


Name Designation Institute	CURRICULUM VITAE JAVED NAIM AGREWALA Professor Indian Institute of Technology Ropar	
Correspondence	Department of Biomedical Engineering, Main Campus, Indian Institute of Technology Ropar, Rupnagar-140001, Punjab, India Email: jagrewala@iitrpr.ac.in, jagrewala@gmail.com Tel: +91-9417869408, +91-1881-1055 website: www.iitrpr.ac.in	

EDUCATION

Degree	Year	Division	University/College	Subjects
BSc	1980	First	Agra University, Agra	Chemistry, Zoology, Botany
MSc	1982	First	Agra University, Agra	Chemistry
PhD	1986		Agra University, Agra	Biomedical Organic Chemistry

EMPLOYMENTS

Post	Duration	Name of Organization	Duties
Professor & Dean Research	March 20, 2018- contd.	Indian Institute of Technology, Ropar	Research, teaching & administration
Chief Scientist	Sep 17, 2010-March 19, 2018	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Scientist F	June 2009-Aug 2010	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Scientist EII	June 2004-July 2009	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Scientist EI	June 1999-July 2004	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Visiting Scientist	April 2001-June 2002	Immunology Laboratory, Trudeau Institute, Saranac Lake, NY 12983, USA	Research
Scientist C	June 1994-July 1999	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Visiting Scientist	June 1994 to June 1996	MRC-TB and Related Infections Unit, Royal Postgraduate Medical School, Hammersmith Hospital, London. United Kingdom	Research
Scientist B	June 1989 to July 1994	CSIR-Institute of Microbial Technology, Chandigarh	Research, teaching & administration
Research Associate	Sep 1986 to June 1989	Central JALMA Institute for Leprosy, Agra	Research

HONORS & AWARDS

Awards/Honours	ORGANIZATION
Shanti Swarup Bhatnagar Award	Council of Scientific & Industrial Research, New Delhi. Award was conferred by the Prime Minister of India, 2005

UP Science Award	Government of Uttar Pradesh. Award was given by the Governor and Chief Minister of Uttar Pradesh, 2018
JC Bose Fellowship	Department of Science and Technology, India, 2018
FNA	Fellowship was provided by the President of India at the Indian National Science Academy meeting, 2010
FAS	Indian Academy of Sciences, 2014
FNASc	National Academy of Sciences India, 2004
FAMSc	Microbiology Society of India, 2022
National Bioscience Award for Career Development	Department of Biotechnology, New Delhi Award was given by the Minister of Science and Technology, India, 2006
New Idea Funding (NIF) Award	Council of Scientific & Industrial Research, New Delhi, India, The award was given by the Director-General, CSIR, 2000
Fellowship: Medical Research Council [MRC], UK	To work at the MRC-TB & Infectious Disease Unit, Royal Postgraduate Medical School, London [1994-1996].
Visiting Scientist	1. MRC-TB Unit, Royal Postgraduate Medical School, Hammersmith Hospital, London [1994-1996]. 2. Trudeau Institute, Saranac Lake, New York [2001-2002].
Senior Scientist Oration Award	The Indian Immunology Society, 2022
Distinction Fellow	The Academy of Microbiological Sciences, 2022
Invited by the Sandia National Laboratories, USA to deliver a talk on the “Controlling Laboratory Biorisks”.	Sandia National Laboratories, Albuquerque, USA [April 27-May 2, 2009].
Invited by the USA Department of State's Biosecurity Engagement Program to deliver a talk on “BSL3 Science and Safety”.	The U.S. Department of State's Biosecurity Engagement Program [BEP], USA [May 18-23, 2008] at the Rollins School of Public Health at Emory University, Atlanta, USA
Invited by the Bureau of International Security and Nonproliferation, USA to deliver a talk at the CDCs 10 th International Symposium on “Biosafety and Biosecurity”, CDC, Atlanta, USA	Bureau of International Security and Nonproliferation, United States Department of State, USA [Feb 9-13, 2008]
Bill & Melinda Gates Award for High Quality Research, Vaccine Congress, Shanghai, China	Bill & Melinda Gates Foundation, 2012
Awarded travel grant to present paper at “The CREST Symposium” Sendai, Japan	Japan Science and Technology Corporation, Japan. 2001
Excellence in Flow Cytometry	Becton & Dickinson Biosciences, USA [2012]
Member	1. American Association of Immunologists 2. International Federation of Biosafety Associations 3. Indian Immunology Society 4. Indian Science Congress 5. Molecular Immunology Forum 6. The Academy of Microbiological Sciences

Editorial Board/Associate Editor/Reviewer	Manager/Member	Editorial	Autophagy, PLoS Pathogens, J Infect Dis, J Bac, J Proteome Res, Eur J Immunol, Infection Immunity, J Neuroimmunol, Gut Microbiome, Gut Microbes, eLife, mBio, Scientific Reports, Exploration of Immunology, PLoS One, BMC Immunology, Immunology, Vaccine, PLoS Neglected Tropical Diseases, Molecular Immunol, Pharmacology, Recent Patents on Anti-Infective Drug Discovery, Amino Acids, Clin Exp Immunol, Inflammation Res. Cancer Lett, Microbiol Immunol, J Med Microbiol, Brain Behaviour Immunity, Int Immunopharmacol, Hematologia, Exp Parasitol, Polish J Food Nutr Sci, Adv Applied Res, Current Science, J Bioscience, Indian J Med Res, etc.
Research grants			MHRD, DBT, CSIR and ICMR
DBT Overseas Associateship			Department of Biotechnology, India
Research Associateship			Biotechnology and Biological Sciences Research Council, UK
Research Associateship			Indian Council of Medical Research, India
Senior Research Fellowship			Indian Council of Medical Research, India
Junior Research Fellowship			Indian Council of Medical Research, India

	Invited lectures abroad and / or chaired scientific session at the international conference / symposium				
	Title of the talk	Name of the Conference	Dates	Venue	Organizer
1	Signaling of infected macrophages through Clec4e: an innovative strategy to restrict the survival of <i>Mycobacterium tuberculosis</i>	17 th International Congress of Immunology	Sep 19 – 23, 2019	Beijing, China	International Union of Immunological Societies
2	Lipidated promiscuous peptide of <i>M. tuberculosis</i> augments polyfunctional Th1 cells and Th17 cells	World Congress of Infectious Diseases [invited talk and chaired session]	August 10-12, 2015	London, UK	European Society of Infectious Diseases
3	Self-adjuvanting peptide of <i>M. tuberculosis</i> evokes better protection than BCG	15 th Asia-Pacific Congress of Clinical Microbiology and Infection [invited talk and chaired session]	Nov 26-29, 2014	Kuala Lumpur, Malaysia	Asia Pacific Society of Clinical Microbiologist
4	Elicitation of enduring and robust protective memory T cell response by Pam2Cys-peptide vaccine	International Congress of Immunology [invited talk]	Aug 22-27, 2014	Milan, Italy	International Union of Immunological Societies

5	Induction of the activation of enduring immunity by lipidated peptide vaccine against <i>M. tuberculosis</i>	6 th Vaccine & ISV Congress [invited talk and chaired session]	Oct 14-16, 2012	Shanghai, China	International Society of Vaccine
6	Lipidated peptide induces protection against <i>M. tuberculosis</i> by activating innate and adaptive immunity	Tuberculosis 2012 [invited talk]	Sep 11-15, 2012	Paris, France	EMBO
7	Targeting of lipidated peptide to dendritic cells and protection against <i>M. tuberculosis</i>	Invited talk	March 19-22, 2012	University of Melbourne, Australia	University of Melbourne
8	Coadministration of IL-7 and IL-15 with BCG mounts enduring T cell memory response against <i>M. tuberculosis</i>	Invited talk	March 22-24, 2012	University of Sydney, Australia	University of Sydney
9	Induction of long-lasting T cell memory against <i>M. tuberculosis</i> on vaccination with promiscuous peptide of 16 kDa antigen linked to PamCys	Immunology conference [invited talk]	May 13-17, 2011	San Francisco, USA	American Association of Immunologists
1	Caerulomycin A suppresses the function of both T cells and B cells	International Conference on Drug Discovery and Therapy [invited talk and chaired session]	Feb 7-10, 2011	Dubai	Society of Drug Discovery & Therapy
1	IL-7 and IL-15 promote long-lasting T cell memory against BCG	3 rd Vaccine Global Congress [invited talk and chaired session]	October 4-6, 2009	Singapore	International Society of Vaccine
1	Signaling through CD80 induces apoptosis in B cell lymphomas	First International Congress of Biochemistry and Molecular Biology [invited talk and chaired session]	Sep 11-15, 2005	Tarbiat Modares University, Tehran, Iran	Society of Biochemistry and Molecular Biology, Iran

