

<p><b>Skill and experience of the research team</b> Highlight only salient points (along with 5 relevant publications) that provides confidence to reviewers that team can implement the project with quality.</p>	<p>PI, Dr. Monika Sharma has been working on immunopathogenesis of Mycobacterium tuberculosis for last sixteen years out of which thirteen years are in Miranda House. A separate state-of-art fully air-conditioned DSKC Biodiscovery Life Science Research facility was created within Miranda House containing all the high-end equipment where PI and Co-PI (Prof. Sadhna Sharma) work as a team. Dr. Monika Sharma has successfully completed a Department of Science and Technology (SERB) Project as Principal Investigator (2018- September2021) (Grant ~ Rs. 68.3 Lakhs) and findings of the research project resulted in five publications. Additionally, one manuscript is under revision and one manuscript is under review. She has also done projects of DST, DBT and OSDS as Co-PI and published her work in reputed international journals. Our research work is focused on finding roles of late stage expressing and dormancy associated uncharacterized PE/PPE family proteins in modulating host cellular processes such as apoptosis, mitochondrial targeting and mitochondrial function modulation and immune response modulation. We have successfully done cloning, expression and purification of PE/PPE family genes/proteins using an E. coli expression system and used these recombinant proteins to study host cell apoptosis using THP1 cell lines as macrophage model. We have also constructed knock in strains of M. smegmatis of the selected PE/PPE proteins. All the immunological techniques from Flow Cytometry, Immunoassays to Western Blotting are routinely being carried out in our lab. We have full expertise in experiments on human PBMC, monocyte derived macrophages, THP1 cell line, A549 cell line and macrophage infection with live H37Rv. Prof. Sadhan Sharma, Co-PI, have been working on immunopathogenesis of Mtb for last twenty-one years out of which fifteen years are in Miranda House. Her research work varies from modulation of TLRs by mycobacterial components and DosR regulon proteins, their cloning, expression and purification using an E. coli expression system to immunological characterization of these proteins. Currently, as a team we are working on SERB funded project, where we have to validate the protective efficacy of multi-epitope vaccine constructs designed from Mtb dormancy associated proteins Rv2627c and Rv2628 in mouse model of tuberculosis. Both PI and Co-PI has been recognized by the Faculty of Science, University of Delhi as independent supervisor for Ph.D and currently supervising four students. Prof. Anita Kamra Verma, Co-PI, has been actively researching in the area of human health and disease especially nanomedicine for cancer, arthritis and diabetes. She has 2 patents in Anti-cancer Drugs. Currently, she has a grant from DST-SERB under TARE for Targeted siRNA delivery against breast cancer. She had done 14 projects till now including an International Grant from UKIERI for photodynamic &amp; Magnetotherapy against cancer, - DBT, ICMR, UGC, DBT-BIRAC, UKIERI, DST, DU, (~ Rs 3.6 cr) The Co-PI has established an Animal Holding Facility (CPCSEA license no. 1666/GO/Re/S/12/CPCSEA) wherein we maintain Balb/c, C57B/6mice and Wistar Rat and also have nude/transgenic mice. Experienced in setting up the 'Dorsal Skin-fold Window Chamber' on mice (syngenic/nude) for non-invasive studies. She has an advanced Animal tissue culture facility and currently working on peptide/ siRNA-based delivery system where synthesis of smart nanomedicines to evaluate whether they serve as pro-oxidants, producing ROS/RNS, understanding their detoxification mechanisms, or their death inducing pathways in cancer cells, or whether they scavenge the ROS or they help mitigate hypoxic conditions. Co-PI has 95 International &amp; National publications in high impact journals. Invited talks in ~75 conferences; 12 Ph.D students have been awarded PhD under her supervision, and 6 are currently registered. Dr. Parul Mrigipuri, Co-PI, has been working as an assistant professor in Pulmonary Medicine department of VP Chest Institute, University of Delhi. She currently has four ICMR projects on TB as Co-PI.</p>
<p><b>Institutional Support/ Facilities</b></p>	<p>PI's and Co-PI's Lab at Miranda House is well equipped, which include, molecular biology laboratory facilities and animal cell culture facilities. Dr. Monika Sharma will do implementation of all objectives, analysis of the results and submission of the report and all the responsibilities for smooth and timely execution of the project. Prof. Sadhna Sharma will equally contribute to execution of the proposed objectives. Co-PI Prof. Anita Kamra will provide academic consultancy in carrying out animal experimentation involved in objective II, in her well-established Animal Holding Facility (CPCSEA license no. 1666/GO/Re/S/12/CPCSEA). Co-PI, Dr. Parul Mrigipuri will provide blood samples of healthy subjects, PTB patients and latent TB patients after clinical assessment. Dr. Garima Khare (Incharge of the BSL3/ABSL3 facility for TB research at UDSC) will provide support in conducting experiments of objective IV in UDSC-BSL3 facility for tuberculosis research at South Campus, DU.</p>
<p><b>Laboratory facilities (in-vitro/ in-silico)</b> Institutional resources such as instruments/ equipment and other physical resources available for use in the project proposed animal house etc.</p>	<p>PI's lab (Dr. Monika Sharma) and Co-PI's Lab ( Prof. Sadhna Sharma) at Miranda House is well equipped with all basic 'state of the art' facilities which include, molecular biology laboratory facilities: DNA, RNA, Protein gel apparatus, RT-PCR machine, PCR machine, gel documentation system, Biosafety hoods, Chemical hood, ELISA plate reader, spectrophotometer, Multimode plate reader, MQ Plant, cold incubator shakers, sonicator, weighing balances, refrigerators, deep freezers (-20 and -80 °C), pH meter etc. For animal cell culture: CO2 Incubator, Inverted phase contrast microscope, BD AccuriC6 flowcytometer, fluorescence microscope with Z-Sectioning, refrigerated centrifuge etc. Co-PI Prof. Anita Kamra has well established Animal Holding Facility (CPCSEA license no. 1666/GO/Re/S/12/CPCSEA) wherein she maintains Balb/c, C57B/6mice and Wistar Rat and also have nude/transgenic mice. Dr. Parul is a clinician at VP Chest Institute and will be providing the blood samples.</p>
<p><b>Conflict of Interest declaration (if any)</b></p>	<p>The PI and Co-PIs have no conflict of interest to be declared</p>
<p><b>Duration (in Months)</b></p>	<p>48 Months</p>

