

Abrar Ahmad

Department of Medical Analysis, Tishk
International University, Erbil, Kurdistan, Iraq.
Email: abrar.microbiology17@gmail.com
Nationality: Indian



About me

I am Ph.D. having 8.5 years of total research experience in fields of immunology, Medical Microbiology, and molecular biology; with specialization in autoimmunity and infectious disease as well as secondary infections in immunocompromised patients especially in pediatric cancer patients. I am well versed in handling human samples, like blood, Urine, sputum, and human tissues, flow cytometry, ELISA, Western blot, cloning, PCR, DNA and RNA isolation to name a few of the technique I am skilled at. I am motivated to progress my career in the field of Microbiology, immunology, autoimmunity, fungal infections.

I am also well versed in few newer noninvasive tests for fungal identification like Beta D glucan Assay, Galactomannan assay, Pan fungal real time PCR and immunotherapy.

Academic Record

Ph.D. Microbiology, King George's Medical University, India. (Awarded) Oct,2018

My Ph.D. thesis titled "Molecular Epidemiology of fungus causing invasive fungal infections in pediatric cancer patients" involved elucidation of the role of different stages of chemotherapy plays an important role of fungal infections in cancer patients which leads to the morbidity and mortality of the patients, a systemic study of these fungal infections in immunocompromised patients and their timely diagnosis by conventional and newer methods for the timely diagnosis of the infections.

M.Sc. Microbiology, Integral University, India. (First Division, 81.33 %) 2008 My Masters dissertation was involved "Species distribution and Antifungal susceptibility testing of Candida species isolated from Blood and Sterile body fluids in a tertiary care center of North India.

Post Graduate Diploma in Bio-informatics. Bio informatics, Jamia Hamdard University India. (Second Division 55 %) 2006 My dissertation was involved "Phylogenetic analysis of two genes viz LRRK2 and UCHL1 and their 3-DProtein structure causing Parkinson's disease in old age people".

B.Sc. Zoology (Hons), L.N.M. University, India. (First Division, 69.71%) 2004

Senior Research Fellow: Microbiology

Organization: King George's Medical University, Lucknow, India. April 2016 – Dec 2018

Worked on Molecular characterization of fungi causing invasive fungal infections in immunocompromised patients as well as their timely diagnosis by different methods. independently conducted the experiments, collaborated with other scientists and guided Masters students for their dissertation. I have supported 3 MD microbiology students in completion of their Thesis as well mentored 7 MDS student in their thesis completion.

Junior Research Fellow: Microbiology

Organization: King George's Medical University, India. Feb 2013–March2016

Worked on my thesis entitled "Molecular epidemiology of fungus causing invasive fungal infections in pediatric cancer patients" which involves various conventional and newer techniques for the identification of fungal infection in immunocompromised patients like Galactomannan, Beta D glucan Assay, Pan fungal PCR, Pan fungal Real Time PCR, Phylogenetic analysis and next gen Sequencing; wherein I developed the blueprint of the experimental set up and directed my research towards a specific goal and worked productively fulfill the objectives set in the stipulated time-frame. We have isolated two different species of fungus from our study *K.lactis* and *K.maraxianus* which have never been reported in causing fungal infection in pediatric cancer patients.

Position Held

Assistant Professor (Since October to till date)

Organization: Department of Medical Analysis, TISHK International University, Erbil

Working as Assistant Professor in the above said departments and engaged in teaching Medical Microbiology, Diagnostic Microbiology, Physiology of complex disease, apart from the teaching I am actively participate as a

member of different committee, like, IRO committee, Research Centre Committee, Accreditation committee, conference organization committee, Disciplinary committee,

All the exam of the department is organized and executed under my supervision in coordination with the team.

