

Faculty Details

Name: Prof. Niyaz Ahmed

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Contact: 04023134585

Area Of Research: Pathogen Biology and Epidemiology, Pathogen Genomics, Molecular Host Pathogen Interaction Dynamics

Faculty Details

Prof. Niyaz Ahmed is a One Health epidemiologist and professor of Biotechnology and Bioinformatics at the School of Life Sciences. He has contributed pioneering studies in the area of Molecular Epidemiology in India, for which he was given the 'Shanti Swarup Bhatnagar Prize', India's foremost Science Prize, in the area of Medical Sciences in 2016. He also served as the Senior Director at the International Centre for Diarrheal Disease Research, Bangladesh (icddr, b) in an international leadership position from Nov 2016 to March 2020 (UN eq scale D1 step 8). A Fellow of the American Academy of Microbiology, the Royal Society of Chemistry (UK), the Royal Society of Biology (UK) and the National Academy of Sciences India, Prof. Ahmed serves as the founder Editor -in-Chief of Gut Pathogens journal since 2008. In 2017, Dr Ahmed was awarded the Microsoft Azure for Research Award in Public Health to work towards genomics of identification of new genes, new proteins and novel pathways underlying the multiple drug resistance phenotypes in bacteria. Dr Ahmed has earlier received the 'University of Hyderabad Chancellor's Award' from the then Chancellor of the University, Dr C. Rangarajan (the former Governor of the state of Andhra Pradesh and the former Governor of the Reserve Bank of India). He is also the recipient of the 'National Bioscience Award' of the Government of India. Dr Ahmed also holds appointment as Adjunct Professor of the Academy of Scientific and Innovative Research. He is the Corresponding Fellow of the European Helicobacter and Microbiota Study Group. In 2011, Prof. Ahmed was invited to the position of Academic Icon Professor in Courtesy at the University of Malaya in Kuala Lumpur, Malaysia in a visiting capacity, which he occupied until 2015.

Research Interests:

Prof. Ahmed's main research interest is about how bacteria interact with humans and the environment in order to evolve fitness advantages such as multiple drug-resistance and strain/host specific virulence? Prof. Ahmed's work provided wheels to the emerging discipline of Functional molecular infection epidemiology. His research interests encompass genomics, evolution and molecular pathogenesis of enteric pathogens with major emphasis on virulence and antimicrobial resistance. He also contributed important initial studies on the two co-evolved human pathogens, namely, Mycobacterium tuberculosis and Helicobacter pylori, in the context of evolution of adaptation mechanisms, and acquisition and optimization of virulence during colonization/infection. Prof. Ahmed also has interest in comparative genomics of bacterial pathogens obtained from single patients at different occasions. His contribution to public health microbiology and veterinary medicine entails molecular infection epidemiology and genome sequence based evolutionary dynamics of chronic human pathogens such as Mycobacteria and

Helicobacters. His group also researches zoonotic (leptospirosis, salmonellosis, colibacillosis, bovine TB, Johne's disease) and food borne infections (Yersinia enterocolitica, Helicobacter pullorum) as well as the surveillance of antimicrobial resistance in enteric bacteria. Dr Ahmed contributed pioneering efforts in characterizing tuberculosis in sea lions through molecular and genomic markers in 2003 and provided working evidence for a new species of tubercle bacilli in seals (Ahmed N. et al. Infection Genetics and Evolution, 2003 Feb;2(3):193-199). These and other studies of Prof. Ahmed form the base, and precede the realms of disease control and prevention through epidemiological studies underpinned by high-resolution genomics in order to guide global infection control priorities in the areas of human and animal health.

Notice Board

No Records Available

Students And Project Trainees

Students/Projects Trainees

Name	Joined As	Mail	Contact
Dr Sabiha Shaik	Research Associate -3 (Post doctroal fellow)	shaik.sabiha@gmail.com	04023134685
Dr Bindu Ambaru	Scientist B	bindu.ambaru@gmail.com	04023134685
Ms Anuradha Singh	PhD scholar - Junior Research Fellow (DBT sponsored)	anuradhasingh9953@gmail.com	04023134685
Mr Viraj Bandsode	PhD Scholar	bandsodeviraj21@gmail.com	04023134685
Mr Dharmesh Bisoriya	MTech dissertation student	dharmeshbisoriya@gmail.com	04023134685

