BUDHADITYA MUKHERHJEE, PhD

D.O.B: 26th August 1984
Nationality: Indian

PAST AND CURRENT POSITIONS:

2019, July-till date: **Assistant Professor**, School of Medical Science and Technology, **IITKGP, India.**

2015-2019: **Post-Doctoral Fellow**, Department of Microbiology & Molecular Medicine, **University of Geneva, Switzerland.**

2014-2015: **Post-Doctoral Fellow**, Department of Microbiology & Immunology, **Johns Hopkins Bloomberg School of Public Health, USA.**

2009-2014: **Ph.D.** Department of infectious disease & Immunology, **Indian Institute of Chemical Biology, India.**

ACADEMIC BACKGROUND:

2006-2008: Master in Genetics (1st class), University of Calcutta, India.

2007May-2007July: Summer Intern, Saha Institute of Nuclear Physics, India.

2003-2006: Bachelor in Zoology (1st class), University of Calcutta, India.

AWARDS AND FELLOWSHIP:

2022-2025-Selected Member of Indian Young National Science Academy (INYAS)

2022: Recipient of SIRE fellowship SERB

2018**:** Pfizer Research Award in the area of infectious diseases, rheumatology &immunology.

2018: INSA Medal for Young Scientist.

2015/2016: Swiss Government Excellence Scholarship (not obtained).

2014/2015: EMBO Long Term European Fellowship.

2014: Para Frap International Fellowship (not obtained).

2009/2014: CSIR, India, National Eligibility Test (NET) PhD Fellowship

SCIENTIFIC PUBLICATIONS:

2011-2022: Total 21 research article (*including Science***,** *Nature communication***,** *eLife***), with 5 first-author publications** in peer-reviewed journals including *EMBO J, PNAS, Journal of Immunology* etc., and **4 as corresponding authors.**

Google scholar: https://scholar.google.com/citations?user=8bV7mn8AAAAJ&hl=en

PubMed: https://pubmed.ncbi.nlm.nih.gov/?term=budhaditya%20mukherjee

TOTAL FUNDING SECURED TILL DATE:

INDUSTRIAL COLLABORATION:

Working in collaboration with UCB Cellltech (UK), a branch of UCB Pharma S.A & Medicines for Malaria. Funding secured 40,000 USD, from March 2017-December, 2018. PI: Dominique Soldati-Favre.

Research Grants (Sanctioned):

PI: Identification and Characterization of Proteins Involved in Transmission Machinery of Protozoan Pathogens (IIT/SRIC/MM/CPI/2019-20/166, Rs **2800000**(04-11-2019 to 04-11-2022).

PI: Production of SARS-COV-2 c-DNA library with specific genome architecture of Indian Isolates for subsequent development of centralized In-House Repository of Recombinant Antigen and Antibody for COVID-19 related research, Instituted-OTG Project, Rs **600000** (30.07.20-30.04.21).

PI: Molecular & biochemical characterization of amastigote specific proteases involved in late-stage

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infection & dissemination of drug resistant & sensitive clinical *Leishmania donovani* isolates. **Start-up Research Grant (SRG), SERB, DST,** Rs **2700000** (27.01.2021-26.03.2023)**.**

PI: CRISPR-Cas based rapid diagnostics of Miltefosine susceptible and resistant strains of Leishmania donovani from asymptomatic and post kala azar dermal leishmaniasis using invasive and non-invasive approach**. ICMR,** Rs **3100000** (25.02.22-24.02.24).

Co-PI: Comparative assessment of the neutralization efficacy of Indigenous vaccines against prevailing variants of concerns of SARS-CoV-2 circulating in India**. ICMR,** Rs **4996307** (15.02.22-14.02.24)

PI: Unravelling differential metabolic regulation in drug-resistant and sensitive clinical *Leishmania donovani* (LD) isolates as a possible cause of altered immune metabolic phenotype in the infected host" approved under the extramural scheme of **ICMR-2021 Funding approved** Rs **6440950** (2023-2026).

Co-PI: Community-Based Intervention to Address Antibiotic Resistance: An Embedded Mixed-Methods Interventional Study. **ICMR** Rs **4516480** (2023-2026).

Co-PI: Mechanistic investigation of the complex inter-relationship between HbE/Betathalassemia and protozoan parasite infections with HLA association. ICMR Rs **4654478.40** (2023-2026)

EDITORIALS:

Editorial member Frontiers in Cellular and Infection Microbiology, from July, the 2021-present.
Editorial Manager of the journal The Nucleus, Springer Nature, from February, the 2020-present.
Reviewer PLOS Neglected Tropical Diseases (PNTD), from May, the 2020-present.
Reviewer of Micro & Nano Letters, from March 2020-present.
Reviewer Molecular Microbiology from July, the 2020-present.

