

CURRICULUM VITAE

Mrs. Jagdeep Kaur, Ph.D.

Professor

Department of Biotechnology,

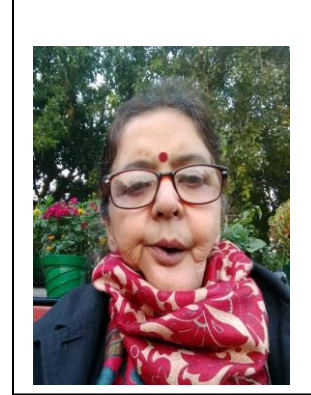
Panjab University

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Brief Sketch

- **Area of specialization:** Cell biology/ Microbial biotechnology/Protein Biochemistry
- **Ph.D. Zoology from Banaras Hindu University (1985-1990)**
- **Teaching experience:** 30 years, Courses taught: Introduction to Biotechnology, Molecular Biology, Genetic Engineering, Enzymology, Biochemistry, Animal Biotechnology, Advance molecular Biology
- Granted research projects by agencies like DBT, UGC, CSIR, ICMR and DST
- Guided 43 students for Ph. D. and 62 for M.Sc. dissertation.
- Total Publications -170
- Conferences attended/ research work presented- 116
- Delivered invited talks-25
- Conference/ workshops / symposium organized- 15
- Workshops attended -7

Honors/Awards

- Qualified state level Akikrit Scholarship exam, UP
- Qualified National eligibility test (NET) 1985
- Awarded post doctoral fellowship, Fellow at IMTECH, Chandigarh in 1990
- Awarded CSIR-RA-1991
- Awarded PDF (2001-2002) at University of Pennsylvania, Philadelphia, PA, USA.
- Awarded PDF (2002-2003) at Thomas Jefferson University, Philadelphia, PA, USA.
- Travel grant from DST to attend SEB BIT's Inaugurate Symposium on 'Enzymes & Biocatalysis 2010' at Shanghai, China
- Member of the National Academy of Sciences, India (2013)
- ICMR international fellowship for senior biomedical scientists 2013-14

Patents

1. Dixit, K.L., Vyas, V., Mahajan, R., **Kaur, J.**, Thapar, N., Pratap, J., Nihalani, D. and Sahni, G. (2000) An Improved Process for the Simultaneous Preparation of Extracellular Streptokinase and Its new Analogus." Patent No. 183828; **grant date 15/12/2000 in India.**
2. **Jagdeep kaur**, Pushpender Kumar Sharma, Ranvir Singh (2010) Engineering of the metagenome derived lipase. Patent No. 302588, **grant date 30/10/2018 in India**

3. Monika Sharma, S. Khanna, S. Sharma, **J. Kaur**, R. Sharma. (2011). Anti-carcinogenic potential of leaf extracts of the medicinal plant *Pithecellobium dulce*. Appl. No. 2972/DEL/2011 dated 17/10/2011. Patent No. 374339, Date of Grant: 11-08-2021

Technology Transferred

Process for recombinant (rDNA-based) Streptokinase production. Complete technology successfully transferred to M/s **Shasun Drugs and Chemicals Ltd.**, Chennai. The product has been launched for the Indian markets on July 10, 2009 under the brand names '**Lupiflo**' and '**Klotbuster**'.

Consultancy

Dozo laboratories: Testing compounds for anticancer activity (2019)

Administrative Experience

1. **Chairperson of Department of Biotechnology (2005-2008) (2010 -13)**
2. **Co-coordinator of UGC-SAP**, Dept of Biotechnology, PU, Chandigarh (2007-2010).
3. **Coordinator of UGC-SAP**, Dept of Biotechnology, PU, (2010-2012, (2013-2018).
4. **Coordinator of Centre for Microbial Biotechnology** PU, Chandigarh

Member of National / International Committees for evaluation / funding / review of scientific research

