

SUCHISMITA DAS

Current position Post doctoral fellow at Johns Hopkins University, Baltimore, MD.
Date of Birth October 31st 1973.
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Research Experience/Fellowships

2006- Post-doctoral fellow, Molecular Microbiology & Immunology Department,
Current Bloomberg School of Public Health, Johns Hopkins University, Baltimore,
MD.
2003-2006 Post-doctoral fellow, Molecular & Cell Biology Department, Boston
University, Boston, MA.
2002-2003 Senior Research Fellow, Indian Council for Medical Research, India.
1999-2002 Senior Research Fellowship from Department of Science and Technology,
India.
1997-1999 Junior Research Fellowship from Council for Scientific and Industrial
Research.

Education/Training

Post-Doc (2003-Current) at Boston University (under Prof. John Samuelson and at John's
Hopkins School of public Health (under Dr. G. Dimopoulos).
Ph.D. (submitted 2003; awarded 2004) from Department of Biochemistry, Bose Institute,
Kolkata, India. (Awarded by Jadavpur University, India). Mentor: Prof. A. Lohia,
Thesis title: Regulation of DNA re-duplication during the cell cycle of *Entamoeba*
histolytica
M.Sc. (1997) from University of Calcutta in Biochemistry with specialization in Molecular
Biology. (Ranked 2nd).
B.Sc. (1995) from University of Calcutta with major in Chemistry. Other subjects were
Physics, Mathematics and English.

Other Qualification/Special achievements

1. Qualified GATE (Life Sciences) in 1997 with 99.25 percentile. All India Rank 9th.
2. Performed the first full genome-microarray assays of *Culex quinquefasciatus* on developmental stages, sex and infected with West Nile virus.

Technical Expertise

Cell culture: maintenance of parasites and mammalian cell lines and their transfections.

Molecular biology and biochemistry: PCR, cloning in plasmids and YACs, southern and northern blotting, construction of gDNA and cDNA libraries, yeast two-hybrid and one-hybrid assays, DNA sequencing, CHIP assay (Chromatin immuno-precipitation), Pulsed field gel electrophoresis for separating large sized DNA, Complementation assays in yeast, Quantative Real-time PCR analysis.

Protein Chemistry: purification of proteins using affinity and size-exclusion chromatography, SDS PAGE, Isoelectric focussing, Western blotting, raising Polyclonal antibody, Immunoprecipitation, ELISA etc.

Microscopy: Phase contrast and fluorescence microscopy.

Others: Flow Cytometry, Enzymatic assays, dsRNA gene silencing, Micro-array analysis (designing, setting hybridizations and analysis of array data), Maintenance of mosquito colonies in laboratory conditions, Generation of transgenic mosquitoes (*Anopheles gambiae* and *Anopheles stephensi*) by micro-injection of mosquito embryos.

Publications

1. **Das, S.**, Dimopoulos, G. Light adjustable molecular clocks regulate mosquito feeding behavior. (*Manuscript submitted for revision in BMC Physiology*).
2. **Das, S.**, Radtke, A., Dimopoulos, G. The salivary gland transcriptome of *Anopheles gambiae* and their regulation with blood feeding. (*Manuscript under preparation*).
3. Warr, E., **Das, S.**, Xi, Z., Dimopoulos, G. (2008). The GNBP gene family; its role in the innate immune system of *Anopheles gambiae* and in anti-*Plasmodium* defense. *Insect Mol Biol.* 17 (1): 39-51.
4. **Das, S.**, Garver, L., Ramirez, J.R., Xi, Z., Dimopoulos, G. (2007). Protocol for dengue infections in mosquitoes (*A. aegypti*) and infection phenotype determination. *Journal of Visualized Experiments*, 5 (220).
5. **Das, S.**, Garver, L., Dimopoulos, G. (2007). Protocol for Mosquito rearing (*A. gambiae*). *Journal of Visualized Experiments*, 5 (221).
6. Xi, Z., **Das, S.**, Garver, L., Dimopoulos, G. (2007). Protocol for *Plasmodium falciparum* Infections in Mosquitoes and Infection Phenotype Determination. *Journal of Visualized Experiments*, 5 (222).
7. Aguilar, R., **Das, S.**, Dong, Y., Dimopoulos, G. Continuous. (2007). *Plasmodium* infection

results in transcriptomic divergence of *Anopheles gambiae* immune and stress responsive systems. BMC Genomics. Dec: 8(1):451.

