

**Hana Abdalla, PhD**

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**Education**

- **Ph.D. Degree in Medical Microbiology**, Linköping University, Linköping, Sweden, June 2005.
- **Licentiate Degree in Infection Medicine**, Karolinska Institute, Stockholm, Sweden, March 2000.
- **Bachelor of Medical Laboratory Sciences**, Omdurman Ahlia University (OAU), Sudan, September 1994.

**Professional experience**

- September 2023- Present Chair of University Lab Safety Committee, Alfaisal University, Riyadh, KSA.
- Jan 2022 – Present Director, Master of Biomedical Science Program Sciences Program, Alfaisal University, Riyadh, KSA.
- Feb 2018 – Present. Assistant Professor of Medical Microbiology and Director of Biomedical Sciences Master, Alfaisal University, Riyadh, KSA.
- Jan 2012 – Nov 2017. Faculty, University of Maryland, College Park, MD, USA.
- Jan 2008 – December 2013: Faculty and Research Associate. Department of Cell Biology and Molecular Genetics, University of Maryland, College Park, USA.
- September 2005 - September 2007: Post-Doctoral Researcher. Division of Medical Microbiology, Department of Molecular and Clinical Medicine, Linköping University, Linköping, Sweden.
- April 2001 - 2005: Ph.D. student/Research Assistant. Division of Medical Microbiology, Department of Molecular and Clinical Medicine, Linköping University, Linköping, Sweden.
- May 2000- January 2001- Research Assistant, Department of Medical Epidemiology, Karolinska Institute, Stockholm, Sweden.
- January 1998 - March 2000: Licentiate student. Department of Infectious Diseases, Karolinska Institute, Stockholm, Sweden.
- January 1997 - December 1997: Research Assistant, Microbiology & Tumorbiology Centre (MTC), collaboration at the Department of Infectious Diseases, Karolinska Institute, Stockholm, Sweden.
- September 1994 - October 1996: Teaching assistant –Omdurman Ahlia University, Omdurman, Sudan.

**Research expertise:**

Infectious disease, Host-Pathogen Interactions, Apoptosis, Lipid and Protein Antigen presentation, virulence Genes. Immunomodulation, Medicinal plant, antimicrobial, and medical epidemiology since 1997- present with the following responsibilities:

- Participated in research proposal writing and applications for funding and grants,
- Develop new protocols for own projects and research team
- Planning and conducting experiments and analyzing results.
- Present results at scientific conferences and department seminars.
- Write and publish results in an international peer-reviewed journal.
- Teach and supervise graduate and undergraduate students.

**Current ongoing projects**

1. Video-Observed vs. Directly Observed Therapy for Supporting Adherence to Tuberculosis Treatment in Saudi Arabia: A Randomized Controlled Trial. (PI)
2. Screening natural compound libraries to identify antimicrobial activity using *C. elegans* as a model for antimicrobial drug discovery and toxicity testing. (PI)
3. *Caenorhabditis elegans* as an In Vivo Model for the Discovery of Natural Plant-Based Anti-aging Compounds. (CO-PI)

4. Development of Treatment for Cutaneous Leishmania Using the Nanotechnology Approach in Saudi Arabia (PI)
5. Potential Synergistic Role of Thioflavin and Silver Graphene Nanocomposite in Treating COVID-19 (PI)
6. Role of medicinal herbs as an alternative treatment for parasitic and bacterial infectious disease. (PI)

#### **International ongoing project (unfunded yet)**

- 1- Drug screening using natural compound libraries to identify activity against *Leishmania donovani* infection. In collaboration with Linköping University (Sweden). (PI).

#### **Graduate thesis graduation projects supervisor**

1. Investigation the antimicrobial effect of regional plant extracts against multidrug resistance bacteria using *Caenorhabditis elegans* as a model **MSc. Student Shatha Anwar Eisa**
2. Impact of Infection on Lung Cancer Patients' Survival **MSc. Student Reem Manea Abaalala**
3. Identification of Decidua Parietalis Mesenchymal Stem Cell Molecules with Anticancer Activities **MSc. Student: Sarah Abdulrahman Ibrahim Alsuwailam**
4. Menstrual cycle changes post-COVID-19 vaccine among women in Saudi Arabia **MSc. Student Munirah Saud Alothman**
5. Investigation of the microplastics and associated microorganisms in the Arabian Gulf Sea sediments in Saudi Arabia **MSc. Student Haila ALNassar**
6. Interpretation of Titin Variants in Saudi Arabian Patients with Muscle Disorders: Case Series **MSc. Student Tasnim Khalid Alhoms**

#### **Laboratory Techniques**

- Trained and certified to work in a Biosafety Level-3 facility.
- Skilled in immunological techniques, including:
  - Cell culture and *M. tuberculosis* culture.
  - Monocyte purification and maturation.
  - Immunohistochemistry.
  - Cell culture.
  - FACS techniques and analysis.
  - Confocal microscopy techniques.
  - Immunospot assay (elispot).
  - Enzyme Linked Immunoabsorbant assay (ELISA).
  - Chemiluminences.
  - Immunofluorescence microscopic techniques.
  - Chemotaxis assay.
  - In situ hybridization.
  - Western blot.

