

Syed Mohsin Waheed (Ph.D.)

Contact and email: 9811968019; syedmohsinwaheed@yahoo.com

Current Position Title: :

Associate Director (R&D), Divacc Research Laboratories Pvt. Ltd. AIC-JNUFI, Jawaharlal Nehru University, New Delhi, (2020-continuing).

Positions held:

Professor, Faculty of Biotechnology, Graphic Era University, Dehradun (June 2018- 2020).

Associate Professor, Faculty of Biotechnology, Graphic Era University, Dehradun Accredited 'A' by NAAC), Uttarakhand (July 2013-June 2018).

Assistant Professor-cum- Jr. Scientist, Division of Animal Biotechnology, SKUAST-Kashmir (2010-2013 June).

Teaching experience: Have been teaching PG and UG classes since 2010.

Subjects/courses taught/teaching: Cell & Molecular Biology, Recombinant DNA technology. Animal Cell Culture, Animal Biotechnology, Stem Cell Technology, Nanobiotechnology, Protein engineering, Microbial Technology, Mammalian Physiology, Basic Biotechnology and also IPR, bioetics and biosafety.

Research interests: Vaccine development, molecular pathogenesis, heterologous protein expression, nitric oxide biology, stem cell technology and nanobiotechnology.

Ph.D./Research Guidance Experience: Four candidates awarded Ph.D. under my supervision and currently supervising two Ph.D. candidates, besides scores of undergraduate and postgraduate project dissertations.

1. Saumya Singh: In vitro study of neuronal nitric oxide synthase dependent modulation of nitric oxide production by herbal extracts (2017).
2. Himani Badoni: Effect of methanolic extracts of fruits of *Emblica officinalis* L. And *Terminalia bellirica* (Gaertn.) Roxb. On neuroinflammation in rat model of Parkinson's disease (2019).
3. Neema Tufchi: Computational models for the identification and analyses of different markers of schizophrenia (2021).
4. Vinay Kumar: Synthesis and characterization of *Bacillus anthracis* PA-D4 nanoconjugate (2021).

Academic qualifications:

Degree	Year	Subject	Institute
B.Sc	1990	Zoology	Aligarh Muslim University, Aligarh, U.P. (India)
M.Sc.	1993	Biotechnology	Aligarh Muslim University, Aligarh, U.P. (India)

Ph.D. thesis title: “Studies on the production of recombinant protective antigen of *Bacillus anthracis*”

<http://shodhganga.inflibnet.ac.in/handle/10603/21020>

Post-doctoral Training

Jawaharlal Nehru University, New Delhi, (India): Research Associate: (2002 -2004) Centre for Biotechnology

Univ. of Medicine and Dentistry New Jersey (Now Rutgers, the State University of New Jersey), (NJ, U.S.A.):
Post- doctoral fellow: (2005) Mol. Biology & Biochemistry.

Case Western Reserve University, Cleveland, (OH, USA): Research Associate: (2005) Infectious Diseases Division

Lerner Research Institute, CCF, Cleveland, (OH, USA): Post-doctoral fellow: (2006-2009) Pathobiology, Biomedical Engineering.

Awards and achievements

- (I) **Technology Transfer:** Technology transfer to Panacea Biotech, for world’s 1st recombinant human anthrax vaccine, through School of Biotechnology, JNU, New Delhi.
- (II) Work was selected for **2001 ASCB Press Book** which **shortlisted 17 potential new stories from 3000 abstracts presented** at the annual meeting at Washington DC, USA.
- (III) Part of the team that made **world’s first handmade cloned Pashmina goat ‘Noorie,’** at Division of Animal Biotechnology, F.V.Sc. & A.H., SKUAST-Kashmir.
- (IV) Travel Grant Award, **American Society for Microbiologists (ASM)**, 7th International Bacillus ACT Meeting, 2015, 27-31 October, 2015, New Delhi India.