1	Migratory and homing preferences of Th1 and Th2 cells	Invited talk	July 14, 2002	Department of Microbiology and Immunology, Health Science Center, Kuwait	Health Science Center, Kuwait
1	Unique ability of activated CD4 T cells but not rested effectors to migrate to non-lymphoid sites in the absence of inflammation	Invited talk	Dec 2, 2002	Statens Serum Institute, Copenhagen, Denmark	Statens Serum Institute
1	Regulation of memory CD4 T cells: generation, localization and persistence	Molecular Approaches to Vaccine Design [invited talk]	Nov 29-Dec 2, 2001	Cold Spring Harbor, New York, USA	International Society of Vaccine
1	Peptide recognition by T-cell clones of an HLA-DRB1*1501/*0901 heterozygous donor is promiscuous only between parental alleles	Acid Fast Club Symposium [invited talk]	May 13, 1996	London School of Hygiene and Tropical Medicine, London	London School of Hygiene and Tropical Medicine

Invited lectures in India and / or chaired scientific session at the international conference / symposium:
Several

PUBLICATIONS [122]

1. **Aging Cell** 22:2023:13838. [IF: 11]. Age mediated gut microbiota dysbiosis promotes loss of tolerogenic potential in dendritic cells. Bashir H, Singh S, Singh RP, **Agrewala JN***, Kumar R*.
2. **J Biosci.** Vol 48: 2023. [IF: 2.8] Influence of chronic administration of morphine and its withdrawal on the behavior of zebrafish. Malik JA, Nanda S, Zafar MA, Sehrawat S, **Agrewala JN**.
3. **J Biol Chem.** 2022 Oct 15:102596. [IF: 5.49]. *Mycobacterium tuberculosis* epitope entrapped in nanoparticles expressing TLR-2 ligand targeted to dendritic cells elicit protective immunity. Das DK, Zafar MA, Nanda S, Singh S, Lamba T, Bashir H, Singh P, Maurya SK, Nadeem S, Sehrawat A, Bhalla V, **Agrewala JN**.
4. **Cell Mol Life Sci.** 79:2022:567 [IF: 9.2]. *Mycobacterium tuberculosis* exploits MPT64 to generate myeloid-derived suppressor cells to evade the immune system. Singh S, Maurya SK, Aqdas M, Bashir H, Arora A, Bhalla V, **Agrewala JN**.
5. **Vaccines** 10,2022.1006 [IF: 4.97]. Fiction and facts about BCG imparting trained immunity against COVID-19. Kaur G, Singh S, Nanda S, Zafar MA, Malik JA, Arshi MU, Lamba T, **Agrewala JN**.

6. **Autophagy** 17:2021:1 [IF: 16.01]. Guidelines for the use and interpretation of assays for monitoring autophagy. Klionsky DJ, Abdel-Aziz AK, Abdelfatah S, Abdellatif M, Abdoli A, Abel S, Abeliovich H, Abildgaard MH, Abudu YP, Acevedo-Arozena A, Adamopoulos IE, Adeli K, Adolph TE, Adornetto A, Aflaki E, Agam G, Agarwal A, Aggarwal BB, Agnello M, Agostinis P, **Agrewala JN**, et al.
7. **ACS Infectious Dis.** 12:2021:2999 [IF: 5.5]. Immunotherapeutic role of NOD-2 and TLR-4 signaling as an adjunct to anti-tuberculosis chemotherapy. Aqdas M, Maurya S, Pahari S, Singh S, Khan N, Sethi K, Kaur G, **Agrewala JN**.
8. **Front Cellular Infection Microbiol.** 7:2021:11 [IF: 5.29]. Cumulative signaling through NOD-2 and TLR-4 eliminates the *Mycobacterium tuberculosis* concealed inside the mesenchymal stem cells. Aqdas M, Singh S, Amir M, Maurya S, Pahari S, **Agrewala JN**.
9. **J Mol Liquids.** 15:2021:115385. [IF: 5.1]. Protein transduction domain functionalized gold nanoparticles for effective delivery of potent cytotoxic agent in cancer cells. Bansal K, Devi N, Aqdas M, Sharma RK, **Agrewala JN**, Katare OP.
10. **J Drug Delivery Sci Tech.** 65:2021:102743 [IF: 4]. Mechanistic evaluations of ketoconazole lipidic nanoparticles for improved efficacy, enhanced topical penetration, cellular uptake (L929 and J774A.1), and safety assessment: In vitro and in vivo studies Ramzan M, Kaur G, Trehan T, **Agrewala JN**, Michniak-Kohn BB, Hussain A, Mahdi WA, Gulati JS, Kaur IP.
11. **Autophagy** 16:2020:1021 [IF: 16.01]. Induction of autophagy through Clec4e in combination with TLR-4: an innovative strategy to restrict the survival of *Mycobacterium tuberculosis*. Pahari S, Negi S, Aqdas M, Arnett E, Schlesinger LS, **Agrewala JN**.
12. **Eur J Immunol.** 16:2020:10 [IF: 6.8]. Intestinal microbiota disruption limits the isoniazid mediated clearance of *Mycobacterium tuberculosis* in mice. Negi S, Pahari S, Bashir H, **Agrewala JN**.
13. **J Proteome Res.** [IF: 4.46]. 19:2020:4655. Deciphering the structural enigma of HLA class-II binding peptides for enhanced immunoinformatics-based prediction of vaccine epitopes. Chatterjee D, Priyadarshini P, Das DK, Mushtaq K, Singh B, **Agrewala JN**.
14. **Front Immunol.** 11:2020:726 [IF: 8.8]. Gut dysbiosis thwarts the efficacy of vaccine against *Mycobacterium tuberculosis*. Nadeem S, Maurya SK, Das DK, Khan N, **Agrewala JN**.
15. **BMC Infectious Diseases** 20:2020:677 [IF: 3.1]. A multiple T cell epitope comprising DNA vaccine boosts the protective efficacy of Bacillus Calmette Guerin (BCG) against *Mycobacterium tuberculosis*. Maurya SK, Aqdas M, Das DK, Singh S, Nadeem S, Kaur G, **Agrewala JN**.
16. **Cancer Immunol Immunother.** 68:2019:1995 [IF: 7.0]. Predominance of M2 macrophages in gliomas leads to the suppression of local and systemic immunity. Vidyarthi A, Agnihotri T, Khan N, Singh S, Tewari MK, Radotra BD, Chatterjee D, **Agrewala JN**.
17. **Front Immunol.** 10:2019:2441 [IF: 8.8]. Potential role of gut microbiota in the induction and regulation of innate immune memory. Negi S, Das DK, Pahari S, Nadeem S, **Agrewala JN**.
18. **Front Immunol.** 10:2019:1142 [IF: 8.8]. Gut microbiota regulates mTLC mediated activation of lung dendritic cells to protect against *Mycobacterium tuberculosis*. Negi S, Pahari S, Bashir H, **Agrewala JN**.