#### **Experimental Animal Models**

- Expertise in handling *Caenorhabditis elegans* cost-effective animal models for antimicrobial drug discovery
- Expertise in handling animal models for infections (meningitis, sepsis, and tuberculosis via iv, sub-q, i.p., oral transmission), dissection, sample harvest, bone marrow extraction, and bleeding. and *Caenorhabditis elegans* as an In Vivo Model
- **COMPUTING Skills: Experimental design;** Data analysis and statistical tools (Graph Prizm, FlowJo), flow cytometry, Molecular biology techniques; primers design, DNA and RNA isolation. MS Office,

### Teaching experience

- Teaching Medical Microbiology within the integrated blocks, including (Pathogenesis of diseases, Musculoskeletal Block, and Respiratory Block) for the College of Medicine and Microbiology courses for the College of Pharmacy, Alfaisal University, Riyadh, KSA, College of Medicine 2018-present.
- Teaching **postgraduate courses** for the College of Medicine, Alfaisal University, Riyadh, KSA, 2018-present
- Tutor for problem-based learning (PBL) sessions in various blocks. Alfaisal University, Riyadh, KSA, 2018-present
- Medical Microbiology course, University of Maryland, College Park, MD, USA, 2012- 2017
- Pathogenic Microbiology course, University of Maryland, College Park, MD, USA, August-December 2012-2017
- Instructor – Biomedical International Master’s Program at Linköping University -Linköping, Sweden -2003
- Biomedical Clinical Laboratory Sciences courses – The Faculty of Medical Laboratory Sciences, Omdurman, Sudan, October 1994 - October 1996.
- Part-time Instructor – Faculty of Biomedical Sciences, Khartoum University, Khartoum, Sudan 1995-1996.

### Grants, Awards, and scholarships

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|---|------------|
| ▪ Saudi National Institute of Health Research Award           | 2024       |
| ▪ Alfaisal University: Internal Research Grant, Riyadh, KSA   | 2023       |
| ▪ Alfaisal University: Internal Research Grant, Riyadh, KSA   | 2022       |
| ▪ Alfaisal University: COVID-19 initiative Grant, Riyadh, KSA | 2020       |
| ▪ Alfaisal University: Internal Research Grant, Riyadh, KSA   | 2018       |
| ▪ The Hiser Foundation for Leprosy and Tuberculosis, NY USA   | 2008       |
| ▪ Scholar Rescue Fund, IIE, NY, USA (Awarded Scholar)         | 2006       |
| ▪ Hjärt lungfonden, Sweden (Travel grant)                     | 2006       |
| ▪ Scholar Rescue Fund, IIE, NY, USA (Awarded Scholar)         | 2005       |
| ▪ Anna Cederberg, Sweden (Travel grant)                       | 2004       |
| ▪ Hjärt Lungfonden, Sweden (Travel grant)                     | 2004       |
| ▪ Hjärt Lungfonden, Sweden (Two year stipendium)              | 2002       |
| ▪ Linköping University, Sweden PhD Position.                  | 2001       |
| ▪ Hjärt Lungfonden, Sweden (Travel grant)                     | 2001       |
| ▪ Karolinska Institute, Sweden (Two years position)           | 1998- 2000 |
| ▪ Consilium AB, Sweden (one year stipendium)                  | 1997       |

### Professional development Workshops Attended

- Design Thinking: Application to Research, Teaching and Academia, King Fahd University of Petroleum & Minerals November 2023
- Advancing Research Innovation and Statistical Expertise (ARISE) Program, Alfaisal University, October 2023
- Alfaisal Medical Education Faculty Development Program 2022
- Certification for Reviewer of Quality Assurance in Education (AROQA) 2020
- Certification for external reviewer from NCAAA, April 2021
- External reviewer (AROQA) (online) 2021
- NCAAA: KPIs and Benchmarking, Assessment of Learning Outcomes 2018
- Institutional accreditation forum
- NCAAA Workshop Forum of International Accreditation of Health Programs 2019
- Program Accreditation 2020
- NCAAA learning outcome workshop on How to fill course reports and specifications 2018.