1. Evaluated the proposal for **Indo French centre for the promotion of advanced Research-2013**
2. Member, Expert Committee, **University Grants Commission (UGC), New Delhi for evaluation of UGC-SAP** (2014) on 14.7.2014
3. Member Expert in the subject field of Bio-Technology, for interviewing the candidates for the **Israel Government Scholarship** 2013.
4. Member Expert in the subject field of Bio-Technology, for interviewing the candidates for the **Japan Government Scholarship** June 2014
5. Member Expert in the subject field of Bio-Technology, for interviewing the **woman candidates for the post doctoral position** 2013 at UGC New Delhi.
6. Member expert committee, **UGC for evaluation and assessment of the proposals submitted by college teachers for travel grant assistance**
7. Member expert committee, **UGC, for evaluation and assessment of the proposals submitted as major research project for financial assistance**

Member Scientific advisory/selection committee

1. Member Board of Studies in Biotechnology in **KMV Jullandhar, Punjab** (2017-19)
2. Member Board of Studies in Biotechnology in **Banaras Hindu University, Varanasi** (2016-18)
3. Member advisory committee in Biotechnology in **Himachal Pradesh University, Shimla** (2016-18)
4. Member Board of Studies in Biotechnology in **Guru Granth Sahib Sikh University, Fateh Garh Sahib, Punjab,**

5. Member Board of Studies in Biotechnology in **DAV university, Jullandhar, Punjab**
6. Member Board of Studies in Biotechnology in **Mata Gujari college, Fatehgarh Sahib, Punjab**
7. Member Board of Studies in Nanotechnology in **Guru Granth Sahib Sikh University, Fateh Garh Sahib, Punjab,**
8. Member **Administrative/purchase committee**, Stem cell and tissue engineering, National Centre for Human Genome Studies and Research, Panjab University, Chandigarh
9. Member **research monitoring committee** B. Tech. Biotechnology, UIET
10. Member **Institutional Biosafety committee**, Panjab University, 2014-15, 2017-19
11. Member **research Degree committee in Human Genome Studies and Research, PU (2018-19)**

Research interest

- Using *Bacillus* lipase as a model system, we used error prone PCR based *in vitro* evolution of the enzyme towards temperature adaptation and have **probed the structure - function correlation in this model system**. We successfully cloned and expressed several lipase genes from different niches, generated thermostable and cold adaptive variant enzymes and deciphered the correlated alterations in its structure with variable function. Pilot experiments are being carried out for the application of these enzymes.
- Another area of active pursuit in my lab, in which significant contributions has been made, is **screening of the leads from natural products for anticancer activity**. We are investigating the **molecular mechanisms** of their action and exploring their use in the development of anticancer therapeutic agents. An extension of this work is to understand the epigenetic regulation of cell cycle genes in the cells.
- Presently my research is focused on identifying new therapeutic interventions/diagnostics for TB. Lipid metabolism was reported to be crucial for the infection/intracellular survival of mycobacteria. Mycobacteria have large number of lipolytic enzymes. My group characterized several lipolytic enzymes in terms of function (LipN/ xenobiotic degradation, MestT/epoxide degradation, mbtJ/iron stress), immune-modulation(Rv0774c, LipQ,LipV) and their potential role in the intracellular survival in host immune cells. The expression of these genes during dormant and actively growing stage were analysed by transcriptome analysis. Few essential lipolytic enzymes were identified by antisense technology/gene knockout. Identifying and targeting these proteins could provide a new prescriptive for developing new TB drugs. After ensuring, the crucial role of these proteins, virtual screening and molecular dynamics approaches are being used to identify the potential inhibitors against these proteins. On the other hand attempts are being made to understand the mechanism of drug resistance. The estimation of structural changes due to point mutations in different genes in drug resistant mycobacterium has been studied to get comprehensive account of the different enzyme activity/ correlation with drug resistance. Attempts are being made to use proteins/peptides showing humoral response to develop peptide based diagnostic kit.