Patents and Publications

A. Patents: 16 Patents including an Indian, US and European patents and a PCT on recombinant anthrax vaccine.

1.	<i>Date of filing of Application: 10/04/2022</i> <i>Publication date: 15/04/2022</i> <i>Title of the invention: Conjugated Nanoparticles as Anthrax Vaccine</i> <i>International classification: C07K0014320000, A61K0039070000, B82Y00330000000, A61K0033350000, C07K0016120000.</i>	<i>Application No.</i> 202211021390A	<i>Vinay Kumar; Manu Pant; S.M. Waheed</i>
2.	<i>India</i> A process Of Overproducing Anthrax Protective Antigen Constitutively from E. coli using Fed-batch culture	<i>1127/Del/2001</i>	<i>Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan.</i>
3.	International Application Published Under The Patent Cooperation Treaty (PCT): High Level Constitutive Production Of Anthrax Protective Antigen.	<i>WO03040179</i>	<i>Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan</i>

4.	<i>US (The United States of America): High level constitutive production of anthrax protective antigen.</i>	USPTO 20050054038: (03/10/05)	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
5.	<i>Europe: High level constitutive production of anthrax protective antigen.</i>	EP1442052 (A1)	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
6.	<i>Canada: High level constitutive production of anthrax protective antigen.</i>	CA2465679 (A1)	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
7.	<i>China: High level constitutive production of anthrax protective antigen.</i>	CN1582298 A - 2005-02-16	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
8.	<i>Israel: High level constitutive production of anthrax protective antigen.</i>	IL161725D D0 - 2005-11-20	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
9.	<i>Japan: High level constitutive production of anthrax protective antigen.</i>	JP2005510215T (A) - 2005-04-21	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
10.	<i>Mexico: High level constitutive production of anthrax protective antigen.</i>	MXPA04004281 A- 2005-03-31	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
11.	<i>Russia</i>	RU2004117085 A -2005-03-27	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
12.	<i>South Africa</i>	ZA200403396 A - 2005-08-05	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
13.	<i>Australia</i>	AU-A-2002222502 24-07-2003	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
14.	<i>Hongkong</i>	HK1072610 (A1)2008-05-02	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
15.	<i>Ukraine</i>	UA80809 (C2) 2007-11-12	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
16.	<i>Austria</i>	AT484517 2005-04-21	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan
17.	<i>Germany</i>	DE60143276 D1	Rakesh Bhatnagar, Syed Mohsin Waheed and Vibha Chauhan

Data source: <https://worldwide.espacenet.com>

Publications:

Publications in internationally peer reviewed journals.

	Microencapsulation and Nanoparticle Based Formulations as Drug Delivery Strategy for Disease Targeting	Vinay Kumar, Nirmal Kumar, Ayush Madan and Syed Mohsin Waheed*	Book chapter (submitted) for Springer-Nature Publishers, Book: Nanotechnology in Miniaturization: An Emerging Trends to Fabricate Future Devices.
1.	Bacterial Nitric Oxide Synthase (bNOS), bNOS- Inhibitor Design and Bacterial Pathogenesis: An overview	Nupur Gupta, Priyank Sharma, Vinay Kumar, Nirmal Kumar, *Syed Mohsin Waheed	Bioessays (submitted)