### Selected Publications

1. Mohamed Zarroug, Mohammed F. Altaf, Safwaan, Shaikh Abdousabour, Omnia Bashir, Mohammad I. Ayash, **Hana K. Abdalla**, Samah H. O. Zarroug. The Prevalence and Risk Factors of Postpartum Depression Among Saudi Arabian Women—A Systematic Review and Meta-Analysis. *Healthcare* **2025**, 13(16), 2040; <https://doi.org/10.3390/healthcare13162040>
2. Samah HO Zarroug, Talah Nammor, Shatha Eisa, Reela Hamoor, Linda Ibrahim, Yousef Shata, Meshal Alqhtani, Omnia Bashir, Ghada Garaween, Fatheia N Hamza, Dana Bakheet, Assad Khalid, **Hana K. Abdalla**. Acacia ehrenbergiana (Hayne) and Prosopis juliflora Extracts Promote the Survival of Caenorhabditis elegans Infected with Methicillin-Resistant Staphylococcus aureus. Natural Product Communications 19 (8), 1934578X241279065. <https://doi.org/10.1177/1934578X241279065>
3. Zarroug SHO, Bajaman JS, Hamza FN, Saleem RA, **Abdalla HK**. Caenorhabditis elegans as an In Vivo Model for the Discovery and Development of Natural Plant-Based Antimicrobial Compounds. Pharmaceuticals. 2023; 16(8):1070. <https://doi.org/10.3390/ph16081070>
4. Hatouf H Sukkarieh, Turki AlSagoor , Mohammed Alnuhait , Rami Bustami , Scott Bryson , Fatima Mohammed Kebir Adem , **Hana Abdalla** , Gulsan Karbani. Awareness and attitudes of oncology specialists toward dihydropyrimidine dehydrogenase testing in Saudi Arabia. Cancer Rep, 2023Feb;6(2):e1704. <https://doi.org/10.1002/cnr2.1704>
5. Asaad Khalid, Alanood S Algarni, Husham E Homeida, Shahnaz Sultana, Sadique A Javed, Zia Ur Rehman, **Hana Abdalla** , Hassan A Alhazmi , Mohammed Albratty , Ashraf N Abdalla. Phytochemical, Cytotoxic, and Antimicrobial Evaluation of Tribulus terrestris L., Typha domingensis Pers., and Ricinus communis L.: Scientific Evidences for Folkloric Uses. Hindawi Evidence-Based Complementary and Alternative Medicine Volume 2022, ID 6519712, 11 pages. doi:10.1155/2022/6519712
6. Hatouf H. Sukkarieh, Rami T. Bustami, Manasik N. Abdu, Ayesha A. Khokhar, Amir A. Salih, **Hana K. Abdalla** The current practice of using angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers in diabetic hypertensive and non-hypertensive patients. Is there a room for vitamin D? Saudi Med J. 2020 Oct;41(10): 1083-1089.doi: 10.15537.
7. **Hana Abdalla**, Lalitha Srinivasan, Swati Shah, Katrin D. Mayer-Barber, Alan Sher, Fayyaz S. Sutterwala and Volker Briken. Mycobacterium tuberculosis Infection of Dendritic Cells Leads to Partially Caspase-1/11-Independent IL-1 $\beta$  and IL-18 Secretion but Not to Pyroptosis. PLoS ONE. July 2012(7): e40722.doi:10.1371.
8. Bohsali, A., **Abdalla H.**, Velmurugan, K., & Briken, V. (2010). The non-pathogenic mycobacteria M.smegmatis and M.fortuitum induce rapid host cell apoptosis via a caspase 3 and TNF dependent pathway BMC Microbiol 10,237. doi:10.1186/1471-2180-10-237
9. Amanda welin, Martin e. winberg, **Hana Abdalla**, Eva Särndahl, Brigitta Rasmusson, Olle Stendahl and Maria Lerm. Incorporation of mycobacterium tuberculo237. lipoarabinomannan into macrophage membrane

rafts is a prerequisite for the phagosomal maturation block. *Infection and immunity*, July 2008, p. 2882-2887, vol. 76, no. 7 DOI: 10.1128/IAI.01549-07

