

Dinesh Kumar Singh, PhD

ACADEMIC APPOINTMENTS

Oct 2024- Present	Visiting Scientist (Honorary Appointment), Department of Radiology, University of Pennsylvania, Philadelphia, PA, 19104 USA.
April 2024- Present	Scientific Consultant, Divyani LLC, Wallingford (Consulting for RSM Diagnostics Lab, Wilmington, and Regen Biopharma, California, USA)
Jan 2023- Nov 2023	Head, Associate Director, Discovery Biology and Pre-Clinical Research, Cell and Gene Therapy, Ocugen Inc, Malvern, USA
Sept 2021 – Dec2022	Principal Scientist II, Discovery Biology, Cell and Gene Therapy, Ocugen Inc, Malvern, USA
Sept 2020 – Sept 2021	Principal Scientist, Discovery Biology, Cell and Gene Therapy, Ocugen Inc, Malvern, USA
Aug 2018 - Aug 2020	Visiting Scientist, Blood Cell and Development Function, Fox Chase Cancer Center, Philadelphia, USA.
Dec 2014 – Aug 2018	Tenured Assistant Professor, Senior Scientist (Scientist-E1). CSIR-Indian Institute of Toxicology Research, Lucknow, INDIA
Jan 2013 – Nov 2014	Research Scientist, Department of Neurobiology and Neurotherapeutics, UTSouthwestern Medical Center at Dallas, TX, USA.
June 2010 – Dec 2012	Postdoctoral Researcher II, Eugene McDermott Center for Human Growth and Development. Department of Genetics, UTSouthwestern Medical Center at Dallas, TX, USA.
July 2006 – May 2010	Postdoctoral Researcher II, Department of Pharmacology, Cecil H. and Ida Green Comprehensive Center for Molecular, Computational, and Systems Biology, UTSouthwestern Medical Center at Dallas, TX, USA.

EDUCATION AND TRAINING

2001 - 2005	Ph.D. (Immunology) , International Center for Genetic Engineering and Biotechnology (ICGEB). Degree awarded by Jawaharlal Nehru University, New Delhi, INDIA
1999 - 2001	M.Sc. (Biotechnology) , Panjab University, Chandigarh, INDIA
1996 - 1999	B.Sc. (Physiology Honors) , Calcutta University, Kolkata, INDIA

RESEARCH SUPPORT

1. Study the Role of Macrophage-Heterogeneity in Nanoparticle Toxicity Mitigation, Role: **PI**, (May 2016- Aug 2018), Funding Agency: Department of Science and

Technology, India

2. Study the Role of Human GAPDH Pseudogenes in Arsenic Toxicity Resistance,
Role: **PI**, March 2015-Aug 2018. Funding Agency: Center for Scientific and Industrial Research (CSIR), India
3. Mechanistic Understanding of Biosynthesis of Gold Nanoparticles.
Role: **PI**, March 2015-Aug 2018. Funding Agency: Center for Scientific and Industrial Research (CSIR), India.

PATENTS/ INVENTION DISCLOSURES

- Method of Making Self-driving Hybridoma-generating Chimeric Antigen Receptor (Self-driving Hybrid CAR) Fusion cells and Use Thereof. (USPTO# 63/741842).
- Method of Generating High Efficiency Hybridoma Using Electrofusion with Self-driving Hybridoma-generating Chimeric Antigen Receptor (Self-driving Hybrid CAR) Fusion cells and Use Thereof (USPTO# 63/742106).
- Production, purification, formulation and use of maternal antibodies for infant milk fortification. (USPTO# 63/743042)
- ImmunoLactaFerry: Breast Milk Antibody-Mediated Delivery System for Probiotics and Bacteriophages and Use thereof (USPTO#63/743042)
- Induction of a new type of cell death, mettaloptosis, in cells and use thereof. (USPTO#63/740398)
- Metallic Nanocluster Conjugates for Targeted Cancer Therapy and Multimodal Treatment of Leukemia. (USPTO#63/740252)
- Metallic Nanocluster-Enhanced Antibody-Drug Conjugates for Targeted Treatment of Autoimmune Diseases. (USPTO#63/740584)
- Multicistronic Vaccine and Methods for Producing and Using the Same (USPTO -2023) Patent Application No. 63/447734)
- A Green Process of the Biological Synthesis of Arsenic Nanoparticles (March 2016) Patent Number (IPN): 201611008974).