Selected list of Publications

Title of Paper	Authors	Year	Journal	Impact Factor
Genomic insights into omega-3 polyunsaturated fatty-acid producing <i>Shewanella</i> sp. N2AIL from fish gut	Anchal Chaudhary, O A Ketkar, S. Irfan, V. Rana, P Rahi, R Deshmukh, Jagdeep Kaur , Hena Dhar	2022	Biology-accepted	5.079
Mutation in EthA protein of <i>Mycobacterium tuberculosis</i> conferred drug tolerance against ethnoamide in <i>Mycobacterium smegmatis</i> mc2155	Pradeep Anand, Arbind Kumar, Amrit Saini, .Jagdeep Kaur	2022	Computational biology and chemistry, <i>Vol 98</i> , June 2022, 107677	2.877
Environment dependent expression of mycobacterium hormone sensitive lipases: expression pattern under <i>ex-vivo</i> and individual <i>in-vitro</i> stress conditions in <i>M. tuberculosis</i> H37Ra	Stuti Arya, Parul Singh, Jashandeep Kaur, Arbind Kumar, Jagdeep Kaur	2022	Mol Bio Reports-2022 Mar 17. doi: 10.1007/s11033-022-07305-4.	2.21
A phagosomally expressed gene, rv0428c, of <i>Mycobacterium tuberculosis</i> demonstrates acetyl transferase activity and plays a protective role under stress conditions	Aashish sharma, Arbind Kumar,.. Jagdeep Kaur	2022	The Protein Journal - Feb 17;1-14. doi: 10.1007/s10930-022-10044-x	2.2
Correlation of over-expression of rv1900c with enhanced survival of <i>M. smegmatis</i> under stress conditions: Modulation of cell surface properties	Bandana Kumari, Jagdeep kaur	2021	Gene 791, 30 July 2021, 145720	2.984
The lipolytic activity of LipJ, a stress induced enzyme, is regulated by its C-terminal adenylate cyclase domain"	Bandana Kumari, Pratibha Mann, Jashandeep Kaur, Arbind Kumar Jagdeep Kaur	2021	Future Microbiology- https://doi.org/10.2217/fmb-2020-0223	3.19

Gauging the trends of pseudogenes in plants	Naina Garewal, Neetu Goyal, Shivalika Pathania, Jagdeep Kaur & Kashmir Singh	2021	Critical Rev in biotechnology doi.org/ 10.1080/07388551.2021.1901648	8.1
Gene expression analysis for selection and validation of suitable housekeeping gene(s) in cadmium exposed pigeonpea plants inoculated with arbuscular mycorrhizae	Aditi bisht, Shyna Bhalla, Arbind Kumar, Jagdeep Kaur, Neera garg	2021	Plant Physiology and Biochemistry 162 , May 592-602	3.7
Streptomycin Sulphate loaded solid lipid nanoparticles show enhanced uptake in macrophage, lower MIC in Mycobacterium and improved oral bioavailability.	Mandeep Singh; Nicola Schiavone; Laura Papucci; Pratibha Maan; Jagdeep Kaur; Gurdarshan Singh; Utpal Nandi; Daniele Nosi; Alessia Tani; Gopal Khuller; Manisha Priya; Ramandeep Singh., Indu Pal Kaur	2021	European Journal of Pharmaceutics and Biopharmaceutics. (ISSN NO-1873-3441)	4.6
The critical role of piperamide derivative D4 in the regulation of inflammatory response by the microglia and astrocytic glial cells.	Shahbazi S, Zakerali T, Frycz BA, Kaur J.	2020	Biomed Pharmacother. 2020 Oct 24;132:110895. doi: 10.1016/j.biopha.2020.110895.	3.457
Rv2037c, a stress induced conserved hypothetical protein of Mycobacterium tuberculosis, is a phospholipase: role in cell wall modulation and intracellular survival	Bandana Kumari, Varinder Saini, Jasbinder Kaur, Jagdeep Kaur	2020	International Journal of Biological Macromolecules	4.784
<u>Integration of VEK-30 peptide enhances fibrinolytic properties</u>	Bhando T, Singh S, Hade MD, Kaur J,	2020	Biotechnol Appl Biochem. 2020 Mar 31.	1.559