#### Investigator Details

#	Name	Institute	Designation	Email	Contact No.	Role in Proposal
1	Dr MONIKA SHARMA	Miranda House	Associate Professor	monika.sharma@mirandahouse.ac.in	9810328386	PI
2	Prof Sadhna Sharma	Miranda House	Professor	sadhna.sharma@mirandahouse.ac.in	9810936017	Co-PI
3	Dr Parul Mrigipuri	Vallabhbhai Patel Chest Institute	Assistant Professor	parul57_mrigrpuri@yahoo.com	8826687316	Co-PI
4	Prof Anita Kamra Verma	Kirori Mal College	Professor	akverma@kmc.du.ac.in	9818921222	Co-PI

#### Documents consideration

#	Document Name	Is Applicable?	Uploaded Document	Remarks
1	Declaration & Attestation Form(duly signed by Head of Department/ Director)	Yes	<a href="#">View</a>	The declaration and attestation of PI and Co-PI from Miranda House is the one document merged with declaration received from other two Co-PIs.
2	Additional supplementary information including figures tables flow diagrams etc can be shared as PDF	Yes	<a href="#">View</a>	This file contains Supplementary data, bibliography and plagiarism undertaking.
3	Short Resume format (PI and Co-PI) (Maximum two pages) in merge in single pdf	Yes	<a href="#">View</a>	Resumes in prescribed format uploaded
4	Others	Yes	<a href="#">View</a>	clarification/s on the budgetary comments.
5	Revised Budget	Yes	<a href="#">View</a>	Clarification for the Budgetary Comments: Inflated Budget. An Amount of Rs. 50 Lacs is requested for repair of BD Accuri Flow Cytometer. This should be reduced.

#### Budget Details

Year	Institute Name	Manpower	Contingency	Consumables	Equipment	Travel	Overhead Charges	Total Budget (Rs.)
Year: 1	Miranda House	1,317,360.00	50,000.00	1,500,000.00	10,378,000.00	50,000.00	58,347.00	13,353,707.00