AWARDS/HONOURS

- 1) Simmons Cancer Center Poster Presentation Travel Award 2008.
- 2) Scientist-C (2001): Selected as Scientist-C by Bhabha Atomic Research Center (BARC), Mumbai.
- 3) Shyama Prasad Mukherjee (SPM) Fellowship Award 2001-2006:
- 4) Council of Scientific and Industrial Research Fellowship (CSIR) 2001-2006.
- 5) Graduate Aptitude Test in Engineering (GATE) Fellowship (2001).
- 6) Awarded 3rd Prize in Wall Magazine Contest (2000) by Panjab University, Chandigarh on National Science Day Celebrations by the local chapter of ISCA & INSA and DST (UT).
- 7) Awarded 3rd Prize in Essay Competition on Integrative Biology (2000) by Panjab University, Chandigarh on National Science Day Celebrations by the local chapter of ISCA & INSA and DST
- 8) Jagadananda Mukherjee Memorial Prize for being the gold medalist in BSc Physiology Honours (1999) in Serampore College, (Calcutta University) West Bengal, INDIA.

PROFESSIONAL MEMBERSHIP

- Indian Immunological Society
- Association for Research in Vision and Ophthalmology

TEACHING EXPERIENCES

- 2016-2017 Course coordinator for Research Methodology, Communication/Ethics/Safety Course at CSIR-IITR. (Academy of Scientific and Innovative Research).
- 2015-2016 Course coordinator for Computation and Bioinformatics Course at CSIR-IITR. (Academy of Scientific and Innovative Research).
- 2015- 2016 Course coordinator for Synthetic Biology Course at CSIR-IITR. (Academy of Scientific and Innovative Research).

PEER REVIEWED PUBLICATIONS

- 1) Pradeep Kumar Gupta, Lin Z Li, **Dinesh Kumar Singh**, Skyler Nova, Fernando Arias-Mendoza, Stepan Orlovskiy, Sanjeev Chawla, David S. Nelson, Michael Farwell, Kavindra Nath. MRS and optical imaging studies of therapeutic response to combination therapy targeting BRAF/MEK in murine melanoma. (*Academic Radiology, In press*)
- 2) Stepan Orlovskiy, Pradeep Kumar Gupta, Fernando Arias-Mendoza, **Dinesh Kumar Singh**, Skyler Nova, David S. Nelson, Vivek Narayan, Cameron J. Koch, Micael Hardy, Ming You, Balaraman Kalyanaraman and Kavindra Nath. Enhancing Radiation Therapy Response in Prostate Cancer Through Metabolic Modulation by Mito-Lonidamine: A 1H and 31P Magnetic Resonance Spectroscopy Study. (*Int J Mol Sci. 2025 Jan 9;26(2):509. doi: 10.3390/ijms26020509*)
- 3) **Dinesh Kumar Singh**, Bryan Harris, Shawn P. Fahl, Shanna R. Sprinkle, Minshi Wang, Yong Zhang, Jaqueline Perrigoue, Rachel Kessel, Suraj Peri, Orsi Giricz, Jacqueline Boultwood, Andrea Pellagatti, KH Ramesh3, Cristina Montagna, Kith Pradhan, Ulrich Steidl, Stephen Sykes, Amit Verma, David L. Wiest. Ribosomal protein control of hematopoietic stem cell transformation through regulation of lipoxigenase. (*bioRxiv 2023 Jun 1:2023.05.31.543132. doi: 10.1101/2023.05.31.543132*)
- 4) Aastha Chhabra, Shalini Mishra, Gaurav Kumar, Asheesh Gupta, Gaurav Kumar Keshri, Brij Bharti, Ram Niwas Meena, Amit Kumar Prabhakar, **Dinesh Kumar Singh**, Kalpana Bhargava & Manish Sharma. Glucose-6-phosphate dehydrogenase is critical for suppression of cardiac hypertrophy by H2S. *Cell Death Discovery; 4(6) (2018)*
- 5) **Dinesh K. Singh**, Rahul K. Kollipara, Vamsidara Vemireddy, Xiao-Li Yang, Yuxiao Sun, Nanda Regmi, Stefan Klingler, Kimmo J. Hatanpaa, Jack Raisanen, Steve K. Cho, Shyam Sirasanagandla, Suraj Nanepaga, Sara Piccirillo, Tomoyuki Mashimo, Shan Wang, Caroline G. Humphries, Bruce Mickey, Elizabeth A. Maher, Hongwu Zheng, Ryung S. Kim, Ralf Kittler, Robert M. Bachoo. Oncogenes Activate an Autonomous Transcriptional Regulatory Circuit That Drives Glioblastoma. *Cell Reports; 18(4): 961– 976, 2017.*
- 6) Tomoyuki Mashimo, Kumar Pichumani, Vamsidhara Vemireddy, Kimmo J. Hatanpaa, **Dinesh Kumar Singh**, Shyam Sirasanagandla, Suraj Nanepaga, Sara G. Piccirillo, Zoltan Kovacs, Chan Foong, Zhiguang Huang, Samuel Barnett, Bruce E. Mickey, RalphJ. DeBerardinis, Benjamin P. Tu, Elizabeth A. Maher, Robert M. Bachoo. Acetate Is a Bioenergetic Substrate for Human Glioblastoma and Brain Metastases. *Cell 158, 1603- 1614, 2014.*
- 7) Nishi Srivastava, Rahul K. Kollipara, **Dinesh Kumar Singh**, Jessica Sudderth, Zeping Hu, Hien Nguyen, Shan Wang, Caroline G. Humphries, Ryan Carstens, Kenneth E. Huffman, Ralph J. DeBerardinis, Ralf Kittler. Inhibition of Cancer Cell Proliferation by PPAR γ Is Mediated by a Metabolic Switch that Increases Reactive Oxygen Species Levels. *Cell Metabolism, 20, 650-661, 2014.*
- 8) **Dinesh Kumar Singh**, Chin-Jen Ku, Chonlarat Wichaidit, Robert J Steininger III, Lani F Wu and Steven J Altschuler (2010) Patterns of basal signaling heterogeneity can distinguish cellular populations with different drug sensitivities. *Molecular Systems Biology; 6:369, 2010*