<u>of staphylokinase.</u>			doi: 10.1002/bab.19 12.	
Inhibition of NOTCH signaling pathway chemosensitizes HCC CD133+ cells to vincristine and 5-fluorouracil through upregulation of BBC3	Hamed H, J kaur, R. C Sobti, Nirupma Trehanpati	2020	BBRC 2020 May 14;525(4):941-947.	2.705
_Molecular dynamics assisted mechanistic insight of Val430-Ala mutation of Rv1592c protein in isoniazid resistant Mycobacterium tuberculosis.	Kumar A, Anand PK, Chandel S, Shrivatava A, Kaur J.	2020	Curr Comput Aided Drug Des. 2020 Jan 15. doi: 10.2174/1573409916666200115120051.	1.098
Engineering lipases for temperature adaptation: Structure function correlation.	Kumar R, Goomber S, Kaur J	2019	Biochim Biophys Acta Proteins Proteom. Nov;1867(11):14026	2.7
Rv2223c, an acid inducible carboxyl-esterase of Mycobacterium tuberculosis enhanced the growth and survival of Mycobacterium smegmatis	Pratibha Mann and Jagdeep Kaur	2019	Future Microbiology Nov;14:1397-1415.	3.19
Analysis of mutations leading to para-aminosalicylic acid resistance in Mycobacterium tuberculosis	B Pandey, S Grover, J Kaur, A Grover	2019	Scientific Reports, Sep 20;9(1):13617. doi: 10.1038/s41598-019-48940-5.	4.525
Rv0518, a nutritive stress inducible GDSL lipase of Mycobacterium tuberculosis, enhanced intracellular survival of bacteria by cell wall modulation	Jashandeep Kaur, Jagdeep Kaur	2019	International Journal of Biological Macromolecules May 21;135:180-195.	3.99
Conserved cysteine variants of metagenomic derived polygalacturonase concurrently shift its optima at acidic pH and enhanced thermostability: Structural and functional analysis	Rajvinder Singh, Arbind Kumar, Nisha Chopra, Ritu Mahajan, Jagdeep Kaur	2019	J Biomolecular Structure & Dynamics. Jan, Jan;37(1):265-273	3.123

Drug targeted virtual screening and molecular dynamics of LipU protein of <i>Mycobacterium tuberculosis</i> and <i>Mycobacterium leprae</i>	G Kaur, B Pandey, A Kumar, N Garewal, A Grover, J Kaur	2019	Journal of Biomolecular Structure & Dynamics Mar;37(5):1254-1269	3.123
Novel missense mutations in gidB gene associated with streptomycin resistance in <i>Mycobacterium tuberculosis</i> : insights from molecular dynamics	Pandey B, Grover S, Goyal S, Jamal S, Singh A, Kaur J , Grover A	2019	Journal of Biomol Struc & Dynamics Jan 4:1-16	3.123
Rv1288, a Two Domain, Cell Wall Anchored, Nutrient Stress Inducible Carboxyl-Esterase of <i>Mycobacterium tuberculosis</i> , Modulates Cell Wall Lipid.	Maan P, Kumar A, Kaur J, Kaur J.	2018	Front Cell Infect Microbiol. 2018 Dec 3;8:421. doi: 10.3389/fcimb.2018.00421	4.3
Rv0646c, an esterase from <i>M. tuberculosis</i> , up-regulates the host immune response in THP-1 macrophages cells.	Rastogi R, Kumar A, Kaur J , Saini V, Kaur J, Bhatnagar A.	2018	Mol Cell Biochem. 447(1-2):189-202.	2.057
Dynamics of fluoroquinolones induced resistance in DNA gyrase of <i>M. tuberculosis</i>	Pandey B, Grover S, Tyagi C, Goyal S, Jamal S, Singh A, Kaur J, Grover A	2018	Journal of Biomolecular Structure & Dynamics Feb;36(2):362-375.	2.919
Alanine mutation of the catalytic sites of Pantothenate Synthetase causes distinct conformational changes in the ATP binding region	Bharati Pandey, Sonam Grover , JagdeepKaur Abhinav Grover	2018	Scientific Reports Jan 17;8(1):903.	4.259
mbtJ, an iron stress induced acetyl hydrolase/esterase of <i>M. tuberculosis</i> helps bacteria to survive during iron stress	Chownk, M, Kaur J, Singh, K, Kaur, J	2018	Future microbiology	3.637
Characterization of ML0314c of <i>Mycobacterium leprae</i> and deciphering its role in the immune response in leprosy patients	Kaur G, Sharma A, Narang, T, Dogra S, Jagdeep Kaur	2018	Gene Feb 15;643:26-34	2.319

