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Systems biology of the host response to severe infection

Khan, H.N.

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Appendix

PhD PORTFOLIO

Hina Naz Khan

PhD period: August 2015 – October 2019

PhD supervisors: Prof. Dr. T. van der Poll, Prof. Dr. A.H.Zwindermaan
and Dr. Brendon P. Scicluna

Courses	Year
- Genetic epidemiology	2016
- Scientific writing	2016
- Unix	2016
- System medicine	2016
- Practical biostatistics	2017
- E-Science	2017
- MIAGE course (Multi-omics integrative analysis of gene expression), CIPF, Valencia, Spain	2018
Seminars, workshops, retreats and master classes	
- Annual Amsterdam Infection and immunity institute (AI & II) PhD retreat	2016
- ARTeC seminar AMC/VUMC	2017
- BBMRI-omics workshop, Utrecht	2017
- Masterclass Prof. Douglas Golenbock	2017
- CEMM Journal Club	2015-2019
- CEMMinars	2015-2019
- Infectious diseases retreat (congress center Mennorode in Elspeet)	2017
- Kickoff symposium (Microbiota center Amsterdam)	2018
(Inter)national conferences	
- Summers Frontiers 2016: System Biology of innate immunity. Nijmegen, The Netherlands	2016
- 17 th International Congress of European Shock society. Paris, France	2017
- Sepsis 2017: New Successes, New challenges. Paris, France	2017
- New Frontiers in Innate immunity and Inflammation. Cluj-Napoca, Romania	2018

Oral Presentations

- "The circulatory small non-coding RNA landscape in health and community-acquired pneumonia." 2017
17th International Congress of European Shock society. Paris, France
- "Identification of blood transcriptional networks dependent on lipopolysaccharide dose in human endotoxemia." 2017
All&I PhD Retreat 2017.
- "Canonical and non-canonical RNA splicing in specific peripheral blood mononuclear cells of critically ill patients with sepsis". 2018
New Frontiers in Innate immunity and Inflammation. Cluj-Napoca, Romania

Poster Presentations

- "The circulatory small non-coding RNA landscape in health and community-acquired pneumonia." 2016
Summers Frontiers 2016: System Biology of innate immunity. Poster presentation
- "Identification of blood transcriptional networks dependent on lipopolysaccharide dose in human endotoxemia." 2017
All&I PhD Retreat 2017.
- "The circulatory small non-coding RNA landscape in health and community-acquired pneumonia." 2017
Sepsis 2017: New Successes, New challenges. Paris, France
- "Canonical and non-canonical RNA splicing in specific peripheral blood mononuclear cells of critically ill patients with sepsis". 2018
New Frontiers in Innate immunity and Inflammation. Cluj-Napoca, Romania

Tutoring, Mentoring

- Student monitoring in "Identification of blood transcriptional networks dependent on lipopolysaccharide dose in human endotoxemia" project

List of publications

1. **Khan HN**, Perlee D, Schoenmaker L, van der Meer AJ, Franitza M, Toliat MR, Nürnberg P, Zwinderman AH, van der Poll T, Scicluna BP. Leukocyte transcriptional signatures dependent on LPS dosage in human endotoxemia. *J Leukoc Biol.* 2019 Nov;106(5):1153-1160. doi: 10.1002/JLB.4A0219-050R. Epub 2019 Jul 7. PMID: 31280495; PMCID: PMC6852106.
2. **Khan HN**, Brands X, Aufiero S, Hoogendijk AJ, Klarenbeek AM, van Engelen TSR, Haak BW, van Vught LA, Horn J, Schultz MJ, Zwinderman AH, van der Poll T, Scicluna BP. The circular RNA landscape in specific peripheral blood mononuclear cells of critically ill patients with sepsis. *Crit Care.* 2020 Jul 13;24(1):423. doi: 10.1186/s13054-020-03146-4. PMID: 32660590; PMCID: PMC7359566.
3. **Khan HN**, Jongejan A, van Vught LA, Horn J, Schultz MJ, Zwinderman AH, Cremer OL, Bonten MJ, van der Poll T, Scicluna BP. The circulatory small non-coding RNA landscape in community-acquired pneumonia on intensive care unit admission. *J Cell Mol Med.* 2021 Aug;25(16):7621-7630. doi: 10.1111/jcmm.16406. Epub 2021 Jul 17. PMID: 34272809; PMCID: PMC8358855.
4. Matsumoto H, Scicluna BP, Jim KK, Falahi F, Qin W, Gürkan B, Malmström E, Meijer MT, Butler JM, **Khan HN**, Takagi T, Ishii S, Schultz MJ, van de Beek D, de Vos AF, van 't Veer C, van der Poll T. HIVEP1 Is a Negative Regulator of NF- κ B That Inhibits Systemic Inflammation in Sepsis. *Front Immunol.* 2021 Nov 5;12:744358. doi: 10.3389/fimmu.2021.744358. PMID: 34804025; PMCID: PMC8602905.
5. Ykema BLM, Hoefnagel SJM, Rigter LS, Kodach LL, Meijer GA, van Leeuwen FE, **Khan HN**, Snaebjornsson P, Aleman BMP, Broeks A, Meijer SL, Wang KK, Carvalho B, Krishnadath KK, van Leerdam ME; GIOCA-OES. Gene expression profiles of esophageal squamous cell cancers in Hodgkin lymphoma survivors versus sporadic cases. *PLoS One.* 2020 Dec 21;15(12):e0243178. doi: 10.1371/journal.pone.0243178. PMID: 33347497; PMCID: PMC7751872.