- 9) Lit-Hsin Loo, Hai-Jui Lin, **Dinesh Kumar Singh**, Kathleen M. Lyons, Steven J. Altschuler, Lani F. Wu (2009) Heterogeneity in the physiological states and pharmacological responses of differentiating 3T3-L1 preadipocytes. *J Cell Biol* 2009 187:375-384.
- 10) Basu, S.K., Kumar, D., **Singh, D.K.**, Ganguly, N., Siddiqui, Z., Rao, K.V., and Sharma, P.(2006).Mycobacterium tuberculosis secreted antigen (MTSA-10) modulates macrophage function by redox regulation of phosphatases. *FEBS J* 273, 5517-5534, 2006.
- 11) **Dinesh Kumar Singh**, Kumar, D., Siddiqui, Z., Basu, S.K., Kumar, V., Rao, K.V.S. 2005. The strength of receptor signaling is centrally controlled through a cooperative loop between Ca²⁺ and an oxidant signal. *Cell* 121, 281-293, 2005.

POSTER PRESENTATION AND TALKS AS INDEPENDENT PRINCIPAL INVESTIGATOR:

- July 2018 Auroptosis: A new Form of Cell Death (Guest Speaker) National Convention on Programmed Cell Death in Cancer and Toxicology, India.
- Feb 2018 Identification of Key Transcriptional Regulatory Network Driving Glioblastoma. (Invited Speaker). International Conference on Cell Death in Cancer and Toxicology, India.
- Dec 2017 Cell Signaling is Synchronized in Entotic and Entytic Cells Upon Extracellular Stimulation. Sabita Chourasia, Imran Ahmad, Dinesh Kumar Singh. International Conference on Cell Death and Toxicology, India.
- Dec 2017 Gold Nanoparticles Synthesized from Nelumbo nucifera Are Anti-adipogenic. Sabita Chourasia, Imran Ahmad, Jai Shankar, Nidhi Arjaria, Prem Narayan Saxena, Dinesh Kumar Singh. KGMU, ACBICON, India.
- Dec 2017 GAPDH Knock-out Induces Stem Cell Phenotype and Arsenic Resistance in Human Cells. Imran Ahmad, Sabita Chourasia, Dinesh Kumar Singh. KGMU, ACBICON, India. (**Best Poster Award**).
- Nov 2017 Signaling Kinetics is Synchronized During Suicide Bombing of Cancer Cells. Sabita Chourasia, Imran Ahmad, Dinesh Kumar Singh. 3rd International Toxicology Conclave, India.
- Oct 2017 Inhibition of Adipogenesis by Biosynthesized Gold Nanoparticles from Nelumbo nucifera. Sabita Chourasia, Imran Ahmad, Jai Shankar, Neeraj Satija, Nidhi Arjaria, Prem Narayan Saxena, Dinesh Kumar Singh. 1st Hindi Science Conference. (**Best Poster Award**).