Research Officer / Assistant Professor

Organization: King George Medical University

Jan 2019-Sept 2019

Worked on the development of Artificial Intelligence based Microscopy for the diagnosis of different samples a joint US-Indo Ventures carried out at King George's Medical University as well as teaching Medical Microbiology to the Second Prof Students of MBBS, Their Practical supervision. Organized workshop on pan fungal real time PCR, for the early detection of fungal infections in immunocompromised patients

Senior Research Fellow: Department of Bio-Physics

Organization: All India Institute of Medical Sciences; New Delhi, India

Aug 2010- Dec 2012

Worked on- Isolation and characterization of novel protein with anti-fungal and anti-inflammatory properties from Aloe vera leaf gel. The Aloe protein of 14 kDa from the Aloe vera leaf gel was isolated by an ion exchange chromatography using DEAE-cellulose and CM-cellulose column. The purified Aloe protein exhibited a potent anti-fungal activity against *Candida parapsilosis*, *Candida krusei* and *Candida albicans*. In addition, the purified Aloe protein also showed an anti-inflammatory property against pure lipoxygenase and cyclooxygenase-2 with 84% and 73% inhibition, respectively, and was verified by binding with these proteins by real time method by the phenomenon of surface plasmon resonance.

Research Project Assistant: School of Environmental Sciences

Organization: Jawahar Lal Nehru University, New Delhi, India

June 2008- July 2010

Worked on- Characterization of cell membrane parameters of clinical isolates of *S.aureus* with varied susceptibility of alpha-melanocytes stimulating hormone. We analyzed the antimicrobial activity of α -MSH against 75 clinical strains of *S. aureus* including both methicillin susceptible *S. aureus* (MSSA) and methicillin resistant *S. aureus* (MRSA) strains. Our results showed that α -MSH killed both type of strains efficiently ($\geq 70\%$ killing in 84% clinical strains after exposure with 6 μ M of α -MSH for 1h). It was observed that compared to the α -MSH-susceptible strains, the α -MSH-non-susceptible strains had a different membrane order and phospholipid pattern.

Research Project Trainee

Organization: SGPGI, Rae Bareilly Road, Lucknow, Uttar Pradesh, India.

Jan 2008- May

2008 Worked on- Species distribution and Antifungal susceptibility testing of *Candida* species isolated from Blood and Sterile body fluids in a tertiary care center of North India.

Competencies

With 8 years of academic exposure to Microbiology, Immunology, Molecular Biology, Microbiological theories and laboratory, and almost 1 and half year of industrial exposure I have performed-

Immunological techniques- Hands on ELISA, Beta D Glucan Assay, Galactomannan Assay, western blotting, flow cytometry, FACS sorting.

Human samples: Handled patient blood samples for fungal isolation, Urine, Sputum, Stool examination.

Tissue cultures: Isolation and culture CD4 T cells, CD8 T cells, Monocytes,

Analytical Techniques- Flow cytometry (FACS verse and Canto, Aria for cell sorting), Mass spectrometry (LC-MS/MS), High performance liquid chromatography (HPLC), MALDI TOF, VITEK 2

Microscopy: Light Microscopy.

Protein isolation: Protein purification from human blood samples; Affinity Chromatography, dialysis, SDS PAGE, Ultracentrifuge. Cation-exchange chromatography.

Microbiology: Cloning, media preparation, plating, pouring, antimicrobial action of different compound etc. Broth Microdilution Techniques, Disc Diffusion Techniques

Molecular Biology: RNA isolation, Isolation and estimation of Nucleic Acids, agarose gel electrophoresis, restriction digestion, Primer Designing, RT-PCR, Pan Fungal Real Time PCR, Fungal PCR, Next Gen Sequencing.

Bio-Informatics Tool: Clustalw, Clustalx, Offline Blast, Working knowledge of microarray data analysis and NGS. Mega, Phylip and TreeView, Neighbor Join Methods.

Awards and achievements

1. Recipient of Maulana Azad National Fellowship (MANF) from UGC, New Delhi in April, 2015
2. Recipient of Jamia Hamdard scholarship during post graduate diploma in Bioinformatics, New Delhi, India.

