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Shubham Dutta, Ph.D.

SKILLS

- Molecular Biologist with 8+ years of experience in assay development to study signaling pathways for target identification
- Designing & executing high-throughput CRISPR-Cas9 knockout & RNAi screens
- Identification of novel antibody targets using Surface Plasmon Resonance (SPR)
- Engineering novel antibodies for research in non-human primate models
- Designing & executing antibody-antigen interaction studies using SPR & Flow cytometry
- Supervising direct reports & working with cross-functional/ remote teams
- Actively serving as a Editorial Board Member & Reviewer of several peer-reviewed journals

EXPERIENCE

MassBiologics, Mattapan Scientist II

Present

- Identifying novel Immunoglobulins in non-human primates
- Engineering novel antibodies for research in non-human primate models
- Designing & executing antibody-antigen interaction studies using SPR & Flow cytometry
- Supervising research associates

Totient Inc., Cambridge Scientist II

2018 - 2020

- Served as cell and molecular biology lead for oncology drug discovery programs
- Developed strategies to simultaneously knockout two genes using CRISPR-Cas9
- Experience with preparation of high-quality whole genome lentiviral sgRNA particles
- Identification of targets using CRISPR mediated whole genome knockout screen on multiple cell lines
- Identification of targets for recombinant antibodies using Protein arrays, western blotting, LC-MS, ELISA and immunofluorescence
- Worked with CROs with for special assays including 3D cell culture, Mass Spectrometry, and Surface Plasmon Resonance (SPR)
- Managed one direct report and one matrix reports in CROs

University of Massachusetts Medical School, Worcester Postdoctoral Research Associate

2018

- Developing a CRISPR screen to identify novel and pharmacologic transcriptional/ translational/ post-translational and epigenetic regulators of EWS-FLI1 fusion oncoprotein which causes Ewing's sarcoma, a rare genetic disease in children and young adults
- Executing genome wide shRNA/ RNAi and proteomic screens to identify transcription factors and downstream effectors involved in X-chromosome inactivation
- Genome editing by CRISPR/Cas9 for specific projects in the lab
- Managed one intern and two junior graduate students

EDITORIAL EXPERIENCE

Editorial Board Member

- RAS Oncology and Therapy
- Exploratory Research and Hypothesis in Medicine (Early Career Editor)
- Journal of Molecular Biology and Drug Design

Reviewer

- Bioengineered
- BMC Cancer
- Cancer Biomarkers
- Cancer Medicine
- Cancer Cell International
- International Journal of Molecular Biology: Open Access
- International Journal of Molecular Biology
- Journal of Breast Cancer
- Journal of Hazardous Materials
- Journal of Pure and Applied Microbiology
- PeerJ
- RAS Oncology and Therapy

EDUCATION

University of Massachusetts Medical School, Worcester Ph.D. in Biomedical Sciences

2011 - 2018

- Used extensive molecular biology, cell biology, in vitro protein assays to validate a novel mechanosensory protein in mammalian cell lines
- Identify interactors of the tumor suppressor LATS1/2 kinase (core kinase in the Hippo signaling pathway) using mass spectroscopy
- Extensively used confocal microscopy to study intracellular colocalization of various proteins involved in mechanosensing
- Used site-directed mutagenesis and cloning to develop a novel LATS1/2 kinase allele (analog sensitive) which is currently being used to find novel substrates

University of Calcutta, Kolkata M.S. in Biophysics and Molecular Biology

2008 - 2010

University of Calcutta, Kolkata B.S. in Microbiology

2005 - 2008

PUBLICATIONS

- Sunil Malonia, **Shubham Dutta**. Frontiers of CRISPR-Cas9 for cancer research and therapy, *Journal of Exploratory Research in Pharmacology*, (manuscript under preparation)*
- Anamika Banerjee, **Shubham Dutta**. Anti-ganglioside antibodies in patients with Zika virus infection, *Exploratory Research and Hypothesis in Medicine*, (manuscript under preparation)*
- Debraj Bhowmick, **Shubham Dutta**. Genetic Mutations and Epigenetic Modifications in cancer, *Exploratory Research and Hypothesis in Medicine*, (manuscript under preparation)*
- **Shubham Dutta**, Sebastian Mana-Capelli, Murugan Paramasivam, Ishani Dasgupta, Heather Cirka, Kris Billiar, Dannel McCollum. TRIP6 inhibits the Hippo signaling pathway in response to tension at adherens junctions *EMBO Rep.* 2017 Dec 8. pii: e201744777. Doi: 10.15252/embr.201744777
- Sebastian Mana-Capelli, Murugan Paramasivam, **Shubham Dutta**, Dannel McCollum. Angiomotins link F-actin architecture to Hippo pathway signaling *Mol Biol Cell.* 2014 May 15; 25(10): 1676–1685. doi: 10.1091/mbc.E13-11-0701 (awarded best paper of the year by MBoC)
- Samik Bindu, Chinmay Pal, Sumanta Dey, Manish Goyal, Athar Alam, Mohd. Shameel Iqbal, **Shubham Dutta**, Souvik Sarkar, Rahul Kumar, Pallab Maity, Uday Bandyopadhyay. Translocation of Heme Oxygenase-1 to Mitochondria Is a Novel Cytoprotective Mechanism against Non-steroidal Anti-inflammatory Drug-induced Mitochondrial Oxidative Stress, Apoptosis, and Gastric Mucosal Injury *J Biol Chem.* 2011 Nov 11; 286(45): 39387–39402. Published online 2011 Sep 9. doi: 10.1074/jbc.M111.279893

*Invited review article as corresponding author

BIOGRAPHY

I have a broad research background and 8+ years of experience in molecular biology, biochemistry, cell biology, cancer biology, immunology and developmental biology. My current research focuses on understanding the cellular, biochemical and molecular basis of cancer and certain rare genetic disorders and how genetic and epigenetic programming contribute the progression of these diseases. In general, to pursue these research interests, my laboratory undertakes variety of functional genomics approaches such as RNA interference (RNAi) and CRISPR based screens, proteomics and biochemistry-based methods to identify new genes, proteins and regulatory pathways that are the cause of or contribute to the disease state. Another area of my research is to design novel antibodies that can be used against SARS, Zika, coronavirus, and developing non-human primate models for these diseases. I have worked both in academia and in a biotechnology industry and have experience with team management. I have been invited by three journal editors to write reviews on my areas of expertise as a corresponding author which are under preparation. I am actively serving as an Executive Board Member and ad-hoc reviewer of several peer reviewed journals.