

SHEENA DASS

Address : 46 Longwood Avenue, Apt3
Brookline, Massachusetts, USA
Email : sdass@hsph.harvard.edu , dasssheen93@gmail.com
Nationality: Indian

Education

<u>Postdoctoral fellowship</u>	Harvard School of Public Health, Boston, MA, USA	Oct 2021-present
<u>PhD.</u>	Université Grenoble Alpes, France/Institute for Advanced Biosciences, Grenoble France	2016-Feb 6, 2020
<u>Master's in biotechnology</u>	All India Institute of Medical Sciences, New Delhi	2014-2016
<u>Bachelors (Hons) in Microbiology</u>	University of Delhi, New Delhi, India	2011-2014

Research Experience and Projects

Postdoctoral position- Harvard School of Public Health (Oct 2020- present)
Understanding the tropism and transcendence of species of Plasmodium into various kinds of host cells
Supervision: Pr. Manoj Duraisingh

PhD – Université Grenoble Alpes, France (Oct. 2016 – Feb 2020)
Title: *Characterization of novel proteins regulating and remodelling lipid fluxes during the intracellular development of apicomplexan parasites*

- Identified key proteins and characterized their functional relevance as regulators of lipid fluxes necessary for intracellular development in *T. gondii* and *P. falciparum*

Supervision: Dr. Cyrille Y Botté and Dr. Yoshiki Yamaryo Botté

Masters- Molecular parasitology lab, Deptt of Biotechnology, AIIMS, New Delhi, India (2015 –2016)
Title: *Identification of erythrocyte receptor molecules for Plasmodium vivax Tryptophan Rich Antigens (PvTRAGs)*

- Identified Basigin as second host receptor for *Plasmodium vivax* surface antigen PvTRAG38

Supervision: Dr. Sumit Rathore and Prof. Y.D Sharma

Key skills

Parasite genetics

Gene disruption (CRISPR/cas9), epitope tagging, conditional approaches (Tet, DDD, riboswitch-based) in *Toxoplasma gondii* and *Plasmodium falciparum*.
P.falciparum transfection: Rings, RBCs, Merozoites

Lipidomics:

1D and 2D HPTLC (Thin layer chromatography)
Gas-chromatography coupled mass spectrometry (GC-MS)
C¹³- glucose based fluxomic analysis-MS (parasite and mammalian cells)

Phenotyping

Tissue culture: parasite (*T.gondii* & *P.falciparum*), Mammalian (CHO, HFF, CD34+ HSCs)
In vitro and *in vivo* parasite development and fitness assays (*P.falciparum* drug testing-SYBR green assay)
 Microscopy: immuno-cytochemistry-parasite and mammalian cells , confocal, image analysis, sample preparation for electron microscopy
 Flow cytometry and cell sorting

General molecular biology and biochemistry

PCR, Cloning, Recombineering
 Protein expression and purification using *E.coli*
 Heterologous complementation of yeast
 Protein biochemical assays: Western blot, immuno-precipitation
 Protein-protein interaction assays: ELISA, Yeast-two-hybrid, CHO based cell assays

Publications

Sheena Dass, Serena Shunmugam, Laurence Berry, Christophe-Sebastien Arnold, Nicholas Katris, Samuel Duley, Fabien Pierrel, Marie-France Cesbron-Delauw, Yoshiki Yamaro-Botté, and Cyrille Botte., *Toxoplasma LIPIN is essential in channeling host lipid fluxes through membrane biogenesis and lipid storage*. (Paper accepted in **Nature communications** 2021 #NCOMMS-20-07009B]

Amiar,S., Katris N J., Berry L., Dass S., Shears M J., Brunet C., Touquet B., Hakimi M A., McFadden G I., Yamaro-Botté Y., Botté CY., *Division and adaptation to host nutritional environment of apicomplexan parasites depend on apicoplast lipid metabolic plasticity and host organelles remodelling*. **Cell Reports** 2020 30, 3778–3792

Dubois, D., Fernandes, S., Amiar, S., Dass S., Katris NJ., Botté CY., Yamaro-Botté Y., *Toxoplasma gondii acetyl-CoA synthetase is involved in fatty acid elongation (of long fatty acid chains) during tachyzoite life stages*. **J. Lipid Res.**, 2018, **59**, 994–1004

Soleilhac E., Brillet-Guéguen L., Roussel V., Prudent R., Touquet B., Dass S., et al. *Specific targeting of plant and apicomplexa parasite tubulin through differential screening using in silico and assay-based approaches* **Int J Mol Sci.** 2018 Oct 9;19(10). pii: E3085. doi: 10.3390/ijms19103085

Rathore S, Dass S, Kandari D, Kaur I, Gupta M, Sharma YD., *Basigin Interacts with Plasmodium vivax Tryptophan-rich Antigen PvTRAg38 as a Second Erythrocyte Receptor to Promote Parasite Growth*. **J Biol Chem.** 2017 Jan 13;292(2):462-476. doi: 10.1074/jbc.M116.744367.

Awards and Fellowships

- Awarded Joint **CSIR-UGC Award**: National Eligibility Test for Assistant Professor, India Jun 2018
- The **LabEx ParaFrap International PhD Fellowship** (2016-2019) Oct. 2016
- Awarded **GATE (Graduate aptitude test for engineering)-Life Sciences, India** Mar. 2016
- Scholarship awarded by Department of Biotechnology(DBT), India, Masters program at All India Institute of Medical Sciences, New Delhi Aug 2014
- Distinctions in major subjects during bachelors, under top 5 candidates for selection to master's course of microbiology at University of Delhi July 2014

Scientific communications

Oral presentation

- **Molecular Parasitology meeting (MPM), Boston, MA, USA** *Sept 2019*
- **LabEx ParaFrap annual meeting, Les Embiez Island, France** *Sept 2018*
Title: Membrane lipid remodelling during the intracellular development of apicomplexan parasites.
- **Journée Annuelle des Doctorants 2018, Université Grenoble Alpes** *June 2018*
Title: Membrane lipid remodelling during the intracellular development of apicomplexan parasites.

Poster presentations

- **The EMBO Workshop: Molecular advances and parasite strategies in host infection, Les Embiez Island, France** *Sept 2018*
*Title: Remodeling of lipid pools by a *Toxoplasma* Lipin during the intracellular development*
- **National Symposium on Recent Trends in Innovative research held at Sri Venkateshwara College, University of Delhi** *Feb 2013*
Title: Orchestration of human proteins against evading HIV virus

Participant

- **International Workshop: Malaria Parasite Biology: Strategies for Drug and Vaccine Development, ICGB, New Delhi, India** *Nov. 2018*
- **2nd Biannual ParaFrap Conference: from basic research to intervention strategies against parasites, Les Embiez Island, France** *Oct. 2017*
- **14th biennial international conference on *Toxoplasma gondii*, Tomar, Portugal** *June 2017*
- **SYSCON (national conference) 'Recent advances in biological sciences' at AIIMS, New Delhi, India** *Oct 2014*

Workshops

- **Scientific writing and Oral presentation workshop** *Jan 2019*
- **2nd Bioinformatics training organized by EuPathDB and the LabEx ParaFrap Montpellier, France** *Jul. 2017*
- **Introductory training course in Molecular Parasitology by LabEx ParaFrap, Montpellier, France** *Nov. 2016*