INVITED PRESENTATIONS AND POSTERS

2013-2022 Over 14 oral presentations and 4 poster presentations in National and International Congress and 5 invited speakers for Universities and Research Institutes

SUPERVISION/MENTORING:

July 21st-July 28th, 2018: Module Instructor for **Middle Eastern Biology of Parasitism (MeBOP)**, Bern, Switzerland.

2017-2019: Master student supervisor responsible for supervising 2 months internship and 1-year Master's project, University of Geneva, Switzerland.

2019- Ph.D. supervisor, the current strength of the lab, **3 Ph.D. students as a supervisor and 4 as co-supervisors.**

Undergraduate and Master's Thesis guided

Undergraduate: Sachin Vinaayak S (19BT30020), Pradipti Thakur (18BT30013), Teerath Kumar (17BT30024). **Masters (ongoing):** Aaditya Narayan Saxena (18BT30026), Pradipti Thakur (18BT30013). Completed: Khusi Chauchan (21MM46003), Shazia Parveen (20MM46009).

Teaching Courses:

Vaccines and Immunity. Teaching Rating 4.8 out of 5
Fundamentals of biochemistry and cell biology. Teaching Rating (TR): 4.6 out of 5
Advanced immunology and immunotherapeutic. TR: 4.85 out of 5
Microbial genetics and genetic engineering. TR: 4.72 out of 5
Advances in genome engineering technologies (Designed and Delivered). TR: 4.6 out of 5
Academic Advisor (2020-till date): Molecular Medical Microbiology (Master Course).

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LIST OF RELEVANT SCIENTIFIC PUBLICATIONS:

1. Pradhan S, Snehlata, Manna D, Karmakar S, Singh MK, Bhattacharya A, **Mukherjee B**, Paul J. (2022). Activation of TLR-pathway to induce host Th1 immune response against visceral leishmaniasis: Involvement of galactosylated-flavonoids. **Heliyon,** 8(7):e09868. DOI: 10.1016/j.heliyon.2022.e09868 **Corresponding author**

2. Ghosh S, Biswas S, Mukherjee S, Pal A, Saxena A, Sundar S, Dujardin JC, Das S, Roy S, Mukhopadhyay R, **Mukherjee B**. (**2021**) A novel bioimpedance based detection of Miltefosine susceptibility among clinical Leishmania donovani isolates of the Indian subcontinent exhibiting resistance to multiple drugs. **Front Cell Infect Microbiol** 2021; 11: 768830. doi: 10.3389/fcimb.2021.768830 **Corresponding author**

3. Sharma N, Kashif M, Vigyasa Singh, Fontinha D, **Mukherjee B**, Kumar D, Singh S, Prudencio M, Agam P Singh AP, Rathi B. (**2021**) Novel Antiplasmodial Compounds Leveraged with Multistage Potency against the Parasite *Plasmodium falciparum*: *In Vitro* and *In Vivo* Evaluations and Pharmacokinetic Studies. **J Med Chem** 64(12):8666-8683. doi: 10.1021/acs.jmedchem.1c00659. https://pubs.acs.org/doi/abs/10.1021/acs.jmedchem.1c00659

4. Gaëlle Lentini G, Ben Chaabene R, Vadas O, Ramakrishnan C, **Mukherjee B**, Mehta V, Lunghi M, Grossmann J, Maco B, Visentin R, Hehl AB, Korkhov VM, Soldati-Favre D. (**2021**) Structural insights into an atypical secretory pathway kinase crucial for *Toxoplasma gondii* invasion. **Nat Commun** 12(1):3788. doi: 10.1038/s41467-021-24083-y. https://www.nature.com/articles/s41467-021-24083-y

5. Pradhan S, Ghosh S, Hussain S, Paul J, **Mukherjee B** (**2021**). Linking membrane fluidity with defective antigen presentation in leishmaniasis. **Parasite Immunol** 43(7): e12835 doi: 10.1111/pim.12835. Online ahead of print. https://onlinelibrary.wiley.com/doi/10.1111/pim.12835 **Corresponding author**

6. Mukherjee S, Pradhan S, Ghosh S, Sundar S, Das S, **Mukherjee B**, Roy S. (**2020**). Short-Course Treatment with Imipramine Entrapped in Squalene Liposomes Results in Sterile Cure of Experimental Visceral Leishmaniasis Induced by Antimony Resistant Leishmania donovani With Increased Efficacy. **Front Cell Infect Microbiol 10:595415**. doi: 10.3389/fcimb.2020.595415. eCollection 2020. **Joint Corresponding author** https://www.frontiersin.org/articles/10.3389/fcimb.2020.595415/full

7. **Mukherjee B***, Mukherjee K, Nanda P, Mukhopadhayay R, Ravichandiran V, Bhattacharyya SN, Roy S (**2020**). Probing the molecular mechanism of aggressive infection by antimony resistant Leishmania donovani. **Cytokine**.145:155245doi:10.1016/j.cyto.2020.155245https://www.sciencedirect.com/science/article/abs/pii/S1043466620302611?via%3Dihub