2.	Efficacy of Reuterin and Bacteriocins Nisin and Pediocin in the Preservation of Raw Milk from Dairy Farms	Nirmal Kumar, Vinay Kumar, Syed Mohsin Waheed* and Diwas Pradhan	Food Technology and Biotechnology 2020 Dec; 58(4): 359–369. doi: 10.17113/ftb.58.04.20.6728 Impact factor: 3.9
3.	Protective and Modulatory Effects of <i>Trapa bispinosa</i> and <i>Trigonella foenum- graecum</i> on Neuroblastoma Cells through Neuronal Nitric Oxide Synthase	Saumya Singh, Promila Sharma, Syed Mohsin Waheed* doi:10.1089/adt.2018.912. Epub 2019 Nov 19.	Assay and Drug Development Technologies (accepted, 2019). 2020 Jan; 18(1):64-74. Impact factor: 1.7
4.	Rhythmic Breathing: Immunological, Biochemical, and Physiological Effects on Health	Promila Sharma, Ashish Thapliyal, Tribhuwan Chandra, Saumya Singh, Himani Baduni, Syed Mohsin Waheed	Adv Mind Body Med. 2015; 29(1):18-25.
5.	Current update on rapamycin production and its potential clinical implications	Girijesh Kumar Patel, Ruchika Goyal and Syed Mohsin Waheed	Book Chapter in “High Value Fermentation Products,” Volume 1, (145–164) © 2019. https://doi.org/10.1002/9781119460053.ch6 Wiley-Scrivener Publishing LLC
6.	In vitro Development of Goat-Sheep & Goat- Goat zona- free cloned embryos in different culture media	Firdous A Khan, Maajid Hassan Bhat, Syed H Yaqoob, Syed M Waheed , Niyaz Naykoo; Athar H Hakeem, Hilal M Khan, Mujeeb R Fazili, Nazir A Ganai, Suresh K Singla	Theriogenology , Feb 2014 81(3): 419-423. Published online 11 November 2013.
7.	Open pulled straw vitrification of in vitro matured sheep oocytes using different cryoprotectants.	M.H. Bhat, S.H. Yaqoob, F.A. Khan, S.M. Waheed , V. Sharma, G. Vajta, N.A. Ganai, R.A. Shah	Small Rum. Res. Volume 112, Issues 1– 3, May 2013, Pages 136-140 http://dx.doi.org/10.1016/j.smallrumres.2012.12.017
8.	Nitric oxide blocks cellular heme insertion into a broad range of heme proteins	Syed Mohsin Waheed , Ghosh A, Chakravarti R, Biswas A, Haque MM, Panda K, Stuehr DJ	Free Radic Biol Med. 48 (11):1548-58. (2010)
9.	Oral Vaccines: new needs, new possibilities	Mohd. Azhar Aziz, Shuchi Midha, Syed Mohsin Waheed and Rakesh Bhatnagar	BioEssays 29 (6):591-604. (2007)
10.	Thermal inactivation of protective antigen of <i>Bacillus anthracis</i> and its prevention by polyols	Singh S, Singh A, Aziz MA, Waheed SM , Bhat R, Bhatnagar R	Biochem Biophys Res Commun. 322 (3):1029-37. (2004)
11.	Gln277 and Phe554 residues are involved in thermal inactivation of protective antigen of <i>Bacillus anthracis</i>	S Singh, N Ahuja, V Chauhan, E Rajasekaran, Syed Mohsin Waheed , R Bhat, R Bhatnagar	Biochem Biophys Res Commun. 296(5): 1058-62. (2002)
12.	Expression of anthrax lethal factor gene by osmolyte induction.	Aparna Singh, Samer Singh, Syed Mohsin Waheed , Puneet Khandelwal, Rakesh Bhatnagar	FEMS Microbiology Letters 10414:1-5. (2002).
13.	Constitutive Expression of Protective Antigen Gene of <i>Bacillus anthracis</i> in <i>Escherichia coli</i>	Vibha Chauhan, Aparna Singh, Syed Mohsin Waheed , Samer Singh, and Rakesh Bhatnagar	Biochem Biophys Res Commun. 283:308–315. (2001).