6. Kloek AT, **Khan HN**, Valls Seron M, Jongejan A, Zwinderman AH, Baas F, van der Ende A, van de Beek D, Ferwerda B, Brouwer MC. Variation in coagulation and fibrinolysis genes evaluated for their contribution to cerebrovascular complications in adults with bacterial meningitis in the Netherlands. *J Infect.* 2018 Jul;77(1):54-59. doi: 10.1016/j.jinf.2018.03.007. Epub 2018 May 7. PMID: 29746949.

Submitted and in preparation Manuscripts:

1. **Khan HN**, Brouwer MC, Geldhoff M, Scicluna BP, Zwinderman AH, van de Beek D., Bart Ferwerda. Protein quantitative trait locus of cerebrospinal fluid inflammatory mediators in patients with pneumococcal meningitis.
2. Malmström E, **Khan HN**, van't Veer C, Stunnenberg M, Meijer MT, Matsumoto H, Otto NA, Geijtenbeek TBH, Alex F. de Vos, van der Poll T and Scicluna BP. The long non-coding antisense RNA JHDM1D-AS1 regulates inflammatory responses in human monocytes
3. Hoefnagel SJM, Koemans WJ, **Khan HN**, Koster J, Meijer SL, van Dieren JM, Kodach LL, van Sandick JW, Calpe S, del Sancho-Serra CM, Correia AC, Van Laarhoven HWM, Van Berge Henegouwen MI, Gisbertz SS, Hulshof MCCM, Krishnadath KK. Subgroup analyses and predictive RNA signatures for response to chemoradiotherapy in esophageal adenocarcinoma: an aid towards personalized therapy.
4. Uhel F, Scicluna BP, Peters-Sengers H, Butler J, **Khan HN**, van Vught LA, Cremer OL, Bonten MJ, Schultz MJ, and van der Poll T. Comparative analysis of the host response to septic and non-septic shock.

List of contributing authors

Amsterdam University Medical Centers, location Academic Medical Center *Center for Experimental and Molecular Medicine*

Tom van der Poll	Brendon P. Scicluna
Xanthe Brands	Erik Malmström
Alex F. de Vos	Fabrice Uhel
Bas Haak	Tjitske S.R. van Engelen
Lonneke A. van Vught	Desiree Perlee
Lieke Schoenmaker	Cornelis van't Veer
Mariska T. Meijer	Hisatake Matsumoto
Natasja A. Otto	Teunis B.H. Geijtenbeek
Maryse A. Wiewel	Arie J. Hoogendijk
Anne-Jan van der Meer	

Neuroinfections Amsterdam

Diederik van de Beek	Matthijs Brouwer
Bart Ferwerda	

Department of Clinical Epidemiology, Biostatistics and Bioinformatics

Aeilko H. Zwinderman	Simona Aufiero
Aldo Jongejan	

Department of Intensive Care

Marcus J. Schultz	Janneke Horn
Olaf L. Cremer	

University Medical Center, Utrecht

Department of Medical Microbiology

Marc J. Bonten

University of Cologne, Cologne Center for Genomics (CCG), Germany

Mohammad Reza Toliat	Marek Franitza
Peter Nürnberg	

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Hina Naz Khan

March 2022, Barendrecht

About the author



Hina Naz Khan was born on 12th may 1984 in Rawalpindi, Pakistan. She received her primary and secondary education at different schools in Pakistan. In 2007 she obtained her Bachelor's degree in bioinformatics. Then in 2010 she attained her Master's degree in Bioinformatics and composed her master thesis entitled "Identification of an antiepileptic

compound with a more selective activity using *In-silico* approach". She has worked as a lecturer for O levels biology in Beaconhouse educational complex and also worked as lab instructor and a lecturer in Mohammad Ali Jinnah University, Pakistan.

In 2012 she moved to Netherlands. She pursued her education and received another master's bioinformatics degree in 2015 from Vrij Universiteit Amsterdam. She spent 8 months in Erasmus MC as a graduate trainee under the supervision of Dr. Andrew Stubbs and Dr. Pim French. She studied the application and validation of RNA-Seq for Glioblastoma patients' stratification in a clinical trial setting.

In August 2015, she started her PhD at Amsterdam UMC, location AMC, University of Amsterdam, under the supervision of Prof. dr. Tom van der Poll, Prof. dr. A.H. Zwinderman and Dr. Brendon P. Scicluna. During her PhD, she presented a number of transcriptomic signatures and cellular signaling pathways that may play a role in the pathophysiology of severe infections. The results of these studies are described and discussed in this thesis.

After her PhD, Hina continued her research and working as postdoctoral researcher (Bioinformatics) in the department of molecular genetics, Erasmus MC.