8. **Budhaditya Mukherjee***, Francesca Tessaro, Juha Vahokoski, Inari Kursula, Jean-Baptiste Marq, Leonardo Scapozza and Dominique Soldati-Favre. (**2018**). Modeling and resistant alleles explain the selectivity of antimalarial compound 49c towards apicomplexan aspartyl proteases. **EMBO J**, doi: 10.15252/embj.201798047 37(7), e98047. http://emboj.embopress.org/content/37/7/e98047.long

9.Paco Pino, Reto Caldelari, **Budhaditya Mukherjee**, Juha Vahokoski, Natacha Klages, Bohumil Maco, Christine R. Collins, Michael J. Blackman, Inari Kursula, Volker Heussler, Mathieu Brochet and Dominique Soldati-Favre. (**2017**). A multi-stage antimalarial targets the plasmepsins IX and X essential for invasion and egress. **Science**, doi: 10.1126/science.aaf8675. 358(6362), 522-528. http://science.sciencemag.org/content/358/6362/522.long

10. Dogga SK, **Mukherjee B**, Jacot D, Kockmann T, Molino L, Hammoudi PM, Hartkoorn RC, Hehl AB, Soldati-Favre D. (**2017**). A drugable secretory protein maturase of Toxoplasma essential for invasion and egress. **Elife**, doi: 10.7554/eLife.27480. 6. pii: e27480. https://elifesciences.org/articles/27480

11. **Mukherjee B***, Paul J, Mukherjee S, Mukhopadhyay R, Das S, Naskar K, Dujardin JC, Saha B, Roy S. (**2015**). Antimony-Resistant Leishmania donovani Exploits miR-466i To Deactivate Host MyD88 for Regulating IL-10/IL-12 Levels during Early Hours of Infection. **J. Immunol**, 195(6):2731-42. http://www.jimmunol.org/content/195/6/2731.long

12. Mukherjee S, **Mukherjee B***, Mukhopadhyay R, Naskar K, Sundar S, Jean C. Dujardin JC, Roy S. (**2014**). Imipramine exploits Histone deacetylase 11 to increase IL-12/IL-10 ratio in macrophages infected with antimony resistant Leishmania donovani and clears organ parasite in experimental infection. **J. Immunol**, 193(8):4083-94. http://www.jimmunol.org/content/193/8/4083.long

13. **Mukherjee B***, Mukhopadhyay R, Bannerjee B, Chowdhury S, Mukherjee S, Naskar K, Allam US, Chakravortty D, Sundar S, Dujardin JC, Roy S. (**2013**). Antimony resistant Leishmania donovani upregulates IL-10 to overexpress host multi drug resistant protein1. **PNAS**, 110(7): E575-82. http://www.pnas.org/content/110/7/E575.long

14. Mukherjee S, **Mukherjee B**, Mukhopadhyay R, Naskar K, Sundar S, Dujardin JC, Das AK, Roy S. (**2012**). Imipramine is an Orally Active Drug against Both Antimony Sensitive and Antimony Resistant Leishmania donovani Clinical Isolates in Experimental Infection. **PLoS Negl Trop Dis,** 6(12): e1987. http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0001987

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15. Chowdhury S, Mukherjee T, Mukhopadhyay R, **Mukherjee B**, Sengupta S, Chattopadhyay S, Jaisankar P, Roy S, Majumder HK. (**2012**). The lignan niranthin poisons Leishmania donovani topoisomerase IB and favours a Th1 immune response in mice. **EMBO Mol Med**, 4(10): 1126-43. http://embomolmed.embopress.org/content/4/10/1126.long

16. Mukhopadhyay R, Mukherjee S, **Mukherjee B**, Naskar K, Mondal D, Decuypere S, Ostyn B, Prajapati VK, Sundar S, Dujardin JC, Roy S. (**2011**). Characterisation of antimony-resistant Leishmania donovani isolates: biochemical and biophysical studies and interaction with host cells. **Int J Parasitol**, 41(13-14):1311-21. https://www.sciencedirect.com/science/article/pii/S0020751911002219?via%3Dihub

BOOK CHAPTER:
COVID-19: Tackling Global Pandemic through Scientific and Social Tools, edited by Saptarshi Chaterjee, **ELSEVIER**, Contributed Chapter: Application of CRISPR based diagnostic tools in detecting SARS-CoV-2 infection by Snehlata, Korra Bhanu Teja, and **Budhaditya Mukherjee**. (2021)

Book Edited:
Pathobiology of Parasitic Protozoa: Dynamics and Dimensions. Springer Nature, 2023.
Contributed Chapter: Elaborating the Role of Aspartyl Protease in Host Modulation and Invasion in Apicomplexan Parasites Plasmodium and Toxoplasma. Shatarupa Bhattacharya, Shazia Parveen, and Budhaditya Mukherjee

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