14.	Expression and Purification of the Recombinant Protective Antigen of <i>Bacillus anthracis</i> .	Syed Mohsin Waheed , Pankaj Gupta, and R. Bhatnagar	Protein Expression and Purification. 16: 369–376. (1999).
15.	Activation of Phospholipase C and Protein Kinase C is Required for Expression of Anthrax Lethal Toxin Cytotoxicity in J774A.1 Cells	Rakesh Bhatnagar, Nidhi Ahuja, Ritu Goila, Smriti Batra, S. M. Waheed and Pankaj Gupta	Cell. Signal. 11(2): 111–116. (1999)

*Corresponding author

Publications in Scopus indexed and other journals

1.	Pandemic and Vaccines – The Case of Deadly Anthrax Infection, Vaccine Development and Evolution	Vinay Kumar, Syed Mohsin Waheed and Manu Pant	International Journal of Current Research and Review. 2020, 12(20): 87-94 (Scopus indexed)
2	Anti-Parkinson's activity of <i>Embllica officinalis</i> and <i>Terminalia bellirica</i>	Himani Badoni, Promila Sharma, Manoj K. Pal, Kumud Pant, Bhawana, Neetu Sharma, Nilay Singh, Syed Mohsin Waheed , Bindu Agarwal	JCR. 2020; 7(17): 2994-3004 Doi: 10.31838/jcr.07.17.378 (Scopus)
3.	Green synthesis and antibacterial activity of silver nanoparticles synthesized using <i>ficus auriculata</i> fruit extracts	Vinay Kumar, Nirmal Kumar, Leirika Ngangom, Kunal Sharma, Manu Pant and Syed Mohsin Waheed	Ecology, Environment and Conservation Journal to be published in October, 2020 special supplement. (Scopus indexed)
4.	Promotion Of Science And Technology In Agricultural Sector Of Rural Areas In India	Ashfaq Ahmad Shah, Amit Gupta and Syed Mohsin Waheed	Book Chapter in: Science and technology applications in rural areas) May 2020, 53-60. UCOST and TI Pvt Ltd.
5.	Rhododendron: Traditional Vs Modern, Benefits For Himalayan Communities	Pramod Rawat, Nishant Rai, Navin Kumar and Syed Mohsin Waheed*	Ecology, Environment and Conservation Journal Supplement issue - October 2020 (Scopus indexed)
6.	Green synthesis and antibacterial activity of silver nanoparticles synthesized using <i>Ficus auriculata</i> fruit extracts	Vinay Kumar, Nirmal Kumar, Leirika Ngangom, Kunal Sharma, Manu Pant and Syed Mohsin Waheed*	Ecology, Environment and Conservation Journal Vol 26, Oct Suppl. Issue, 2020; 108-113 (Scopus indexed)
7.	Phytochemical Analysis and Evaluation of Antimicrobial Activity of <i>Berberis aristata</i> root extract	Leirika Ngangom, Ankita Sati and Syed Mohsin Waheed*	Universities' Journal of Phytochemistry and Ayurvedic Heights. December 2019
8.	In-Silico Analysis and Identification of functional Single Nucleotide Polymorphism (SNPs) of the DISC1 gene.	Neema Tufchi, Kumud Pant, Syed Mohsin Waheed and Devvret Verma	Current Trends in Biotechnology and Pharmacy 13 (3), 317-324. 2019. (Scopus indexed)
9.	Microbiological analysis for hydrocarbon exploration	SM Waheed , P Sangal, S Shukla	Environ Risk Assess Remediat. 2018; 2 (3): 15
10.	Microorganisms Patent Law Puzzlement: To the Point Tactics	Palak Sangal, Ayush Madan, Sakshi Tripathi and Syed Mohsin Waheed	Microbiology: An International Journal 2:2, March 30, 2017
11.	In-silico modelling of DTNBP1, NRG1 and AKT1 gene target of Schizophrenia for protein structure analysis	Neema Tufchi, Kumud Pant, Syed Mohsin Waheed	JCHPS Special Issue 4: October 2016 www.jchps.com Page 22 Articles is selected for presentation as well as publication in "ICBBB, 2016. (Scopus)
12.	In Silico Approaches for Elucidating the Potential Inhibitor against Schizophrenia to Target	Neema Tufchi, Kumud Pant, Syed Mohsin Waheed , Devvret	3rd International Conference on New Frontiers in Biotechnology: Science, Health & Medicine GenoPro Sep 23-26, 2016.