Number of conference publications / presentations (Abstracts): 2

Refereed Journal Papers

1. **Abrar Ahmad**, Prashant Gupta, Shelly Saxena, Ankit Agarwal; Artificial Intelligence based AFB smear screening of Tuberculosis in north India, a pilot study to know the efficacy of the software. (Communicated), **Artificial Intelligence**. (2019)
2. **Abrar Ahmad**, Prashant Gupta et al; Antifungal Susceptibility Testing of *Candida species* causing *Candidemia* in pediatric cancer patients. (Communicated), **Mycoses**. (2019)
3. **Abrar Ahmad**, Prashant Gupta et al; Evaluation of 1, 3-Beta- D- Glucan Assay for Diagnosis of Invasive Fungal Infection in Pediatric Cancer Patients. (Accepted), **Indian Journal Medical Research**. (2019).
4. **Ahmad A**, Gupta P, Khare V, et al. Comparative evaluation of pan-fungal real-time PCR, galactomannan and (1–3)-Beta-D-glucan assay for invasive fungal infection in pediatric cancer patients. **Mycoses**2017; **60**:234–40
5. Ajay Kumar Singh, Prashant Gupta, Nitya Verma, Vineeta Khare, **Abrar Ahmad**, Virendra Verma, S.P Agarwal: Fungal rhinosinusitis: Microbiological and histopathological perspective. **J Clin Diagn Res**. 11 (2017): 10-12. PMID: PMC5583846
6. P. Gupta, V. Khare, **A.Ahmad**, et al., Comparative evaluation of disc diffusion and E-test with broth micro-dilution in susceptibility testing of amphotericin B, voriconazole and caspofungin against clinical *Aspergillus* isolates, **J. Clin. Diagn. Res**. 9 (2015) 2013–2016. PMID: PMC4347075
7. **Abrar Ahmad**, Prashant Gupta, Archana Kumar, Vineeta Khare, Gopa Banerjee, Nitya Verma, Mastan Singh (2017) “Evaluation of Galactomannan for The Diagnosis of Invasive Aspergillosis at Different Cutoff Values in Pediatric Cancer Patients. Research Journal of Life Sciences, Bioinformatics, Pharmaceuticals and Chemical Sciences: 2017 Sept- Oct RJLBPCS 3(3) Page No.124

Published sequence in NCBI gene bank:

MF-767447, MF-767598, MF-767601, MF-767602, MF-767603, MF-767604, MF-767605, MF-767606, MF-767607, MF-767608, MF-767609, MF-767610, MF-767611, MF-767612, MF-767613, MF-767614, MF-767615, MF-767616, MF-767617, MF-767618

Reported two species of fungus viz, *Kluyveromyces marxianus* and *Kluyveromyces lactis* which has never been reported in association with fungal infections in pediatric cancer patients

Administrative Skills:

- Volunteered UP Combined Pre-Medical Test Examination 2014 as a University Representative II (URII) organized by King George’s Medical University.
- Conducted ISARCON 2014 as a Member of Local Organizing Committee, held at King George’s Medical University, Lucknow on 25th - 27th November 2014.
- Conducted “Inaugural CME in Electron Microscopy” as a Member of Local Organizing Committee, held at King George’s Medical University, Lucknow on 29th November 2015.

References

1. Dr. Mastan Singh (Thesis advisor)

Professor & Head
Department of Microbiology
King George’s Medical University,
Chowk, Shah Meena Road,
Lucknow- U.P.226003, India
Phone: +91-9453833644
E-mail:
drmastansingh@rediffmail.com

2. Dr. Gopa Banerjee

Professor (Co-Supervisor)
Department of Microbiology,
King George’s Medical University
Lucknow, U.P, 226003, India
Mobile: +91-9415109154
Email:gopa.banerjee31@rediffmail.com

3. Dr. Archana Kumar (Professor, Co-Supervisor)

Department of Pediatrics oncology,
King George’s Medical University
Lucknow, U.P, 226003 India
Mobile: +91-9839070252
Email: archanakumar53@yahoo.co.in