19. **Front Microbiol.** 10:2019:1173 [IF: 6.1]. Curdlan limits *Mycobacterium tuberculosis* survival through STAT-1 regulated Nitric oxide production. Negi S, Pahari S, Das DK, Khan N, **Agrewala JN**.
20. **Sci Rep.** 9:2019:3092. [IF: 5.6]. ImmTORLig_DB: repertoire of virtually screened small molecules against immune receptors to bolster host immunity. Chatterjee D, Kaur G, Muradia S, Singh B, **Agrewala JN**.
21. **BMC Microbiol.** 19:2019:64. [IF: 3.6]. A genomic analysis of *Mycobacterium immunogenum* strain CD11_6 and its potential role in the activation of T cells against *Mycobacterium tuberculosis*. Kaur G, Chander AM, Kaur G, Maurya SK, Nadeem S, Kochhar R, Bhadada SK, **Agrewala JN***, 5, Mayilraj S*.
22. **Cancer Medicine** 8:2019:246. [IF: 4.45]. Low prevalence of anti-xenobiotic antibodies among the occupationally exposed individuals is associated with a high risk of cancer. Sajid M, **Agrewala JN**.
23. **Front Immunol.** 9:2018:1650 [IF: 8.8]. TLR-3 stimulation skews M2 macrophages to M1 through IFN- $\alpha\beta$ signaling and restricts tumor progression. Vidyarthi A, Khan N, Agnihotri T, Negi S, Das DK, Colegio OR, Tewari MK, **Agrewala JN**.
24. **J Trans Med.** 16:2018:279 [IF: 8.44]. A lipidated bi-epitope vaccine comprising of MHC-I and MHC-II binder peptides elicits protective CD4 T cell and CD8 T cell immunity against *Mycobacterium tuberculosis*. Rai PK, Chodisetti SB, Maurya SK, Nadeem S, Zeng W, Janmeja AK, Jackson DC, **Agrewala JN**.
25. **Front Immunol.** 9:2018:193 [IF: 8.8]. Reinforcing the functionality of mononuclear phagocyte system to control tuberculosis. Pahari S, Kaur G, Negi S, Aqdas M, Das DK, Bashir H, Singh S, Nagare M, Khan J, **Agrewala JN**.
26. **Bioconjugate Chemistry** 29:2018:1102 [IF: 4.8]. A facile approach for synthesis and intracellular delivery of size tunable cationic peptide functionalized gold nanohybrids in cancer cells. Bansal K, Aqdas M, Kumar M, Bala R, Singh S, **Agrewala JN**, Katore O, Sharma R, Wangoo N.
27. **Front Immunol.** 8:2017:624 [IF: 8.8]. Diametric role of the latency-associated protein *acr1* of *mycobacterium tuberculosis* in modulating the functionality of pre and post maturational stages of dendritic cells. Amir M, Aqdas M, Nadeem S, Siddiqui KS, Khan N, Sheikh JS, **Agrewala JN**.
28. **J Trans Med.** 15:2017:201 [IF: 8.44]. A Lipidated peptide of *Mycobacterium tuberculosis* resuscitates the protective efficacy of BCG vaccine by evoking memory T cell immunity. Rai PK, Chodisetti SB, Zeng W, Nadeem S, Maurya SK, Pahari S, Janmeja AK, Jackson DC, **Agrewala JN**.
29. **Front Microbiol.** 8:2017:1938 [IF: 6.1]. Morbid sequences suggest molecular mimicry between microbial peptides and self-antigens: a possibility of inciting autoimmunity. Pahari S, Chatterjee D, Negi S, Kaur J, Singh B, **Agrewala JN**.
30. **Front Immunol.** 8:2017:906 [IF: 8.8]. Bolstering immunity through pattern recognition receptors: a unique approach to control tuberculosis. Pahari S, Kaur G, Aqdas M, Negi S, Chatterjee D, Bashir H, Singh S, **Agrewala JN**.
31. **Autoimmunity** [IF: 2.6] 2017 Jul 7:1-12. Caerulomycin A suppresses the differentiation of naïve T cells and alleviates the symptoms of experimental autoimmune encephalomyelitis. Kujur W, Gurram RK, Maurya SK, Nadeem S, Chodisetti SB, Khan N, **Agrewala JN**.
32. **PLoS One.** 12:2017:e0173769. [IF: 3.2]. Antibody response against PhoP efficiently discriminates among healthy individuals, tuberculosis patients and their contacts. Vidyarthi A, Khan N, Agnihotri T, Siddiqui KF, Nair GR, Arora A, Janmeja AK, **Agrewala JN**.

33. **Crit Rev Microbiol.** 1:2016:1 [IF: 8.2]. T cell exhaustion in tuberculosis: pitfalls and prospects. Khan N, Vidyarthi A, Amir M, Mushtaq K, **Agrewala JN**.
34. **Front Immunol.** 7:2016:529 [IF: 8.8]. Alteration in the gut microbiota provokes susceptibility to tuberculosis. Khan N, Vidyarthi A, Nadeem S, Negi S, Nair G, **Agrewala JN**.
35. **Scientific Reports** 6:2016:39492. [IF: 5.6]. Infergen stimulated macrophages restrict *Mycobacterium tuberculosis* growth by autophagy and release of nitric oxide. Pahari S, Khan N, Aqdas M, Negi S, Kaur J, **Agrewala JN**.
36. **Gut Pathog.** 8:2016:55. [IF: 5.3] Genome sequencing, assembly, annotation and analysis of *Staphylococcus xylosus* strain DMB3-Bh1 reveals genes responsible for pathogenicity. Kaur G, Arora A, Sathyabama S, Mubin N, Verma S, Mayilraj S, **Agrewala JN**.
37. **Front Immunol.** 7:2016:386 [IF: 8.8]. Stimulation through CD40 and TLR-4 is an effective host directed therapy against *Mycobacterium tuberculosis*. Khan N, Pahari S, Vidyarthi A, Aqdas M, **Agrewala JN**.
38. **Scientific Reports** 6:2016:27263 [IF: 5.6]. Triggering through NOD-2 Differentiates Bone Marrow Precursors to Dendritic Cells with Potent Bactericidal activity. Khan N, Aqdas M, Vidyarthi A, Negi S, Pahari S, Agnihotri T, **Agrewala JN**.
39. **Scientific Reports** 6:2016:23917 [IF: 5.6]. A novel therapeutic strategy of lipidated promiscuous peptide against *Mycobacterium tuberculosis* by eliciting Th1 and Th17 immunity of host. Rai PK, Chodisetti SB, Nadeem S, Maurya SK, Gowthaman U, Zeng W, Janmeja AK, Jackson DC, **Agrewala JN**.
40. **J Data Mining Genomics Proteomics** 7:2016:2. Genome mining and comparative genomic analysis of five coagulase-negative staphylococci (cns) isolated from human colon and gall bladder. Nair RG, Kaur G, Khatri I, Singh NK, Maurya SK, Subramanian S, Behera A, Dahiya D, **Agrewala JN**, Mayilraj S.
41. **Frontiers Microbiol.** 7:2016:328 [IF: 6.1]. Innate immunity holding the flanks until reinforced by adaptive immunity against *Mycobacterium tuberculosis* infection. Khan N, Vidyarthi A, Javed S, **Agrewala JN**.
42. **Scientific Reports** 6:2016:19084 [IF: 5.6]. Signaling through NOD-2 and TLR-4 Bolsters the T cell Priming Capability of Dendritic cells by Inducing Autophagy. Khan N, Vidyarthi A, Pahari S, Negi S, Aqdas M, Nadeem S, Agnihotri T, **Agrewala JN**.
43. **Crit Rev Microbiol.** 4:2015:389 [IF: 8.192]. Challenges and Solutions for a Rational Vaccine Design for TB-endemic Regions. Gowthaman U, Mushtaq K, Tan AC, Rai PK, Jackson DC, **Agrewala JN**.
44. **Scientific Reports** 5:2015:15396. [IF: 5.6]. Caerulomycin A inhibits Th2 cell activity and secretion of IgE: a possible role in the management of asthma. Kujur W, Gurram RK, Haleem N, Maurya SK, **Agrewala JN**.
45. **J Innate Immunity** 2015 Nov 28 [IF: 7.4]. 2015. NOD-2 and TLR-4 signaling reinforce dendritic cells efficacy and reduce dose of TB drugs against *Mycobacterium tuberculosis*. Khan N, Pahari S, Vidyarthi A, Aqdas M, **Agrewala JN**.
46. **Frontiers Microbiol.** 6:2015:351. [IF: 5.64]. Rv2031c of *Mycobacterium tuberculosis*: a master regulator of Rv2028-Rv2031 (HspX) operon. Mushtaq K, Sheikh JA, Amir M, Khan N, Singh BV, **Agrewala JN**.