	RGS4 Isoforms.		
13.	A Comparative Study of Antioxidant Properties and Phytochemical Composition of <i>Trapa bispinosa</i> , <i>Trigonella foenum-graecum</i> , <i>Syzygium cumini</i> and <i>Betula utilis</i>	Saumya Singh, Himani Baduni, Vinay Kumar, Ayush Madan, Promila Sharma and Syed Mohsin Waheed	Int J of Pharma and Sci Rev Res; 2016, 38:2, 83-88. (Scopus)
14.	In silico investigation of phytoconstituents from various plants against neuroinflammatory markers as potent therapeutic targets	Himani Baduni, Saumya Singh, Promila Sharma, Syed Mohsin Waheed	International Journal of Pharmacy and Pharmaceutical Science, 2016, 8:3. (Scopus)
15	In Silico Prediction And Validation Of MicroRNAs From Japanese Encephalitis Virus	Neema Tufchi, Kumud Pant, Bhaskar Pant, Syed Mohsin Waheed	International Journal for Pharmacy and Pharmaceutical Sciences 2015; 7 (6):333-336. (Scopus)

*Corresponding author

B. Conferences: Participated and presented work in several international and national conferences including annual meetings of ASM (American Society for Microbiology) sponsored Bacillus ACT and ASCB (American Society for Cell Biology).

International conferences

1. miRNA encoding potential of T-DNA and its potential role in host-pathogen interaction- An in silico analysis. Budhi Sagar Tiwari, **Syed Mohsin Waheed** and Samer Singh. International Conference on Microbial Biotechnology, MICROCON 2017: "Microbes for the sustainable development", 16-18 February 2017, Panjab University, Chandigarh, India.
2. 16th International Conference on Systems Biology, 23-26 November, 2015, Biopolis, Singapore.
3. ASM-SBS Bacillus ACT, international workshop on 'Anthrax Biorisk Management'. 26th October, 2015, New Delhi, India.
4. 7th International Bacillus ACT Meeting, 2015, 27-31 October, 2015, New Delhi India (Participant and member organizing committee).
5. "High Level Constitutive Production of Anthrax Protective Antigen using fed-batch culture method." Poster presented at **5th International Conference on Anthrax**, Nice, France 2003.
6. *Constitutive Overproduction of Anthrax Protective Antigen In E. coli*. 41st Annual Meeting of the **American Society for Cell Biology** held in USA during December 08-12, 2001.
7. Expression and Purification of the Recombinant Protective Antigen of *B. anthracis*. **3rd International Conference on Anthrax** held during September 7-10, 1998 at University of Plymouth, UK.
8. Cloning, Expression and Purification of the Recombinant Protective Antigen of *B. anthracis*. Proceedings of the **10th International Congress of Immunology**, held in New Delhi, India, November 1-6 1998.

National: Presentations at conferences and meetings:

S.No.	Publication	Author	Journal
1.	Development of Interspecies goat handmade cloned embryos by using sheep oocytes	Maajid Hassan Bhat, Syed Hilal Yaqoob, Firdous A. Khan, Syed M Waheed and Riaz A. Shah	8 th JK Science Congress Proceedings, 2012
2.	OPS vitrification of IVM sheep oocytes using different cryoprotectants	Maajid Hassan Bhat, Syed Hilal Yaqoob, Firdous A. Khan, Syed M Waheed and Riaz A. Shah	8 th JK Science Congress Proceedings, 2012