Structural and functional insights into thermostable and organic solvent stable variant Pro247-Ser o <i>Bacillus</i> lipase	Nisha Chopra, Arbind Kumar, Jagdeep Kaur	2018	<i>IJBM</i> ,108, March, 845-852	3.671
Dynamics of fluoroquinolones induced resistance in DNA gyrase of <i>Mycobacterium tuberculosis</i>	Pandey B,... Jagdeep Kaur , Abhinav Grover	2018	J. Biomolecular Structure & DynamicsFeb;36(2):362-375.	2.919
Modulation of Trehalose Dimycolate and Immune System by Rv0774c Protein Enhanced the Intracellular Survival of <i>Mycobacterium smegmatis</i> in Human Macrophages Cell Line.	Arbind Kumar , Varinder Saini , Anjani Kumar , Jasbinder Kaur and Jagdeep Kaur;	2017,	Frontiers in Cellular Infection and Microbiology, July,7, 289.	5.2
The immunosuppressive effects of a novel recombinant LipQ (Rv2485c) protein of <i>Mycobacterium tuberculosis</i> on human macrophage cell lines.	Kumar A, Manisha, Sangha GK, Shrivastava A, Kaur J.	2017	Microb Pathog. Jun;107:361-367	2.16
Characterization of an extracellular protein, Rv1076 from <i>M. tuberculosis</i> with a potential role in humoral response	Gurkamal kaur, Sain V, KumariB, Kaur J, Jagdeep Kaur	2017	IJBIOMAC Aug;101:621-629.	3.096
mesT, a unique epoxide hydrolase, is essential for optimal growth of <i>M. tuberculosis</i> in the presence of styrene oxide	Manisha, Aashish Sharma, Kashmir Singh, Jagdeep Kaur ¹	2017	Future microbiology 12:527-546	3.637
Rv0774c, an iron stress inducible, extracellular esterase is involved in immunosuppression via TLR2 mediated IL-10 expression in macrophages	Arbind Kumar, Sukhmahendra Singh, Ranvir Singh, Jagdeep Kaur	2017	International journal of medical microbiology Feb;307(2):126-138	4.79
Comparative analysis of point mutations on protein COOH terminal near surface and its hydrophobic core provide insights on thermostability of <i>Bacillus</i> Lipase LipJ	Shelly Goomber, Nisha Chopra, Gursimran Kaur Bedi, Jagdeep Kaur	2016	Journal of Molecular Catalysis B: Enzymatic 133 (2016) S482–S490	2.48
Infergen Stimulated Macrophages Restrict <i>M.tuberculosis</i> Growth by Autophagy and Release of Nitric Oxide	Susanta Pahari, Nargis Khan ¹ , MohammadAqdas, Shikha Negi, Jagdeep Kaur & Javed N.Agrewala	2016	Nature Scientific Reports 6:39492	5.228
Enantiomeric separation of pharmaceutically important drug intermediates using metagenomic lipase and optimization of its large	Rakesh kumar,..., UC banerjee, Jagdeep Kaur	2017	International Journal of Biological MacromoleculesFeb;95:995-1003	3.096