47. **Proteins** 2015 Jul 27. [IF: 4.6]. Probing protease sensitivity of recombinant human erythropoietin reveals $\alpha 3$ - $\alpha 4$ inter-helical loop as a stability determinant. Samuel JS, Kumar D, Chodiseti SB, **Agrewala JN**, Singh B, Guptasarma P, Sarkar D.
48. **Clin Exp Immunol.** 18:2015:286. [IF: 5.73]. Prime-boost vaccination strategy with BCG and liposomized-Acr1 reinvigorates BCG potency. Siddiqui KF, Amir M, Khan N, Krishna GR, Sheikh JA, Rajagopal K, **Agrewala JN**.
49. **Int Rev Immunol.** 5:2015:386. [IF: 5.3] Distinct strategies employed by dendritic cells and macrophages in controlling *M. tuberculosis* infection: different philosophies but same desire. Khan N, Vidyarthi A, Pahari S, **Agrewala JN**.
50. **J Infect Dis.** 211:2015: 486-96 [IF: 7.8]. Triggering through TLR-2 limits chronically stimulated Th1 cells from undergoing exhaustion. Chodiseti SB, Gowthaman U, Rai PK, Vidyarthi A, Khan N, **Agrewala JN**.
51. **PLoS One.** 9:2014:E107051. [IF: 4.1]. Caerulomycin A inhibits T cell response to suppress immunity. Singla AK, Gurram RK, Chauhan A, Khatri N, Vohra RM, Jolly RS, **Agrewala JN**.
52. **J Biol Chem.** 289:2014:17515-28 [IF: 4.8]. Caerulomycin A enhances the TGF- β -Smad3 signalling by suppressing IFN- γ -STAT1 signalling to expand Tregs. Gurram RK, Kujur W, Maurya SK, **Agrewala JN**.
53. **J Infect Dis.** 209:2014:1436-45 [IF: 7.8]. Latency Associated Protein Acr1 Impairs Dendritic Cells Maturation and Functionality: A Possible Mechanism of Immune Evasion by *Mycobacterium tuberculosis*. Siddiqui KF, Amir M, Gurram RK, Khan N, Arora A, K Rajagopal, **Agrewala JN**.
54. **Transplantation** 97:2014:e57-9 [IF: 4.94]. Caerulomycin A: a potent novel immunosuppressive agent. Singla AK, Gurram RK, Chauhan A, Khatri N, Vohra RM, Jolly RS, **Agrewala JN**.
55. **Gut Pathog.** 6:2014:28. [IF: 5.3]. Genome sequencing, annotation and comparative genomic analysis of Shigella dysenteriae strain SD1D. Kaur G, Sathyabama S, Arora A, Verma S, Mubin N, **Agrewala JN**, Mayilraj S.
56. **Gut Pathog.** 6:2014:8. [IF: 5.3]. Genome sequencing, annotation and analysis of Salmonella enterica sub species salamae strain DMA-1. Sathyabama S, Kaur G, Arora A, Verma S, Mubin N, Mayilraj S, **Agrewala JN**.
57. **Amino Acids** 46:2014:1265-74. [IF: 4.2]. Decision making critical amino acids: role in designing peptide vaccines for eliciting Th1 and Th2 immune response. Mushtaq K, Chodiseti SB, Rai PK, Maurya SK, Amir M, Sheikh J, **Agrewala JN**.
58. **Crit Rev Microbiol.** 40:2014:273-280. [IF: 8.192]. Friendly Pathogens: Prevent or Provoke Autoimmunity. Sathyabama S, Khan N, **Agrewala JN**.
59. **J Biol Chem.** 288: 2013: 29987-99 [IF: 4.8]. Truncated hemoglobin, HbN, is post-translationally modified in *Mycobacterium tuberculosis* and modulates host-pathogen interactions during intracellular infection. Arya S, Sethi D, Singh S, Hade MD, Singh V, Raju P, Chodiseti SB, Verma D, Varshney GC, **Agrewala JN**, Dikshit KL.
60. **Ind J Med Res.** 138:2013: 744-748. [IF: 5.3] Lipidated promiscuous peptide augments the expression of MHC-II molecules on dendritic cells and activates T cells. Gowthaman U, Rai PK, Zeng W, Jackson DC, **Agrewala JN**.
61. **PLoS One** 8:2013:e54392. [IF: 4.2]. Combinatorial signaling through TLR-2 and CD86 augments activation and differentiation of resting B cells. Jain S, Chodiseti SB, **Agrewala JN**.

62. **Trends Mol Medicine** 18:2012:607-14. [IF: 11.95]. Lipidated promiscuous peptides vaccine for tuberculosis endemic regions. Gowthaman U, Rai PK, Khan N, Jackson D, **Agrewala JN**.
63. **PLoS Pathogens** 2012 Jun; 8(6):e1002676. [IF: 9.23]. Manipulation of costimulatory molecules by intracellular pathogens: *veni, vidi, vici*. Khan N, Gowthaman U, Pahari S, **Agrewala JN**.
64. **J Immunol**. 188:2012:5593. [IF: 5.8]. *M. tuberculosis* modulates macrophage lipid-sensing nuclear receptors PPAR γ and TR4 for survival. Mahajan S, Dkhar KH, Chandra V, Dave S, Nanduri R, Janmeja AK, **Agrewala JN**, Gupta.
65. **BMC Immunol**. 13:2012:13. [IF: 3.6]. Potential T cell epitopes of *Mycobacterium tuberculosis* that can instigate molecular mimicry against host: implications in autoimmune pathogenesis. Chodiseti SB, Rai PK, Gowthaman U, Pahari S, **Agrewala JN**.
66. **J Infect Dis**. 204:2011:1328-38. [IF: 7.8]. Promiscuous peptide of 16 kDa antigen linked to Pam2Cys protects against *M. tuberculosis* by evoking enduring memory T cells response. Gowthaman U, Singh V, Zeng W, Jain S, Siddiqui KF, Chodiseti SB, Gurram RK, Parihar P, Gupta P, Gupta UD, Jackson DC, **Agrewala JN**.
67. **Crit Rev Microbiol**. 37:2011:349-57 [IF: 8.192]. Understanding the biology of 16 kDa antigen of *Mycobacterium tuberculosis*: scope in diagnosis, vaccine design and therapy. Siddiqui KF, Amir M, **Agrewala JN**.
68. **PLoS One** 6:2011:e20651 [IF: 4.5]. CD40 signaling synergizes with TLR-2 in the BCR independent activation of resting B cells. Jain S, Chodiseti SB, **Agrewala JN**.
69. **PLoS One** 6:2011:e16097 [IF: 4.5]. Coadministration of IL-1+IL-6+TNF- α with *Mycobacterium tuberculosis* infected macrophages vaccine induces better protective T cell memory than BCG. Singh V, Jain S, Gowthaman U, Parihar P, Gupta P, Gupta UD, **Agrewala JN**.
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IMPACT FACTOR OF TOP 20 MANUSCRIPTS

	Journal	Impact Factor
1.	Autophagy 2021	16.05
2.	Autophagy 2020	11.10
3.	Trends Mol Medicine 2012	11.05
4.	Aging Cell	11.00
5.	Immunol Rev. 2006	10.76
6.	Cell Mol Life Sci	9.20
7.	PLoS Pathogens 2012	9.20
8.	Front Immunol 2020	8.80
9.	J Infect Dis. 2015	8.50
10.	J Infect Dis. 2014	7.80
11.	J Biol Chem. 2002	7.60
12.	J Innate Immun 2016	7.4
13.	J Immunol. 1994	7.39
14.	J Immunol. 1998	7.17
15.	J Proteome Res. 2008	7.01
16.	Cancer Immunol Immunother	7.00
17.	Eur J Immunol 2020	6.80
18.	J Infect Dis 2011	6.30
19.	J Infect Dis. 2010	6.30
20.	J Immunol. 2012	5.80
	Average impact factor	8.60

TOP 20 CITATIONS [Nov 2020]

	Journal	Citations
1.	Autophagy 2021	9862
2.	J Biol Chem. 2002	302
3.	Eur J Pharmacol. 2006	288
4.	Immunol Rev. 2006	236
5.	Clin Exp Immunol. 2007	205
6.	J Immunol. 2012	195
7.	Front Immunol 2019	162
8.	Front Immunol 2016	131
9.	Eur J Pharmacol. 2000	113
10.	Front Immunol 2018	108
11.	J Proteome Res. 2007	103
12.	Mol Cell Biochem 2001	103
13.	Clin Exp Immunol. 1998	84
14.	Front Immunol 2019	80
15.	PLoS Pathogens	80

16.	Cancer Immunol Immunother	77
17.	Protein Peptide Lett 2006	73
18.	Clin Exp Immunol 1999	73
19.	Crit Rev Microbiol 2017	71
20.	Int Pharmacol 2005	65
	Average citation per paper	620.55

PATENTS

<u>SN</u>	<u>NF No.</u>	<u>Country</u>	<u>Title</u>	<u>Inventors</u>	<u>Prov. Dt.</u>	<u>Comp. Dt</u>	<u>App. No.</u>	<u>Status</u>	<u>Grant date</u>	<u>Patent No.</u>
1	0169NF2001	India	A process for the preparation of a vaccine against tuberculosis and other intracellular pathogens	Javed Naim Agrewala, Naresh Sharma	.....	28/08/2003	01372D ELNP2003	IF/2014	22/09/2006	199821
	0169NF2001	WIPO (World Intellectual Prop Org)	The vaccine for the treatment of tuberculosis and other intracellular infectious diseases	Javed Naim Agrewala, Naresh Sharma	.....	23/03/2001	PCT/IN 01/00047	PCT	.....	.....
	0169NF2001	United States of America	Process for the preparation of a vaccine for the treatment of tuberculosis and other intracellular infectious diseases and the vaccine produced by the process	Javed Naim Agrewala, Naresh Sharma	.....	23/03/2001	09/815602	IF	31/08/2004	6783765
	0169NF2001	Thailand	The vaccine for the treatment of tuberculosis and other intracellular infectious diseases	Javed Naim Agrewala, Naresh Sharma	.....	26/03/2002	72619	PP	.....	.....
	0169NF2001	Philippines	The vaccine for the treatment of tuberculosis and other intracellular infectious diseases	Javed Naim Agrewala, Naresh Sharma	.....	26/03/2002	1-2002-000229	IF	21/12/2007	1-2002-000229
	0169NF2001	Bangladesh	The vaccine for the treatment of tuberculosis and other intracellular infectious diseases	Javed Naim Agrewala, Naresh Sharma	.....	27/03/2002	57/02	IF	27/03/2004	1003852
	0169NF2001	Brazil	The vaccine for the treatment of tuberculosis and other	Javed Naim Agrewala, Naresh Sharma	.....	27/03/2002	PI0107058-4	PP	.....	.....