3.	Effect of cold stress on the biochemical profile of Pashmina goat	Uneeb Urwat, Inayat Fazili, F. D. Shiekh, S. M. Waheed , R. A Shah and N. A. Ganai.	8 th JK Science Congress Proceedings, 2012
4.	Expression of anthrax protective antigen by osmolytic induction in <i>E. coli</i>	Syed Mohsin Waheed , Riaz A Shah and Nazir Ahmad Ganai.	8 th JK Science Congress Proceedings, 2012
5.	Expression and purification of Protective antigen of <i>Bacillus anthracis</i> in <i>E. coli</i>	Syed Mohsin Waheed , Pankaj Gupta and Rakesh Bhatnagar	Silver Jubilee Celebration of School of Life Science, JNU, New Delhi, 1998

C. Guest/Invited lectures:

- Delivered lecture on **IPR for Research & Development and Innovation in Academics** at Shobhit University, Gangoh, 26/09/2019.
- Delivered Lecture on "IPR and Bioethics" during 14 day DBT Sponsored STTC entitled on "Extraction process design, isolation, and applications of Polyphenols and value added Biomaterials", 23rd October-5th November 2017 jointly organized by the Department of Mechanical and Department of Biotechnology, Kumaraguru College of Technology, Coimbatore, Tamil Nadu. (Affiliate of Anna University)
- IPR for Research & Development in Academics, 3/11/2017. Three day Certification Programme on IPR and Commercialization scheduled during November 2-4, 2014 organized by Departments of ECE, Biotechnology and IPR Cell of Kumarguru College of Technology, Coimbatore.
- International Patent Filing and PCT, 3/11/2017 at KCT, Coimbatore.
- Discussion & Case Study of Patents, 4/11/2017 at KCT, Coimbatore.
- Animal Cell Culture: An Overview of Concepts, Applications and Advancements, 7/11/2017. "In Vitro Cell Culture: Natural Products Efficacy and Toxicity Analysis" a 3 day workshop organized dept of Biotechnology, KCT, Coimbatore.

D. Memberships

- Life Member, Phytochemistry and Ayurveda Society (Registered).
- Member, Academic Council, (2014; 2018-continuing) Graphic Era University, Dehradun, Uttarakhand.
- Member, IPR Committee (2014-till date), Graphic Era University.
- IPR Coordinator (since 2014-16) of Department of Biotechnology, Graphic Era University, Dehradun, Uttarakhand.
- IPR Coordinator (since 2016 January-continuing) of Graphic Era University, Dehradun, Uttarakhand.
- Member, Editorial Board, Universities' Journal of Phytochemistry and Ayurvedic Heights.
- Member, Editorial Board, Journal of Graphic Era University.
- Member, Departmental SRC.
- Member, Board of Studies.
- Member, Organizing Committee, 7th International Bacillus ACT Meeting, 2015, 27-31 October, 2015, New Delhi India.
- Member, American Society for Cell Biology, 2001-2002.
- Member, American Society for Microbiology, 2015-16.

E. Referees:

- Prof. Rakesh Bhatnagar
National Science Chair
School of Biotechnology
Jawaharlal Nehru University

Phone: +91 11 26704079 (Off.); +91 11 26179751 (Lab.); Mobile: 9971152004.

E-mail: rakeshbbhatnagar@mail.jnu.ac.in, rakeshbbhatnagar@jnu.ac.in, prof.rakeshbbhatnagar@gmail.com

2. Prof. Dennis J Stuehr
NC22-Pathobiology,
Cleveland Clinic,
Lerner Research Institute,
Cleveland Clinic,
9500 Euclid Avenue,
Cleveland, Ohio 44195
Phone: 216-445-9761
E-mail: stuehrd@ccf.org

3. Prof. Mohammad Mahfuzul Haque
Department of Biotechnology
Ramanujan Block
Jamia Millia Islamia
Maulana Mohammad Ali Jauhar Marg
Jamia Nagar, New Delhi – 110025
Phone: 011-26981717 Ext: 3426
Cell: 8376835012
Email: mhaque@jmi.ac.in, haquemahfuz@gmail.com