scale production				
De novo transcriptome analysis revealed genes involved in flavonoid and vitamin C biosynthesis in <i>Phyllanthus emblica</i>	A Kumar, S Kumar, S Bains, V Vaidya, B Singh, R Kaur, Jagdeep Kaur , Kashmir Singh	2016	Frontiers in Plant Science, Plant Biotech Oct 27;7:1610..	4.495
Silencing of ABCC13 transporter in wheat reveals its involvement in grain development, phytic acid accumulation and in lateral root formation	Kaushal Bhati, Anshu Alok Anil Kumar, Jagdeep Kaur , Siddharth Tiwari, and Ajay K Pandey	2016	J Exp Botany Jul;67(14):4379-89.	5.526
Functional characterization of hypothetical proteins of <i>M. tuberculosis</i> with possible esterase/lipase signature: A Cumulative in silico and in vitro approach	Arbind Kumar, Ashish Sharma, Gurkamal Sangha, Pooja Makkar, Jagdeep Kaur	2016	J of Biomol structure & Dynamics 35(6):1226-1243	2.919
TLR agonist augments prophylactic potential of acid inducible antigen Rv3203 against <i>M. tuberculosis</i> H37Rv in experimental animals	Mohammad O, Kaur J , Singh G, Faisal SM, Azhar A, Rauf MA, Gupta UD, Gupta P, Pal R, Zubair S	2016	PLoS ONE 11(3): e0152240. https://doi.org/10.1371/journal.pone.0152240	3.234
Disruption of N terminus long range non covalent interactions shifted Temp.opt 25°C to cold: Evolution of point mutant <i>Bacillus</i> lipase by error prone PCR.	Goomber S, Kumar A. Kaur J	2016	Gene 576. 1, 2 , 15 January 237–243	2.138
Characterization of LipN (Rv2970c) of <i>M.tuberculosis</i> H37Rv and Its Probable Role in Xenobiotic Degradation.	Jadeja D, Dogra N, Arya S, Singh G, Singh G, Kaur J .	2015	J Cell Biochem. July doi: 10.1002/jcb.25285.	3.446
Differential expression of two members of Rv1922-LipD operon in <i>M. tuberculosis</i> : Does Rv1922 qualify for the membership?	Dogra, Nandita; Arya, Stuti Singh, Kashmir; Kaur, Jagdeep	2015	Pathogens and Disease-Jul 15;73(5)	2.554
"Low pH induced apoptosis: Role of endoplasmic reticulum stress induced calcium permeability and mitochondria-dependent signaling	Vishal Sharma, Ramandeep Kaur, Archana Bhatnagar, Jagdeep Kaur	2015	Cell Stress and Chaperones April 20:431-440	3.163
Intrinsically Unstructured Carboxy terminus of <i>Bacillus</i> Lipase is Essential for its Function.	<u>Khurana J, Manisha, Singh R, Kaur J</u>	2014	Protein Pept Lett. Nov 21(12):1265-72.	1.734
Combinatorial reshaping of a lipase structure for thermostability: Additive role of surface stabilizing single point mutations.	Kumar R, Singh R, Kaur J	2014	Biochem. Biophys. Res. Comm May 447(4):626-32	2.5
Characterization of an acid	G. Singh, S.Arya, D.	2014	Mol Biol Rep.	2.5

inducible lipaseRv3203 from <i>Mycobacterium tuberculosis H37R</i>	Narang, D. Jadeja, G. Singh U. D. Gupta, K. Singh & Jagdeep Kaur		Jan;41(1):285-96	
De Novo Transcriptome Sequencing Reveals Important Molecular Networks and Metabolic Pathways of the Plant, <i>Chlorophytum borivilianum</i> .	Kalra S, Puniya BL, Kulshreshtha D, Kumar S, Kaur J , Ramachandran S, Singh K.	2014	PLoS One. 23;8(12):e83336.	3.7

Reviews

Title of Paper	Authors	Year	Journal	Impact Factor
Strategies for optimization of heterologous protein expression in <i>E. coli</i> : Roadblocks and reinforcements.	Kaur J, Kumar A, Kaur J.	2018	Int J Biol Macromol. Aug 106 , 803–822	3.096
Cell wall associated factors of <i>Mycobacterium tuberculosis</i> as major virulence determinants: current perspectives in drugs discovery and design	G. Singh, Arbind Kumar , Pratibha Maan, Jagdeep Kaur;	2017	Current Drug targets, 18, DOI: 10.2174/1389450118666170711150034	3.3
Multifaceted role of lipids in <i>Mycobacterium leprae</i>	Gurkamal Kaur, Jagdeep Kaur	2017	Future microbiol Mar;12:315-335	3.637
Lipid hydrolyzing enzymes in virulence: <i>Mycobacterium tuberculosis</i> as a model system.	Singh G, Singh G, Jadeja D, Kaur J	2010	Critical Rev Microbiol 36 (3):259-69	5.345