			<u>intracellular infectious diseases</u>							
	<u>0169NF2001</u>	<u>Malaysia</u>	<u>The vaccine for the treatment of tuberculosis and other intracellular infectious diseases</u>	<u>Javed Naim Agrewala, Naresh Sharma</u>	<u>.....</u>	<u>27/03/2002</u>	<u>PI 20021087</u>	<u>IF</u>	<u>27/02/2009</u>	<u>MY-137579-A</u>
	<u>0169NF2001</u>	<u>Indonesia</u>	<u>The vaccine for the treatment of tuberculosis and other intracellular infectious diseases</u>	<u>Javed Naim Agrewala, Naresh Sharma</u>	<u>.....</u>	<u>28/03/2002</u>	<u>WO0200200740</u>	<u>IF</u>	<u>23/12/2004</u>	<u>0014887</u>
	<u>0169NF2001</u>	<u>China</u>	<u>The vaccine for the treatment of tuberculosis and other intracellular infectious diseases</u>	<u>Javed Naim Agrewala, Naresh Sharma</u>	<u>.....</u>	<u>28/03/2002</u>	<u>01802209.X</u>	<u>IF</u>	<u>10/06/2009</u>	<u>ZL 01802209.X</u>
	<u>0169NF2001</u>	<u>Pakistan</u>	<u>The vaccine for the treatment of tuberculosis and other intracellular infectious diseases</u>	<u>Javed Naim Agrewala, Naresh Sharma</u>	<u>.....</u>	<u>28/03/2002</u>	<u>229/2002</u>	<u>IF</u>	<u>28/07/2004</u>	<u>138141</u>
	<u>0169NF2001</u>	<u>Viet Nam</u>	<u>The vaccine for the treatment of tuberculosis and other intracellular infectious diseases</u>	<u>Javed Naim Agrewala, Naresh Sharma</u>	<u>.....</u>	<u>02/04/2002</u>	<u>1-2002-00297</u>	<u>IF</u>	<u>25/04/2007</u>	<u>1-0006298-000</u>
<u>2</u>	<u>0307NF2005</u>	<u>India</u>	<u>Use of bipyridine compound Caerulomycin A derivatives and analogs thereof as immunosuppressive agents</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>12/09/2005</u>	<u>29/08/2006</u>	<u>2465DEL2005</u>	<u>PP/UE</u>	<u>.....</u>	<u>.....</u>
	<u>0307NF2005</u>	<u>South Africa</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>08/09/2006</u>	<u>2008/02166</u>	<u>IF</u>	<u>26/08/2009</u>	<u>2008/02166</u>
	<u>0307NF2005</u>	<u>Brazil</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra,</u>	<u>.....</u>	<u>08/09/2006</u>	<u>PI 0616561-3</u>	<u>PP</u>	<u>.....</u>	<u>.....</u>

				<u>Ravindra S Jolly</u>						
<u>0307NF2005</u>	<u>Japan</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>08/09/2006</u>	<u>2008-529709</u>	<u>IF</u>	<u>26/04/2013</u>	<u>5254017</u>	
<u>0307NF2005</u>	<u>Korea</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>11/03/2008</u>	<u>2008-7005988</u>	<u>IF</u>	<u>20/05/2014</u>	<u>10-1399483</u>	
<u>0307NF2005</u>	<u>WIPO (World Intellectual Prop Org)</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>08/09/2006</u>	<u>PCT/IB06/02468</u>	<u>PCT</u>	<u>.....</u>	<u>.....</u>	
<u>0307NF2005</u>	<u>United States of America</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>12/09/2006</u>	<u>11/519200</u>	<u>IF</u>	<u>14/2/2012</u>	<u>8114895</u>	
<u>0307NF2005</u>	<u>European Patent Office</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>12/03/2008</u>	<u>06808832.7</u>	<u>EP/IF</u>	<u>03/06/2015</u>	<u>1942889</u>	
<u>0307NF2005</u>	<u>Germany</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>---</u>	<u>03-Jun-15</u>	<u>6808832.7</u>	<u>IF/EP DESIG.</u>	<u>03-Jun-15</u>	<u>1942889</u>	

	<u>0307NF2005</u>	<u>France</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>---</u>	<u>03-Jun-15</u>	<u>6808832.7</u>	<u>IF/EP DESIG.</u>	<u>03-Jun-15</u>	<u>1942889</u>
	<u>0307NF2005</u>	<u>Great Britain</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>---</u>	<u>03-Jun-15</u>	<u>6808832.7</u>	<u>IF/EP DESIG.</u>	<u>03-Jun-15</u>	<u>1942889</u>
	<u>0307NF2005</u>	<u>China</u>	<u>Caerulomycin A as an immuno-suppressive agent</u>	<u>Arvind Singla, Javed Naim Agrewala, Rakesh Vohra, Ravindra S Jolly</u>	<u>.....</u>	<u>14/04/2008</u>	<u>200680038094.5</u>	<u>IF</u>	<u>04/04/2012</u>	<u>200680038094.5</u>
<u>3</u>	<u>0067NF2009</u>	<u>India</u>	<u>Targeting promiscuous peptides to dendritic cells for generating long-lasting immunity and development of vaccines</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>14/09/2010</u>	<u>14/09/2011</u>	<u>2172DEL2010</u>	<u>PP</u>	<u>.....</u>	<u>.....</u>
	<u>0067NF2009</u>	<u>WIPO (World Intellectual Prop Org)</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>.....</u>	<u>14/09/2011</u>	<u>PCT/IN 2011/00630</u>	<u>PCT</u>	<u>.....</u>	<u>WO/2012/035558</u>
	<u>0067NF2009</u>	<u>Argentina</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>.....</u>	<u>14/09/2011</u>	<u>20110103339</u>	<u>PP</u>	<u>.....</u>	<u>.....</u>
	<u>0067NF2009</u>	<u>Bangladesh</u>	<u>A synthetic immunogen useful for</u>	<u>Javed Naim Agrewala,</u>	<u>.....</u>	<u>14/09/2011</u>	<u>206/2011</u>	<u>PP</u>	<u>.....</u>	<u>.....</u>

			<u>generating long lasting immunity and protection against pathogens</u>	<u>Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>						
	<u>0067NF2009</u>	<u>Pakistan</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>JAVED NAIM Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>.....</u>	<u>14/09/2011</u>	<u>666/2011</u>	<u>PP</u>	<u>.....</u>	<u>.....</u>
	<u>0067NF2009</u>	<u>Indonesia</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>		<u>12/04/2013</u>	<u>W-00201301531</u>	<u>IF</u>	<u>11-Apr-16</u>	<u>IDP000040873</u>
	<u>0067NF2009</u>	<u>China</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>		<u>14/05/2013</u>	<u>201180054827,5</u>	<u>PP</u>		
	<u>0067NF2009</u>	<u>Australia</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>		<u>11/03/2013</u>	<u>2011303430</u>	<u>IF</u>	<u>08/01/2015</u>	<u>2011303430</u>
	<u>0067NF2009</u>	<u>South Africa</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>		<u>11/03/2013</u>	<u>2013/01831</u>	<u>PP</u>		

<u>0067NF2009</u>	<u>Brazil</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>13/03/2013</u>	<u>BR112013005970-2</u>	<u>PP</u>		
<u>0067NF2009</u>	<u>Japan</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>13/03/2013</u>	<u>2013-528835</u>	<u>IF</u>	<u>26-Aug-16</u>	<u>5991976</u>
<u>0067NF2009</u>	<u>Europe</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>19/03/2013</u>	<u>11774113.2</u>	<u>TO/EP/NP/IF</u>	<u>20/04/2016</u>	<u>2616098</u>
<u>0067NF2009</u>	<u>Great Britain</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>19/03/2013</u>	<u>11774113.2</u>	<u>IF/EP DESIG.</u>	<u>20/04/2016</u>	<u>2616098</u>
<u>0067NF2009</u>	<u>Germany</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>19/03/2013</u>	<u>11774113.2</u>	<u>IF/EP DESIG.</u>	<u>20/04/2016</u>	<u>2616098</u>
<u>0067NF2009</u>	<u>France</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>19/03/2013</u>	<u>11774113.2</u>	<u>IF/EP DESIG.</u>	<u>20/04/2016</u>	<u>2616098</u>
<u>0067NF2009</u>	<u>Italy</u>	<u>A synthetic immunogen useful for</u>	<u>Javed Naim Agrewala,</u>	<u>19/03/2013</u>	<u>11774113.2</u>	<u>IF/EP DESIG.</u>	<u>20/04/2016</u>	<u>2616098</u>