Former Students/Projects Trainees

Name	Joined As	Working
Dr Savita Devi	PhD Scholar	Cedars-Sinai Department of Pathology and Laboratory Medicine, California, USA
Dr Shivendra Tenguria	PhD Scholar	Cedars-Sinai Department of Pathology and Laboratory Medicine, California, USA
Dr Suma Tiruvayipati	PhD Scholar (@ University of Malaya)	National University of Singapore/Genome Institute of Singapore, Singapore
Dr Ashutosh Kumar	PhD Scholar	Central University of Tripura, India
Dr Ramani Baddam	PhD Scholar	Novartis India, Hyderabad, India
Dr Amit Ranjan	PhD Scholar	Center for Infection and Immunity, Columbia University, New York, USA
Dr P Sandhya Rani	PhD Scholar	Indian Institute of Technology, Mumbai, India
Dr Nishant Nandanwar	Research Fellow/SRF	Department of Pediatrics, Children's Hospital Los Angeles, Los Angeles, California, USA
Dr Narender Kumar	PhD Scholar	Wellcome Trust Sanger Institute, Hinxton, Cambridge, UK

Dr Suhail A. Ansari PhD Scholar Helmholtz Zentrum München, Munich, Germany
Dr Majjid Qaria PhD Scholar (International) Wu Lien-Teh Institute, Department of
Microbiology, Harbin Medical University, Harbin, P.R. China

Publications

2 Link to pubMED list of all of our papers from (1999) up to (2022) , (copy paste the link in browser) , [https://pubmed.ncbi.nlm.nih.gov/?term=Niyaz Ahmed](https://pubmed.ncbi.nlm.nih.gov/?term=Niyaz+Ahmed) , , , , .

1 Shaik S, Singh A, Suresh A, Ahmed N. (2022) , Genome Informatics and Machine Learning-Based Identification of Antimicrobial Resistance-Encoding Features and Virulence Attributes in Escherichia coli Genomes Representing Globally Prevalent Lineages, Including High-Risk Clonal Complexes , mBio, American Society for Microbiology, 13, e0379621 IF - 7.87.

Projects

Title	Year	Duration	Amount(In Lakhs)	PI/I
CONTROL OF ANTIMICROBIAL RESISTANCE-DRAWING ACTIONABLE INSIGHTS FROM SURVEILLANCE AND WHOLE-GENOME SEQUENCING DATA (Bioinformatics project)	2021			
	2	320000000000		Prof. Niyaz Ahmed
Microsoft Azure for Research Award in Public Health (Compute time and Azure Resources) - collaborative project	2017	3	150000000000	Prof. Niyaz Ahmed
Elucidation and characterization of the Novel Virulence Mechanisms Encoded by the Genomic Plasticity zone of the Human Gastric Pathogen Helicobacter pylori	2013	3		
		1000000000000		Prof. Niyaz Ahmed

Awards and Recognitions

1. Fellow of the American Academy of Microbiology (United States) -2018
2. Microsoft Azure Award for Research in Public Health (Microsoft Corporation) - 2017
3. Shanti Swarup Bhatnagar Prize in Medical Sciences (India) - 2016
4. Elected, Fellow of the Royal Society of Chemistry (FRSC), UK - 2015
5. Elected, Fellow of the Royal Society of Biology (FRSB), UK - 2015
6. Elected, Fellow of the National Academy of Sciences India - 2015
7. University of Hyderabad Chancellor's Award – 2015
8. European Helicobacter and Microbiota Study Group – Best Presentation Award, XXVIIIth International Workshop, Nicosia, Cyprus (Sept 24-26, 2015)

9. Academy Professor, Academy of Scientific & Innovative Research, India - 2013 to 2016
10. Academic Icon Visiting Professor Award, University of Malaya, Malaysia - 2013 to 2015
11. National Bioscience Award of India - 2011
12. Member, Experts' Collegium, Skolkovo Foundation, Moscow - 2011 till date
13. Member, PLOS International Advisory Board, Public Library of Science, USA - 2009 to 2014
14. Corresponding Fellow, European Helicobacter & Microbiota Study Group (EHMSG) - 2008 till date
15. VIIIth Infection, Genetics & Evolution Award (Elsevier Science/MEEGID Society) - 2006

Select Publications

(Access here all publications of Dr Ahmed through pubMED)

