nanoparticles for the treatment of integrins overexpressing glioma cells. *Journal of Nanoscience Letters* **4**:125.

Conferences

- 1)** PR Sharma, **Ashok Kumar**, DM Mondhe, AK Saxena. (2013). Basic Principles of Electron Microscopy, Confocal Microscopy & Biological specimen preparation. Thirteenth Annual Conference of ISVPT-2013 on *Biopharmaceuticals & Nanotechnology in Therapeutics & Development of Anticancer Drugs from Botanicals*. **PP 159-172**.
- 2)** **Ashok Kumar**, PR Sharma and AK Saxena. (2014). Anticancer potential and mode of action of semi-synthetic derivatives of colchicine. International Conference on *Electron Microscopy And XXXV Annual Meeting of the Electron Microscope Society of India & Pre-Conference Workshops on Electron Microscopy* (EMSI-2014). **PP 517**.

- 3) PR Sharma, **Ashok Kumar**, DM Mondhe, AK Saxena. (2014). Electron microscopy in Anticancer research. International Conference on *Electron Microscopy And XXXV Annual Meeting of the Electron Microscope Society of India & Pre-Conference Workshops on Electron Microscopy* (EMSI-2014). **PP 110**.
- 4) Mytre Koul, **Ashok Kumar**, PR Sharma, Shashank Singh (2014). Pharmacological investigation of secondary metabolites isolated from endophytic Fungi for their anticancer potential. *International Conference On Emerging Trends In Biotechnology* (ICETB 2015).
- 5) Attended 101st *Indian Science Congress* organized by University of Jammu, J&K. February 3rd to 7th February 2014.
- 6) **Ashok Kumar**, PR Sharma, DM Mondhe (2017). Anticancer potential and mode of action of colchicine based derivatives. *National Seminar On Science and Technology Reaching the Unreached*. **PP 15**.
- 7) Mytre Koul, **Ashok Kumar**, PR Sharma, Sashank Singh (2019). Cladosporol A, natural compound from endophytic origin triggers apoptosis sensitivity by ROS-mediated autophagic flux in human breast cancer cells. **6th J&K Women Science congress** held at Govt. P.G. College for women, Gandhi Nagar, Jammu in February 2019.

Languages

Fluent in English, Hindi and Dogri

Place: Samba, J&K, India

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