			<u>generating long lasting immunity and protection against pathogens</u>	<u>Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>						
	<u>0067NF2009</u>	<u>USA</u>	<u>A synthetic immunogen useful for generating long lasting immunity and protection against pathogens</u>	<u>Javed Naim Agrewala, Uthaman Gowthaman, David Jackson, Weiguang Zeng</u>	<u>13/03/2013</u>	<u>13/822881</u>	<u>IF</u>	<u>17/05/2016</u>	<u>9340622</u>	
<u>4</u>	<u>0173NF2013</u>	<u>India</u>	<u>Erythropoietin variants with increased protease resistance</u>	<u>Sarkar Dibyendu, Samuel Jesse Sebastian, Agrewala Javed Naim, Chodisetti Sathi Babu</u>	<u>17/08/2013</u>	<u>15/10/2014</u>	<u>2403DEL2013</u>	<u>PP</u>		

1. Agrewala JN, Sharma N. Process for the preparation of a vaccine for the treatment of tuberculosis and other intracellular infectious diseases and the vaccine produced by the process [2004]. **United States Patent No. 6,783,765**, South Africa Patent No. 2002/2511, Russian and Bangladesh Patent No. 1003852.
2. Singla AK, Agrewala JN, Vohra RM, Jolly RS. Caerulomycin A as an immunosuppressive agent. **United States Patent No. 8,114,895**, China (CN101287465), PCT (WO2007031832), February 14, 2012.
3. Agrewala JN, Gowthaman U, Jackson D, Zeng W. Synthetic immunogen useful for generating long- lasting immunity and protection against pathogens. United States Patent No. 9340622, granted on 17/05/2016; India Patent No. 318504, granted on 20/08/2019; Australia Patent No. 2011303430 granted on 08/01/2015; China patent No. ZL201180054827.5, granted on: 24/02/2016; Germany Patent No. 2616098, granted on 20/04/2016, European patent No. 2616098, granted on 20/04/2016; Indonesia patent No. IDP000040873, granted on 11/04/2016; Japan patent No. 5991976 granted on 26/08/2016.
4. Sarkar D, Samuel JS, Agrewala JN, SB Chodsetti. rHuEpo variants with altered in vitro and in vivo properties. Indian Patent Application No. 2403DEL2013; filing date: 17/10/2013.

TECHNOLOGY

Caerulomycin A as an immunosuppressive agent [United States Patent No. 8,114,895]. Licensed a technology on immunosuppressive molecule for **3 million US dollars** [INR 24 crore] to the Nostrum Pharma, USA on February 15, 2009.

BOOKS/CHAPTERS

1. Tuberculosis vaccine: past experiences and future prospects. Gurpreet Kaur, Deepjyoti K Das, Sanpreet Singh, Junaid Khan, Mohammad Sajid, Hilal Bashir, Mohammad Aqdas, Shikha Negi, Uthaman Gowthaman, Javed N Agrewala. Mycobacterium Tuberculosis: Molecular Infection Biology,

Pathogenesis, Diagnostics and New Interventions. Editors: Hasnain, Seyed Ehtesham, Ehtesham, Nasreen Z, Grover, Sonam (Eds.). 2019, Springer, New York

2. Cancer and Infectious Diseases Modern approaches of treatment: Reverse costimulation: A new hope for Tuberculosis and Cancer patients Jun 10, 2013 by Manzoor Ahmad Mir, Raid S. Albaradie, Javed N. Agrewala. (Eds) LAP LAMBERT Academic Publishing GmbH & Co, Germany.
3. Mir MA, Agrewala JN. Influence of immunomodulation of CD80 and CD86 costimulatory molecules in the infectious diseases. Proc on Biotech Approach to Neuro-immunomodulation and Infectious Diseases 2008, vol. 2 Pp 413-424.
4. Mir MA, Agrewala JN. Dietary polyphenols in modulation of the immune system. 2007. Polyphenols and Health: New and Recent Advances. N. Vassallo [eds], Nova Science Publishers. New York.
5. Agrewala JN. Antigen presentation and memory. Immunotherapeutics and disease management [2005]. Proceedings of 12th Annual Symposium, Ranbaxy Science Foundation pp15-22. New Delhi, Nov 2005.
6. Swain SL, Agrewala JN, Brown DM. Regulation of memory CD4 T cells: Generation, localization and persistence [2002]. Lymphocyte Activation and Immune Regulation IX - Homeostasis Lymphocyte Traffic pp. 113-120. S. Gupta, E. Butcher, and W. Paul [eds], Kluwer Academic/Plenum Publishers, New York.
7. Ghei SK, Sengupta U, Agrewala JN, Kailash S, Gunasekharan N, Sudhakar KS, Desikan KV, Shepard CC, Shinnick T. 1996. Association of HLA antigens with leprosy, p. 273-278. In Singh, J. [eds], Current Concepts in Human Genetics. Guru Nanak Dev University, Amritsar.

Research Experience: 31 years
Postdoctoral fellows mentored: 16
PhD students supervised: 30
PhD students [Co-supervised]: 04
Project Assistants supervised: 28
Current PhD students: 08
MTech students supervised: 04

AREA OF INTEREST

Exploiting microbes for human welfare. Our group has been trying to identify the impact of microbes isolated from the environment of different niches of India and gut and other organs of human beings for immunosuppressive, anti-TB and anti-cancer activities. In past, we have discovered the role of ‘Caerulomycin A’ secreted by the novel species of actinomycetes *Actinoalloteichus spitiensis* in improving the acceptance of skin allografts in the experimental model of transplantation. The technology has been developed and licensed for 3 million US dollars [INR 15 crore] to Nostrum, a USA based Pharma Company on February 15, 2009 [**United States Patent No. 8,114,895; Transplantation 2014, PloS One 2014**]. Further, we have shown a therapeutic role of Caerulomycin A in the regression of asthma symptoms [**Scientific Report 2015**]. Importantly, the mechanism of action involved was through enhancement in the TGF- β -Smad3 protein signaling by suppressing IFN- γ -STAT1 protein signaling to expand regulatory T cells. [**J Biol Chem. 2014**].

Reinvigorating drug potency through immunomodulation. Diseases like tuberculosis, cancer, diabetes, malaria, etc., not only contribute to death, but the patients suffering from these diseases are also inflicted with devastating side-effects and toxicity of long-term drug regime. Thus, it accentuates an urgent need to

introduce radical changes in the current drug-regime and explore newer and safer treatment methods. Recently, an improved understanding of host-pathogen interaction has opened new avenues for disease treatment through immunotherapy [J Infect Dis. 2014, J Infect Dis. 2015]. This embolden us to devise a novel strategy of bolstering host immunity by delivering signals through molecules of innate and adaptive immunity; thereby reinforcing the efficacy of drugs to kill the etiological agents of the disease. This novel approach induces significant enhancement in the host immunity and thus reduces the dose and duration of the drug. Further, it reinvigorates drug potency and reduces emergence of drug resistance. Importantly, this adjunct stratagem employing immunomodulators and drugs would have promising therapeutic impact in future in controlling diseases.

Development of novel strategies of vaccination against tuberculosis. We have demonstrated a novel and simple vaccination strategy that involves the culturing of live *Mycobacterium tuberculosis* and *Salmonella typhimurium* in macrophages, followed by drug treatment and gamma irradiation, to kill the bacteria. This approach worked successfully not only for tuberculosis but also showed a significant decrease in mortality of mice challenged with live *S. typhimurium* [J Infect Dis. 2004, US Patent 6783765, 2004]. We have also shown that administration of IL-7 and IL-15 with BCG resulted in an enduring CD4 and CD8 T cell memory response. Mice injected with BCG supplemented with IL-7 and IL-15 displayed enhanced T cell proliferation, T helper 1-type cytokine production, and an increased pool of multifunctional *M. tuberculosis*-specific memory T cells. There was a significant reduction in the mycobacterial burden in the lungs. The results indicate that supplementation of the BCG vaccine with IL-7 and IL-15 would substantially improve its efficacy by enhancing the T cell memory response [J Infect Dis. 2010]. We have also studied the role of T cell memory augmenting cytokines IL-1+IL-6+TNF- α in the induction of the enhancement of long-term protection by the vaccine prepared by utilizing infected macrophages. We observed long-term generation of memory T cells, expansion of both central as well as effector memory CD4 and CD8 T cell pools, elicitation of mainly Th1 memory response, reduction in the mycobacterial load and alleviated lung pathology. Importantly, the protection induced by the vaccine was significantly better than BCG [PLoS One 2011]. We have also developed a novel vaccine using lipopeptide [L91] by linking the promiscuous peptide [sequence 91-110] of 16 kDa antigen of *M. tuberculosis* to Pam2Cys. L91 does not require extensive antigen processing and generates enduring Th1 memory response. This is evidenced by the fact that L91 significantly improved the activation, proliferation and generation of protective T cells. This peptide has self-adjuvanting properties and can be a potent future vaccine candidate against tuberculosis [J Infect Dis. 2011, Trends Mol Med 2012, PLoS Pathogens 2012, Crit Rev Microbiol 2014]. We also explored possibility of employing bioinformatics tools for predicting peptide as potential vaccine candidate [J Proteome Res. 2008, Expert Rev Proteomics 2009, Amino Acids 2010, BMC Immunol. 2012, Amino Acids 2014].