- 1) Suresh A, Shaik S, Baddam R, Ranjan A, Kumar S, Jadhav S, Semmler T, Ghazi IA, Wieler LH, Ahmed N. Evolutionary Dynamics Based on Comparative Genomics of Pathogenic *Escherichia coli* Lineages Harboring Polyketide Synthase (pks) Island. *mBio* 2021 Mar 2;12(1):e03634-20. (2020 IF: 7.87).
- 2) Baddam R, Sarker N, Ahmed D, Mazumder R, Abdullah A, Morshed R, Hussain A, Begum S, Shahrin L, Khan AI, Islam MS, Ahmed T, Alam M, Clemens JD, Ahmed N. Genome Dynamics of *Vibrio cholerae* Isolates Linked to Seasonal Outbreaks of Cholera in Dhaka, Bangladesh. *mBio* 2020 Feb 11;11(1). pii: e03339-19. (2020 IF: 7.87).
- 3) Ranjan A, Shaik S, Nandanwar N, Hussain A, Tiwari SK, Semmler T, Jadhav S, Wieler LH, Alam M, Colwell RR, Ahmed N. Comparative Genomics of *Escherichia coli* Isolated from Skin and Soft Tissue and Other Extraintestinal Infections. *mBio* 2017 Aug 15;8(4). (2020 IF: 7.87).
- 4) Doddam SN, Peddireddy V, Ahmed N. Mycobacterium tuberculosis DosR Regulon Gene Rv2004c Encodes a Novel Antigen with Pro-inflammatory Functions and Potential Diagnostic Application for Detection of Latent Tuberculosis. *Front Immunol.* 2017 Jun 24;8:7. (2020 IF: 7.56).
- 5) Peddireddy V, Doddam SN, Ahmed N. Mycobacterial Dormancy Systems and Host Responses in Tuberculosis. *Front Immunol.* 2017 Feb 15;8:84. (2020 IF: 7.56).

- 6) Kumar S, Majid M, Kumar N, Tiwari SK, Semmler T, Devi S, Baddam R, Hussain A, Shaik S, Ahmed N. Genome dynamics and molecular infection epidemiology of multi-drug resistant *Helicobacter pullorum* isolates obtained from broiler and country chickens in India. *Appl Environ Microbiol.* 2016 Dec 15;83. (2020 IF: 4.79).
- 7) Devi S, Ansari SA, Tenguria S, Kumar N, Ahmed N. Multipronged regulatory functions of a novel endonuclease (TieA) from *Helicobacter pylori*. *Nucleic Acids Res.* 2015 Nov 2;44(19):9393-9412 (2020 IF: 16.97).
- 8) Ranjan A, Shaik S, Mondal A, Nandanwar N, Hussain A, Semmler T, Kumar N, Tiwari S, Jadhav S, Wieler LH, Ahmed N. Molecular epidemiology and genome dynamics of New Delhi metallo-beta-lactamase (NDM) producing extraintestinal pathogenic *E. coli* (ExPEC) strains from India. *Antimicrob Agents Chemother.* 2015 Oct 21;60(11):6795-6805. (2019 IF: 5.19).
- 9) Ranjan A, Shaik S, Hussain A, Nandanwar N, Semmler T, Jadhav S, Wieler LH, Ahmed N. Genomic and functional portrait of a highly virulent, CTX-M-15-producing H30-Rx subclone of *Escherichia coli* sequence type (ST) 131. *Antimicrob Agents Chemother.* 2015, 59:6087-95. (2019 IF: 5.19).
- 10) Kumar N, Mariappan V, Baddam R, Lankapalli AK, Shaik S, Goh KL, Loke MF, Perkins T, Benghezal M, Hasnain SE, Vadivelu J, Marshall BJ, Ahmed N. Comparative genomic analysis of *Helicobacter pylori* from Malaysia identifies three distinct lineages suggestive of differential evolution. *Nucleic Acids Res.* 2015 Jan;43(1):324-35. (2020 IF: 16.97).
- 11) Baddam R, Kumar N, Shaik S, Lankapalli AK, Ahmed N. Genome dynamics and evolution of *Salmonella Typhi* strains from the typhoid-endemic zones. *Scientific Rep* 2014 Dec 12;4:7457. (2020 IF: 4.379).
- 12) Hussain A, Ranjan A, Nandanwar N, Babbar A, Jadhav S, Ahmed N. Genotypic and phenotypic profiles of *Escherichia coli* isolates belonging to clinical sequence type 131 (ST131), clinical non-ST131, and fecal non-ST131 lineages from India. *Antimicrob Agents Chemother.* 2014, 58:7240-9. (2019 IF: 5.19).
- 13) Ahmed N, Dobrindt U, Hacker J, Hasnain SE. Genomic fluidity and pathogenic bacteria: applications in diagnostics, epidemiology and intervention. *Nat Rev Microbiol.* 2008 6:387-94. (2020 IF: 60.633).