Shubham **Dutta, Ph.D.**

Scientist

Massbiologics, University of Massachusetts Medical School

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About me

- Molecular Biologist with 10 years of experience in assay development
- Designing & executing high-throughput CRISPR-Cas9 knockout & RNAi screens in cancer and rare diseases
- Experience in multicolor flow cytometry and flow panel design in blood
- Design, production, and purification of monoclonal antibodies
- Development and selection of stable clonal cell lines for protein production
- Designing & executing antibody-antigen interaction studies using SPR (Biacore) and BLI (OCTET)
- Training colleagues & research associates and working with cross-functional/ remote teams
- Electronic note keeping using Evernote and R Markdown
- Actively serving as a Editorial Board Member & Reviewer of several peer-reviewed journals

Professional Experience

Scientist, Massbiologics, University of Massachusetts Medical School

2020 - Present

- Lead scientist in engineering novel antibodies in Neotropic non-human primates
- Multicolor flow cytometry and panel generation for primate blood
- Generation and screening of hybridomas to identify monoclonal antibody clones
- High-throughput screening and identification of top expression clones
- Generation of stable knockout lines (CHO, HEK) using CRISPR-Cas9
- Production, purification, and quality testing of antibodies and proteins
- Generation of stable, high producing cell lines
- Training colleagues & research associates

Scientist II, Totient Inc.

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, ELISA and immunofluorescence
- Worked with CROs with for special assays including 3D cell culture and SPR (Biacore)
- Managed one direct report

Post-doctoral Associate, University of Massachusetts Medical School

2018

- Developing a CRISPR screen to identify novel epigenetic regulators in Ewing's Sarcoma
- Executing genome wide shRNA/ RNAi and proteomic screens to identify regulators in X-chromosome inactivation pathway
- Genome editing by CRISPR/Cas9 for specific projects in the lab
- Managed one intern and two junior graduate students

Skills

Molecular Biology

CRISPR-Cas9 Knock-outs and Knock-in, Genome wide RNAi and CRISPR screens, PCR, SDS-PAGE, Recombinant DNA Technology, Molecular Cloning, Gateway cloning, Proficient in SnapGene tool, Mutagenesis, Western Blots, Quantitative RT-PCR, Flow Cytometry (upto 8 color sorting and Flow panel design), Gene tagging, ChIP-Seq, RNA-Seq, Preparation of NGS libraries, Fluorescence Microscopy

Protein Biology

Antibody engineering, Antibody production using transient and FedBatch culture, Purification using AKTA, ELISA, Surface Plasmon resonance (SPR) using Biacore, BiLayer Interferometry (BLI) using OCTET, *In vitro* Protein purification and kinase assays, Immunoprecipitation, Phospho-protein separation by phostag gels

Cell culture

Stable cell line generation (CHO, HEK, MCF10A, etc.), High-throughput clone selection (AMBR15, Clonepix, Duetz system), Handling and culture of Blood and PBMCs, Generation of neurons from NPCs and iPSCs, Viral packaging and transduction, Soft agar colony formation, invasion and migration assays, Mammalian Cell culture, maintenance, Transfection and related techniques

Data Science

Electronic note keeping using Evernote and R Markdown, RNA-Seq and CHIP-Seq data analysis, Genomic data mining, R programming (Base, Tidyverse, Shiny, Bioconductor), Data wrangling, analysis and visualization, Basic statistics using R, Data driven websites (using R Shiny and Markdown), Basic knowledge in Python programming

Scientific Editing/ Writing

Scientific papers and research proposals for grants, Editorial Board member of several peer-reviewed journals

Education

University of Massachusetts Medical School — *Worcester, MA, USA*

Doctor of Philosophy, Biomedical Sciences — *09/2011-06/2018*

University of Calcutta — *Calcutta, West Bengal, India*

Master of Science, Biophysics and Molecular Biology — *06/2008-05/2010*

University of Calcutta — *Calcutta, West Bengal, India*

Bachelor of Science, Microbiology — *06/2005-05/2008*

Publications

1. Banerjee, A., Malonia, S. K., & Dutta, S. (2021). Frontiers of CRISPR-Cas9 for cancer research and therapy. *Journal of Exploratory Research in Pharmacology*, *6*(3), 96–104.
2. Dutta, S., Mana-Capelli, S., Paramasivam, M., Dasgupta, I., Cirka, H., Billiar, K., & McCollum, D. (2018). TRIP6 inhibits hippo signaling in response to tension at adherens junctions. *EMBO Reports*, *19*(2), 337–350.
3. Mana-Capelli, S., Paramasivam, M., Dutta, S., & McCollum, D. (2014). Angiomotins link f-actin architecture to hippo pathway signaling. *Molecular Biology of the Cell*, *25*(10), 1676–1685.
4. Bindu, S., Pal, C., Dey, S., Goyal, M., Alam, A., Iqbal, M. S., Dutta, S., Sarkar, S., Kumar, R., Maity, P.others. (2015). 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. *Journal of Biological Chemistry*, *290*(22), 13667–13668.