Host-directed therapies. Host-directed therapies are gaining considerable impetus following the observation of the emergence of drug-resistant strains of pathogens due to antibiotic therapy. We are trying to bolster host immunity against the pathogens by signaling through the molecules of innate and adaptive immunity. We have demonstrated triggering macrophages through Clec4 can restrict the survival of *Mtb* by activating autophagy pathway [Autophagy 2020]. Similarly, we observed that curdlan. Activation of lung DCs by mincle can restrict the growth of *Mtb* [Front Immunol. 2019].

We have discovered the role of CD80 in inducing the apoptosis in B cell lymphoma by up-regulating the expression of pro-apoptotic molecules caspase-3, caspase-8, Fas, FasL, Bak, and Bax and down-regulating the levels of anti-apoptotic molecule Bcl-x[L] [J Biol Chem. 2002, Expert Opin Ther Targets 2008, Curr Immunol Rev. 2007, PLoS Pathogens 2012]. We also demonstrated, for the first time, that distinct regulatory mechanism operates in macrophages and B cells for delivering costimulatory signals to T cells [J Immunol. 1998]. Our work has ascertained the potential role of B7-1 and CD28 costimulatory molecules in immunosuppression in leprosy patients [Clin Exp Immunol. 1998]. Our work revealed that resveratrol and curcumin suppress immune response through CD28/CTLA-4 and CD80 costimulatory

pathway [**Clin Exp Immunol.** 2007]. Our study also infer that immunization with antigen along with costimulatory molecules may significantly reduce the dose of antigen and can generate better immune response than antigen alone [**BMC Immunol.** 2006].

TEACHING EXPERIENCE

Pre-PhD students: 25 years

Postgraduate students: 15 years

Graduate students: 5 years

VISITS ABROAD

	Country	Year	Purpose
1.	China	2019	Presented a paper at the International Congress of Immunology, Beijing
2.	UK	2019	Academic Visit, London
3.	Ireland	2019	Academic Visit, Belfast
4.	UK	2015	Presented a paper at the World Congress of Infectious Diseases, London
5.	Malaysia	2014	Presented a paper at the Clinical Microbiology Conference, Kuala Lumpur
6.	Italy	2013	Presented a paper, Immunology Congress, Milan
7.	China	2012	Presented a paper, Vaccine Congress, Shanghai
8.	France	2012	Presented a paper, Tuberculosis Conference, Paris
9.	Australia	2012	Visited collaborator Prof D. Jackson and delivered a lecture at the University of Melbourne
10.	Australia	2012	Invited lecture at the University of Sydney
11.	USA	2011	Presented a paper, American Association of Immunologists Conference, San Francisco
12.	Dubai	2011	Presented a paper, International Conference on Drug Discovery and Therapy, Dubai
13.	Singapore	2009	Presented a paper, Vaccine Congress, Singapore
14.	USA	2009	To attend Controlling Laboratory Biorisks Training Course, Albuquerque
15.	USA	2008	To attend BSL3 Science and Safety Training Program, Atlanta
16.	USA	2008	To attend CDCs 10 th International Symposium on Biosafety Atlanta
17.	Iran	2005	Invited lecture, International Congress of Biochemistry and Molecular Biology, Tehran
18.	Kuwait	2002	Invited lecture, Department of Microbiology and Immunology, Health Science Center, Kuwait
19.	Denmark	2002	Invited lecture, Staten Serum Institute, Copenhagen
20.	USA	2001-02	Visiting Scientist, Trudeau Institute, Saranac Lake, NY
21.	Japan	2000	Presented a paper, The CREST Symposium, Sandai
22.	UK	1994-96	Visiting Scientist, Hammersmith Hospital, London

ADMINISTRATIVE EXPERIENCE

1. Thirty four years of experience of administration in successfully running the laboratory and handling research scholars, project assistants, research associates and technical staff.

2. Fifteen years of experience in efficaciously running, managing and maintaining a central facility of P-3 and BSL-3 laboratories, which was used by several scientists, research scholars and technical staff of the institute. I was also involved in the construction and functioning of the new BSL-3 facility of the institute.
3. Three year experience in efficiently managing and maintaining Experimental Animal Facility of the institute. I was also involved in the modernization of the facility. The facility became self-dependent during my tenure and no animals were procured from other sources. The facility also catered the need of different institutes, universities, colleges, pharma industries, etc., and earned the external cash revenue. Several scientists of the institute used the facility.
4. Member of several inter and intra-institutional committees.

MEMBER of COMMITTEES

1. Selection Committee: Technicians, 1991. IMTECH, Chandigarh
2. Selection Committee: Technical Assistants, 1992. IMTECH, Chandigarh
3. Selection & Assessment Committee: Scientists, 1997. Centre for Biotechnology, Delhi
4. Board of studies in Human Genomics. 2005. Panjab University, Chandigarh
5. Selection & Assessment Committee: Scientists, 2004-2009. IIIM, Jammu
6. Task Force Committee-ICMR. New Delhi [2006-11]
7. Technical Committee-ICMR. New Delhi [2006-11]
8. In-charge BSL3, IMTECH-CSIR [2006-12]
9. Biosafety Officer, CSIR-IMTECH [2007-12]
10. Selection Committee: Scientists, 2008. IMTECH, Chandigarh
11. Selection Committee: Technicians, 2008. IMTECH, Chandigarh
12. CSIR committee for minimization of animal use. 2008. CSIR, New Delhi
13. Institute's Animal Ethics Committee, IMTECH, Chandigarh
14. Science Coordination Committee. Open Source Drug Discovery [OSDD], 2009.
15. Selection Committee-Engineers-2008. IMTECH
16. Expert Member: Selection Committee of Scientists, 2009. IMTECH, Chandigarh
17. Expert Member-Selection Committee [2009]: M. Pharma, Jamia Hamdard, New Delhi
18. NMITLI-IOP Screening Committee [2009]-CSIR, New Delhi
19. NMITLI-Vaccine Development [2009-2011], CSIR, New Delhi
20. Shanti Swarup Bhatnagar Advisory Committee-Medical Sciences-2009
21. Expert Member [Biomedicine]: Indo-Hungarian bilateral program-2009
22. Selection Committee: CSIR-Nehru Science Postdoctoral Research Fellowship-2009
23. Committee to oversee Publications and Patentability-2010.
24. Group Leader [Health Care]: CSIR Technofest-2010
25. Research Degree Committee [Biotechnology], Panjab University, Chandigarh-2010-2011
26. Board Nominee: Academy of Scientific and Innovative Research [AcSIR]-2010
27. Shanti Swarup Bhatnagar Advisory Committee-Medical Sciences-2010
28. Management Committee, IMTECH, Chandigarh-2010, 2011
29. Selection Committee, Hamdard University, New Delhi-2011
30. Revised Performance Appraisal System for CSIR Scientists-2011
31. Filling up of Vacant Scientific and Technical posts at IMTECH-2011
32. Committee of selection of CSIR SRF/RA-2011
33. Use/misuse of instruments in various laboratories-2011
34. Selection committee for the engagement of part time lady doctor-2011
35. Selection Committee of Scientists: Indian Institute of Petroleum, Dehradun-2011
36. Assessment Committee of Scientists: National Institute of Immunology, New Delhi [2011]
37. Board of Studies. Hamdard University, New Delhi-2011
38. Shanti Swarup Bhatnagar Advisory Committee-Medical Sciences-2011
39. DST-INSPIRE Program-2012
40. University of Kashmir, INSPIRE Expert for Life Sciences
41. DBT-Expert Member online eProMIS System
42. CSIR-EMPOWER Committee [2012]
43. Board Member- Academy of Scientific and Innovative Research [AcSIR]
44. DBT Nominee for Institutional Biosafety Committee, NIPER, Mohali
45. DBT Nominee for Institutional Biosafety Committee for PanEra Biotech Pvt Ltd, Lalru [2012, 2013]
46. Member-Intellectual Property Cell, IMTECH
47. CSIR-Nehru Science Postdoctoral Research Fellowship Schemes [2012]
48. DBT-Task force committee in tuberculosis [2012]
49. CSIR-IGIB: Member screening committee scientists (Group IV) [2013]
50. NMITLI-Vaccine Development [2013], CSIR, New Delhi
51. Selection committee: Project fellows/Senior Research Fellows. CSIO, Chandigarh [2013]
52. Selection committee: CSIR-Nehru Science Postdoctoral Research Fellowship [2013]
53. Recruitment & Assessment Board, Biosciences & Biotechnology, CSIR, New Delhi, 2013