Chapters in books

- Singh B, **Kaur J**, Singh K (2014) Degradation of TNP, RDX, and CL-20 Explosives by Microbes in **Biological Remediation of Explosive Residues**, Ed S. N. Singh (Part of the series Environmental Science and Engineering) pp 87-111 Springer International Publishing Switzerland 2014 **ISBN 978-3-319-01083-0**
- Mahesh kumar Kharat, **Jagdeep Kaur** and Kalpana Pai (2015) Effect of Aerva Sanguinolenta (L.) Blume on Leishmania donovani Parasites: Causative Organism of Visceral Leishmaniasis. In **Natural Products, Recent Advances**, Ed. Ashok K. Chauhan AK, Pushpangadan P, George V. **Educationist Press**, p 235 -253, **ISBN: 9788192970530**,
- Rakesh Kumar, Jyoti Khurana, PK Sharma, Jagdeep Kaur. Thermostable Lipases and their Applications In: Microbial Enzymes and Processes for Healthcare, Environment and Industry. Edition: 1st, Chapter: 15, Publisher: Jaya publishing House New Delhi, 2016, **ISBN:978-93-84337-58-2**
- Rakesh Kumar, Uttam C. Banerjee, Jagdeep Kaur (2020) Using a recombinant metagenomic lipase for enantiomeric separation of pharmaceutically important drug

intermediates. In Pharmaceutical biocatalysis: chemoenzymatic synthesis of active pharmaceutical ingredients. Jenny Stanford series on Biocatalysis, Ed: Peter Grunwald, Vol 5, page 77-102, ISBN: 978-981-4800-80-8

- Aashish Sharma and Jagdeep Kaur (2022) Drug Repurposing in Biomedical Research: Benefits and Challenges. In Biomedical Translational Research. Springer Nature DOI : 10.1007/978-981-16-9232-1

List of completed projects as PI= 14

- Studies on a novel alkaline thermostable lipase: purification and characterization and gene cloning. (BT/R&D/6/9/95) (1996-99) DBT, 12.3 lakh **PI: Jagdeep Kaur**
- Studies on a novel lipase produced from a *Bacillus* sp.: Molecular cloning, expression and functional characterization. (2006-09) DST, 20 lakh **PI: Jagdeep Kaur**
- Cold Adaptation of a Mesophilic enzyme by Laboratory Evolution: Lipase as a model enzyme. (2007-10) UGC, 9.6 lakh **PI: Jagdeep Kaur**
- Use of random mutagenesis for improvement of thermal tolerance of *Bacillus* lipase. (2008-12), CSIR, 23 lakh **PI: Jagdeep Kaur Co-PI Dr K. Singh**
- Cloning , Expression and characterization of three putative Lipase genes (Lip L,NandV)of *M. tuberculosis* H37Rv.(2009-12)CSIR-25lakh **PI: Jagdeep Kaur Co-PI Dr K. Singh**
- Cloning, Expression and characterization of the selected Lipase genes (LipD & LipQ) of *Mycobacterium tuberculosis* H37Rv and its possible role in virulence. (2009-12) DBT 24 lakh **PI: Jagdeep Kaur Co-PI Dr A shrivastava**
- Improving thermal tolerance of a *Bacillus* lipase by random mutagenesis. (2009-12) DST 20 lakh **PI: Jagdeep Kaur Co-PI Dr R. Singh**
- Cloning Expression and Characterisation of the selected lipase genes (Lip J, Lip K and Lip S) of *Mycobacterium tuberculosis* H37Rv. (2011-14) ICMR 26 lakh **PI: Jagdeep Kaur Co-PI Dr K. Singh**
- A study on expression and characterization of lipolytic enzymes in dormant stage of *Mycobacterium tuberculosis* by transcriptome analysis. F No. (2012-15) DBT 26 lakh **PI: Jagdeep Kaur Co-PI Dr K. Singh**
- Study on differential expression of Hormone Sensitive Lipase genes of *Mycobacterium tuberculosis* during different growth periods and stress conditions. CSIR 26 lakh **PI: Jagdeep Kaur Co-PI Dr K. Singh**
- Cloning of a gene encoding pectinase from metagenomic DNA: biochemical and biophysical characterization of the gene product.(2013-17)UGC 9.73 lakh **PI: J Kaur Co-PI Dr K. Singh**
- Evaluation of Rv3176c as a potential drug target in *M. tuberculosis* (2017-18) PI Dr J Kaur UT-DST, Rs. 75,000 **PI: Jagdeep Kaur**
- Targeting nitric oxide detoxifying truncated hemoglobin, tHbN of *Mycobacterium tuberculosis* for efficient drug development against tuberculosis (2017-20) DST
- Studies on putative Lipolytic enzymes (LipU, LipG, ML1632c,ML1633c) from *M. leprae*: Cloning expression characterization, structural determination and immunological studies.(2017-2020) ICMR,
-

