

Assoc. Prof Dr Ruqaiyyah Siddiqui

Position : Associate Professor
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Education:

PhD Biological sciences, Birkbeck, University of London, England, UK

Masters in Research, Royal Holloway, University of London, England, UK

BSc (Hons) in Molecular Biology and Genetics, Royal Holloway, University of London, England, UK.

Teaching:

My teaching expertise are in the area of medical microbiology and parasitology. I am also involved in running the Research Project and Thesis module. In addition I am the programme chair of BSc (Hons) Biomedicine.

Brief Employment History:

Assistant Professor, Department of Biological and Biomedical Sciences, the Aga Khan University, Karachi, Pakistan.

Lecturer, School of Science and Technology, Nottingham Trent University, Nottingham, UK.

Research Interests:

I maintain a broad interest in all aspects of infectious diseases. My work is dedicated to pathogen virulence determinants and host factors that contribute to microbial infections, with an aim to identify potential targets for therapeutic interventions. Cellular transformation of pathogens presents a major challenge in therapeutic interventions. I am interested in signaling pathways and transcriptional control mechanisms underlying the cellular differentiation of protist pathogens.

In addition, I am interested in studying how neuropathogens invade the brain to produce disease. Using primary human brain microvascular endothelial cells (HBMEC) as an in vitro human blood-brain barrier model, my studies are attentive to the understanding of the molecular mechanisms associated with pathogen traversal of the blood-brain barrier. The findings arising from this research will ascertain potential targets, which will lead to therapeutic interventions of CNS infections.

Being in Asia, where antibiotic resistance is a highly significant and urgent problem, our group is keen to pioneer antimicrobials and develop compounds from novel sources, such as insects, that live in polluted environments. The pharmaceutical industry is generating fewer new classes of antibiotics due to lack of financial incentives, and consequently there is a high demand for alternative sources of new drugs. We aim to identify and characterise novel antimicrobial compounds from insects and other rare sources.

Selected Publications:

1. Khan, N. A., Baqir, H., **Siddiqui, R.**, The Immortal Amoeba: A Useful Model to Study Cellular Differentiation Processes? *Pathogens and Global Health* (in press), 2015.
2. Khan, N. A., **Siddiqui, R.**, Is There Evidence of Sexual Reproduction (meiosis) in *Acanthamoeba*? *Pathogens and Global Health* 109: 193 – 195, 2015.
3. **Siddiqui, R.**, Lakhundi, S., Khan, N. A., Interactions of *Pseudomonas Aeruginosa* and *Corynebacterium* spp. with Non-phagocytic Brain Microvascular Endothelial Cells and Phagocytic *Acanthamoeba castellanii*. *Parasitology Research* 114(6): 2349 – 2356, 2015.
4. Khan, N. A., Iqbal, J., **Siddiqui, R.**, Stress Management in Cyst-forming Free-living Protists: Programmed Cell Death and/or Encystment. *Biomed Research International* Article ID: 437534, 2015.
5. **Siddiqui, R.**, Lakhundi, S., Khan, N. A., Status of The Effectiveness of Contact Lens Solutions Against Keratitis-Causing Pathogens. *Contact Lens & Anterior Eye* 38: 34 – 38, 2015.
6. **Siddiqui, R.**, Khan, N. A., Primary Amoebic Meningoencephalitis Caused by *Naegleria fowleri*: An Old Enemy Presenting New Challenges. *PLoS NTD* 8(8): e3017, 2014.
7. Lakhundi, S., Khan, N. A., **Siddiqui, R.**, The Effect of Environmental and Physiological Conditions on Excystation of *Acanthamoeba castellanii* Belonging to the T4 genotype. *Parasitology Research* 113(8): 2809 – 2816, 2014.
8. Khan, N. A., **Siddiqui, R.**, Predator Versus Aliens: Bacteria Interactions with *Acanthamoeba*. *Parasitology* 141: 869 – 874, 2014.
9. **Siddiqui, R.**, Khan, N. A., War on Terror Cells: Novel Infection Control Strategies in our Fight Against “superbugs”. *Pathogens and Global Health* 108(1): 4-10, 2014.
10. Lakhundi, S., Khan, N. A., **Siddiqui, R.**, Inefficacy of Marketed Contact Lens Disinfection Solutions Against Keratitis-Causing *Acanthamoeba Castellanii* Belonging to the T4 Genotype. *Experimental Parasitology* 141: 122 – 128, 2014.
11. **Siddiqui, R.**, Chaudhry, T., Lakhundi, S., Ahmad, K., Khan, N. A., Failure of Chemotherapy in the First Reported Cases of *Acanthamoeba* Keratitis in Pakistan. *Pathogens and Global Health* 108(1): 49-52, 2014.
12. **Siddiqui, R.**, Aqeel, Y., Khan, N. A., Killing the Dead: Chemotherapeutic Strategies Against Free-Living Cyst-Forming Protists (*Acanthamoeba* sp. and *Balamuthia mandrillaris*). *Journal of Eukaryotic Microbiology* 60: 291 – 297, 2013.
13. **Siddiqui, R.**, Sagheer, M., and Khan, N. A., Prevalence of *Acanthamoeba* and Superbugs in a Clinical Setting: Coincidence or Hyperparasitism. *Parasitology Research* 112: 1349 – 1351, 2013.
14. **Siddiqui, R.**, Khan, N. A., Is Semen a Useful Diagnostic Tool for Rare Infections of the Central Nervous System? *Parasites and Vectors* 5: 297, 2012.
15. **Siddiqui, R.**, and Khan, N. A., Photochemotherapeutic Strategies Against *Acanthamoeba* Keratitis. *Applied Microbiology and Biotechnology Express* 2: 47, 2012.
16. Khan, N. A., Iqbal, J., **Siddiqui, R.** (2012). *Escherichia coli* K1-Induced Cytopathogenicity of Human Brain Microvascular Endothelial Cells. *Microbial Pathogenesis* 53: 269 – 275.
17. **Siddiqui, R.**, Iqbal, J., Maugeuret, M., and Khan, N. A., The Role of Src Kinase in the Biological Properties of *Acanthamoeba*. *Parasites and Vectors* 5: 112, 2012.
18. **Siddiqui, R.**, Khan, N. A., Biology and Pathogenesis of *Acanthamoeba*. *Parasites and Vectors* 5: 6, 2012.
19. **Siddiqui, R.**, Beattie, R., Khan, N. A., The Role of The Twin-arginine Translocation Pathway in *Escherichia coli* K1 pathogenicity in the African Migratory Locust, *Locusta Migratoria*. *FEMS Immunology and Medical Microbiology* 64: 162 – 168, 2012.
20. **Siddiqui, R.**, Edwards-Smallbone, J., Flynn, R., Khan, N. A., Next Generation of Non-Mammalian Blood-Brain Barrier Models to Study Parasitic Infections of the Central Nervous System. *Virulence* 3(2): 159 – 163, 2012.
21. **Siddiqui, R.**, Dudley, R., Khan, N. A., *Acanthamoeba* Differentiation: A Two-faced Drama of Dr Jekyll and Mr Hyde. *Parasitology* 139: 826 – 834, 2012.
22. **Siddiqui, R.**, Osman, K., Khan, N. A., A Novel *in Vivo* Model to Study Bacterial Pathogenesis and Screen Potential Therapeutic Targets. *Journal of Medical Microbiology* 61: 1036 – 1038, 2012.
23. **Siddiqui, R.**, Khan, N. A., War of The Microbial Worlds: Who is The Beneficiary in *Acanthamoeba*-Bacterial Interactions? *Experimental Parasitology* 130: 311 – 313, 2012.
24. **Siddiqui, R.**, and Khan, N. A., Is Ritual Cleansing a Missing Link Between Fatal Infection and Brain Eating Amoeba? *Clinical Infectious Diseases* 54(12): 1817 – 1818, 2012.
25. **Siddiqui, R.**, Mortazavi, P., Pleass, R., and Khan, N. A., Non-Vertebrate Models to Study Parasite Invasion of The Central Nervous System. *Trends in Parasitology* 27(1): 5 – 10, 2011.
26. **Siddiqui, R.**, Emes, R., Elsheikha, H., and Khan, N. A., Area 51: How Do *Acanthamoeba* Invade the Central Nervous System? *Trends in Parasitology* 27(5): 185 – 189, 2011.