54.	Board of Studies, Faculty of Agricultural Sciences, AMU, Aligarh, 2013
55.	Tuberculosis Consortium India, AIIMS, New Delhi-2014
56.	DBT-ICMR HIV cohort study-2014
57.	Selection committee: CSIR-Nehru Science Postdoctoral Research Fellowship [2014]
58.	Assessment Committee, CDRI, Lucknow-2014
59.	ICMR task force committee on Leptospirosis-2014
60.	Selection committee: Project fellows/Senior Research Fellows. CSIO, Chandigarh [2014]
61.	Member Selection Committee, Assistant Professor, DAV University, Jalandhar [2014]
62.	Member: Standing Committee for Bhagyatara Award 2014, 2015
63.	Research Degree Committee, Biotechnology Engineering, Panjab University [2014-15]
64.	DBT-ICMR HIV cohort study-2015
65.	Chairman Selection Committee: Project fellows/Senior Research Fellows. CSIO, Chandigarh [2015]
66.	Selection Committee: CSIR-Nehru Science Postdoctoral Research Fellowship [2015]
67.	Selection Committee 2015: Associate Professors, Microbial Technology, Panjab University, Chandigarh
68.	Board of Postgraduate Studies in Zoology, Panjab University, Chandigarh [2015-17]
69.	Standing Committee for Bhagyatara Award, Panjab University, Chandigarh [2015]
70.	Assessment Committee, CDRI, Lucknow-2015
71.	Screening Committee for selection for Scientists and Senior Scientists, CSIR-IICB, Kolkatta [2015]
72.	Selection Committee, DST-INSPIRE Faculty, Panjab University, Chandigarh [2015]
73.	Selection Committee for Associate Professors, Panjab University, Chandigarh [2015]
74.	Selection Committee for Professors, Associate Professors and Assistant Professors, Central University Panjab, Bhatinda [2015]
75.	Chairman: Publications and Patents, CSIR-IMTECH [2015].
76.	Collegium to evaluate assessment of Senior Principal Scientists, CSIR-IMTECH [2015]
77.	Shanti Swarup Bhatnagar Advisory Committee-Medical Sciences-2015
78.	Collegium to evaluate assessment of Senior Principal Scientists, CSIR-IMTECH [2016]
79.	SRF assessment committee, Indian Institute of Integrative Medicine [2016]
80.	SRF assessment committee, Jammu University [2016]
81.	SRF assessment committee, Indian Institute of Science Education and Research (IISER), Mohali [2016]
82.	Assessment committee of Associate Professor, Jamia Millia Islamia, New Delhi
83.	Selection committee of Assistant Professors: Indian Institute of Technology (IIT), Ropar [2016]
84.	Member: Standing Committee for Bhagyatara Award [2017]
85.	Selection Committee: DST-Inspire Fellowship [2017]
86.	Chief Guest: Communicable and non-communicable diseases: latest therapeutic interventions, Panjab University [2017]
87.	DBT Nominee: Biosafety Committee [2017]
88.	Selection Committee: CSIR-Nehru Science Postdoctoral Research Fellowship, CSIR, New Delhi [2017]
89.	Selection committee of Scientists: Central Food Technology Research Institute, Mysore [2017]
90.	Selection committee of Scientists: Central Drug Research Institute, Lucknow [2017]
91.	Selection committee: Bhagyatara Award [2017]
92.	Selection committee: INSA Young Scientist Award [2018]
93.	Selection committee: Bhagyatara Award [2018]
94.	Selection committee: INSA Fellows [2018]
95.	Task Force Committee: Human Microbiome, Department of Biotechnology, New Delhi [2018]
96.	Task Force Committee: Vaccines, DBT, New Delhi [2018]
97.	Task Force Committee: Leptospirosis and its control, ICMR, New Delhi [2018]
98.	Selection Committee: Professor, Associate Prof and Assistant Prof, Central University of Punjab, Bhatinda [2019]
99.	Selection Committee: Professor, Associate Prof and Assistant Prof, Sant Longowal Institute of Engineering & Technology, [2019]
100.	Member: Board of Studies, Central University of Punjab, Bhatinda, [2019-2021]
101.	Selection Committee: DST Swarna Jayanti Fellowship, Subject Area Committee (SAC) in the area of Life Sciences, 2021.
102.	Member: Selection Committee for recruiting Assistant Professors at the Amity University, Mohali [2021].
103.	Expert: Bioengineering program. Indian Institute of Information Technology Design and Manufacturing (IIITDM) Kancheepuram-Chennai, 2022.
104.	Research Advisory Committee, Integral University, Lucknow [2022].
105.	Selection Committee of Associate Professors, AIIMS, New Delhi [2022].

GRANTS AND PROJECTS

SN	Project Title	Funding Agency	Budget [in lacs]	Duration
1.	Understanding the costimulatory mechanism of 150kDa [M150] membrane protein of macrophages in the differentiation of naive T cells into <i>Th1</i> and <i>Th2</i> subtypes and in the augmentation of cell mediated immunity in experimental tuberculosis [Project Leader]	DBT	27.00	1996-1999
2.	Targeting <i>M. tuberculosis</i> entrapped in MHC-mismatched macrophages to dendritic cells: approach for the induction of tuberculosis specific protective immunity [NIF Award] [Project Leader]	CSIR	10.00	1999-2002
3.	Understanding the costimulatory mechanism of 150kDa [M150] membrane protein of macrophages in the activation of effector T cells [Project Leader]	CSIR	6.00	1999-2002

4.	Costimulatory molecules mediated regulation of the activation and differentiation of antigen presenting cells [Project Leader]	CSIR	10.00	2002-2005
5.	Potent role of pro-memory cytokines in the protection and generation and sustenance of memory responses in animals immunized with vaccine prepared from macrophages infected with live <i>M. tuberculosis</i> [Project Leader]	ICMR	25.00	2006-2009
6.	Develop vaccine against tuberculosis [Project Leader]	DBT	9.00	2006-2009
7.	Potent role of vaccines prepared from macrophages infected with live bacteria in the protection and generation of long-lasting memory cells against <i>Mycobacterium tuberculosis</i>	DBT	54.00	2006-2009
8.	Targeting Promiscuous Peptides to Dendritic Cells through Toll like Receptor-2 and Elicitation of Effective Immunity against <i>Mycobacterium tuberculosis</i> [Project Leader]	CSIR	55.00	2007-2012
9.	DBT sponsored program support on R & D of therapeutic proteins [co-investigator]	DBT	450.00	2006-2009
10.	Understanding the molecular mechanism of diseases of national priority: developing novel therapeutic approaches [co-investigator]	CSIR	250.00	2008-2013
11.	Exploration and exploitation of microbial diversity of India [co-investigator]	CSIR	2500.0	2008-2013
12.	Development of Caerulomycins as Novel Immunosuppressive Agents to Prevent Organ Rejection after Transplantation and to Address Various Auto-immune Disorder [Project Leader]	CSIR	410.00	2010-2014
13.	Centre for biotherapeutic molecule discovery [team member]	CSIR	4000.0	2012-17
14.	Man as a Superorganism: Understanding the Human Microbiome [co-investigator]	CSIR	2600.0	2012-17
15.	Multidirectional approaches for molecular and systems level understanding of regulatory networks in pathogenic microbes [co-investigator]	CSIR	2880.0	2012-17
16.	Drug Discovery: Bugs to Drugs Programme [co-investigator]	CSIR	1723.00	2012-17
17.	Genomics and Informatics Solutions for Integrating Biology [co-investigator]	CSIR	1690.0	2012-17
18.	Management of infectious diseases by immunomodulation [Project Leader]	CSIR	750.00	2011-16
19.	Novel Vaccine Delivery Systems that Elicit Robust and Enduring T Cell Memory Responses: Alternatives to BCG Vaccination in Tuberculosis Endemic Regions [Project Leader]	DBT-Australia	185.18	2012-16
20.	Synthesis of lipidated promiscuous peptides of <i>Mycobacterium tuberculosis</i> under good laboratory practices [Project Leader]	CSIR	107.56	2016-18
21.	Enhancement of the immunogenicity and protective efficacy of lipopeptide vaccine against <i>Mycobacterium tuberculosis</i> using peptidomimetics and conjugation with isoniazid [co-investigator]	DST-SERB	61.52	2017-20
22.	Generation of promiscuous peptides entrapped nanoparticles displaying TLR-2 ligand to impart protective immunity against <i>Mycobacterium tuberculosis</i> [Project Leader]	DST-SERB	70.00	2018-contd
23.	Immunotherapeutic and prophylactic remedy against heroin dependency [Project Leader]	MHRD	45.00	2018-contd.
24.	Co-administration of rapamycin with MOG peptide and restricting the development of experimental autoimmune encephalomyelitis by skewing Th17 cells to Tregs [Project Leader]	SPARC	63.00	2019-contd.