List of Completed projects as Co-PI (9)

- CSIR (2008-11) Functional genomics of saponins biosynthesis in *Chlorophytum borivillianum*. PI: Dr Kashmir Singh, Department of Biotechnology, PU, Chandigarh. **Co-PI Dr J. Kaur**
- DST (2008-11) Flavonoid biosynthesis in *Phyllanthus emblica*. Cloning and characterization of selected genes of the pathway. PI: Dr Kashmir Singh, Department of Biotechnology, PU, Chandigarh. **Co-PI Dr J. Kaur**
- UGC (2008-2011): To study the immunoprophylactic potential of protein expressed on the placental surface of *Plasmodium berghei* infected mice PI Dr Geeta Shukla, Department of Microbiology, PU, Chandigarh **Co-PI Dr J. Kaur**
- CSIR (2009-12) Screening of natural compounds for the reversal of epigenetic changes in cervical cancer cell lines. PI: Dr Neena Caplash, Department of Biotechnology, PU, Chandigarh. **Co-PI Dr J. Kaur**
- CSIR (2010-14) Isolation of Myxobacteria from plains of North region: Diversity and potential source of novel anti-infectives. PI: Dr Ramandeep Kaur, Department of Biotechnology, GNDU, Amritsar. **Co-PI Dr J. Kaur**
- DBT (2010-13) Cloning, expression and characterization of truncated globins from *Myxococcus xanthus*. PI: Dr Ramandeep Kaur, Department of Biotechnology, GNDU, Amritsar. **Co-PI Dr J. Kaur**
- PSCST, Chandigarh (2012-13) Standardization of enzyme aided juice extraction technology protocol from amla (*Phyllanthus emblica*) fruit. PI: Dr Kashmir Singh, Department of Biotechnology, PU, Chandigarh. **Co-PI Dr J. Kaur**
- Protein engineering approaches to enhance catalytic efficiency of staphylokinase and development of novel fast acting clot buster for fibrin selective thrombolytic therapy, DST, (2017-2020) **PI: Dr K L Dikshit** Department of Biotechnology, PU, Chandigarh. **Co-PI Dr J. Kaur** 35 lakh
- Effect of different arbuscular mycorrhizal fungal isolates on heavy metal uptake: growth and productivity in *Cajanus cajan*(L.) Millsp. Genotypes grown under cadmium (Cd) stress. DBT, (2016-21) **PI: Dr Neera Garg** Dept of Botany, **Co-PI: Dr J. Kaur** 46,61,200

List of Ongoing project

- Mechanistic insights into redox dependent autophosphorylation and antioxidant function of truncated hemoglobin, O, in *Mycobacterium tuberculosis* (2022-25), DST SERB, PI Dr K L Dikshit Co PI Dr Jagdeep Kaur (Rs 37,89,720)