8. **Das S**, Van Dellen K, Bulik D, Magnelli P, Cui J, Head J, Robbins PW, Samuelson J. (2006). The cyst wall of *Entamoeba invadens* contains chitosan (deacetylated chitin). Mol Biochem Parasitol. Jul; 148(1): 86-92.
9. **Das, S.**, Mukherjee, C., Sinha, P. and Lohia, A. (2005). Constitutive association of Mcm2-3-5 proteins with chromatin in *Entamoeba histolytica*. Cell. Microbiol. Feb; 7 (2): 259-267.
10. Banerjee, S., **Das, S.** and Lohia, A. (2003). Eukaryotic checkpoints are absent in the cell division cycle of *Entamoeba histolytica* (review). Journal of Biosciences. V.27 No.6567-572.
11. **Das, S.** and Lohia, A. (2002). De-linking of S phase and cytokinesis in the protozoan parasite *Entamoeba histolytica*. Cell. Microbiol. Jan; 4: 55-60.
12. **Das, S.** and Lohia, A. (2000). MCM proteins of *Entamoeba histolytica*. Arch. Med. Res. 31, 269-270.

Symposia / Workshops attended

1. XI International Congress of Protozoology (ICOP), Salzburg, Austria; 15th to 19th July 2001. Title of the presentation: "The cell cycle of *Entamoeba histolytica*". **(ORAL)**
2. International Conference on Amoebiasis and the biology of *Entamoeba histolytica*, Agra, India; 11th –15th Feb 2002. Title of the poster: "Mcm proteins of *Entamoeba histolytica*". **(POSTER)**
3. American Society of Tropical Medicine and Hygiene, 56th Annual Meeting, Philadelphia, USA; 4th to 8th November, 2007. Title of presentation: "Circadian control of blood feeding in *Anopheles gambiae*: Exploratory pilot-scale study to identify light entrainable molecular components that regulate mosquito blood feeding". **(ORAL)**

List of projects during doctoral and post-doctoral research

1. Post-doctoral Research at John's Hopkins University, USA:

- A. Characterization of pattern recognition receptor protein GGBP (gram negative bacteria binding protein) of *Anopheles gambiae* with bacterial and *Plasmodium* infections.
- B. Study of the transcriptomic divergence in *A. gambiae* mosquito after continuous selection of *Plasmodium berghei* infection for several generations.
- C. Study of circadian and blood-feeding behavior of the *A. gambiae* mosquitoes with response to light and other external stimuli, which can be targeted to reduce the vectorial capacity of the mosquitoes.

2. Post-doctoral Research at Boston University, USA:

- A. Characterization of the enzyme chitin deacetylase, which removes the N-acetamido group from chitin, the polymer of N-acetyl glucosamine to form chitosan, a polymer of glucosamine.
- B. Study of the receptor kinases of *Entamoeba histolytica* and *Acanthamoeba castellanii* (airborne amoeba, infecting eye lens) based on the sequence homology, containing cysteine rich extracellular domain, a transmembrane domain and cytoplasmic kinase domain.

3. Doctoral research at Bose Institute, India:

1. Characterization of MCM (Mini Chromosome Maintenance) protein family from *E. histolytica* (protozoan parasite causing amoebiasis) and their functional complementation in *Saccharomyces cerevisiae*.

Current ongoing projects at John's Hopkins University

1. Culex microarray project analysis on different developmental stage, sex and after infection with West Nile virus.
2. Generation of transgenic *Rel2 A. gambiae* mosquito line to investigate the regulatory role of Rel2 in controlling the immune pathways after bacterial and *Plasmodium* infections and also evaluate the fitness cost, fecundity of the transgenic mosquitoes.
3. Role of negative regulators of TOLL, IMD and JAK/STAT pathways in *Plasmodium* development in *A. gambiae* at different stages of infection.