10. **Abdalla H**, Forslund T, Schön T, Stendahl O and Tommy Sundqvist. Effect of CNI-1493 on human granulocyte. *Immunobiology*. 2006; 211(3):191-7. Epub 2006 Feb 9. DOI: 10.1016/j.imbio.2005.09.006
11. Carl Granert, **Hana Abdalla**, Lars Lindquist, Asim Diab, Kevin Tracey, Moiz Bakhiet and Jan Andersson. Suppression of macrophage activation with CNI-1493 increases survival in infant rats with systemic *Haemophilus influenzae* infection. *Infect Immun*. 2000 Sep; 68 (9): 5329-34. DOI: 10.1128/IAI.68.9.5329-5334.2000
12. Wang ZH, Kjellberg L, **Abdalla H**, Wiklund F, Eklund C, Knekt P, Lehtinen M, Kallings I, Lenner P, Hallmans G, Mahlck CG, Wadell G, Schiller J, Dillner J. Type specificity and significance of different isotypes of serum antibodies to human papillomavirus capsids. *J Infect Dis*. 2000 Feb; 181(2):456-62 DOI: 10.1086/315232
13. Asim Diab, **Hana Abdalla**, Hu Lun Li, Fu Dong Shi, Jie Zhu, Bo Höjberg, Lars Lindquist, Bengt Wretling, Moiz Bakhiet and Hans Link. Neutralization of macrophage inflammatory protein 2 (MIP-2) and MIP-1 alpha attenuates neutrophil recruitment in the central nervous system during experimental bacterial meningitis. *Infect Immun*. 1999 May; 67(5): 2590-601. DOI: 10.1128/IAI.67.5.2590-2601.1999

#### Conferences

- Speaker at the First Meeting of the Global Initiative on Artificial Intelligence for Health (GI-AI4H) October 30th– November 2nd, 2023 **“Video-Observed vs Directly Observed Therapy for Supporting Adherence to Tuberculosis Treatment in Saudi Arabia”**
- Participate in Saudi ID Week 2022, December 2022, Riyadh, KSA.
- American Society for Microbiology General Meeting in New Orleans, Louisiana, May 2011. **“Mycobacterium tuberculosis mediated inflammasome activation in dendritic cells occurs independently of pyroptosis”**
- Society for Leukocyte Biology 39<sup>th</sup> Annual Meeting “Innate Immunity: Receptors, Regulation, and Response,” San Antonio, Texas, USA. November 2006. **“Is Mycobacterium tuberculosis propelled by actin-based motility?”**
- Society for Leukocyte Biology 39<sup>th</sup> Annual Meeting “Innate Immunity: Receptors, Regulation, and Response,” San Antonio, Texas, USA. November 2006. **“The effect of Mycobacterium tuberculosis cell wall constituents on phagosome dynamics**
- Society for Leukocyte Biology 37<sup>th</sup> Annual Meeting “Host response to pathogens,” Toronto, Ontario. October 2004. **“Effect of CNI-1493 on Neutrophils and Macrophages.**
- Participant: The fifth international conference on the pathogenesis of Mycobacterial infections, Stockholm, Sweden, May 2002.
- Participant: The fourth UAE International Cancer Conference, Abu Dhabi – United Arab Emirates, January 2001.
- Participant: The 11<sup>th</sup> International Congress of Immunology, Stockholm, Sweden, July 2001.
- 10<sup>th</sup> European Congress of Clinical Microbiology and Infectious Diseases, Stockholm, Sweden, May 2000. **“Intracerebral induction of cellular mRNA and protein for inducible nitric oxide synthase during the course of Haemophilus influenzae type b meningitis in rat”.**

#### Administrative duties and committees at Alfaisal University, KSA

- Chair Lab Safety University committee 2023- present
- Director of Master of Biomedical Sciences 2022-present
- Member of Quality Assurance and Accreditation Committee, 2019-2021
- Director of postgraduate course “Topics in Integrated and System Biology. 2020- present

- Member of student's mentorship and development committee, 2018-present
- Member of exam review committees 2018-present
- Co-Director of endo-repro Block 2018-2022

### **Professional Affiliations**

- Member, American Society for Microbiology – 2011-Present
- Board Member, Scholar Rescue Fund, IIE, USA- 2009-2010
- Member, Leukocyte Biology Association – 2003- 2010
- Cultural Secretary, Swedish Sudanese Association - 2001
- Cultural Secretary, Sudanese Union of Sudanese Postgraduates & Researchers, Stockholm, Sweden 1997 – 2001
- Treasurer, Medical Laboratory Student Association -1994
- Member, Teachers' Co-operative at OAU. - 1994
- President of the Histopathology & Cytology Society – 1992 - 1993
- Cultural Secretary, Medical Laboratory Student Association – 1991 - 1992
- Secretary, United Association of Academic Societies – 1991 -1992
- Member, Sudanese Swedish Friendship Association 1990-1991

### **Academic Reference:**

- Professor Khaled Al-Kattan, College of Medicine, Alfaisal University, [kkattan@alfaisal.edu](mailto:kkattan@alfaisal.edu)
- Prof. Atef Shibl, Department of Medical Microbiology, College of Medicine, Alfaisal University, KSA. [ashibl@alfaisal.edu](mailto:ashibl@alfaisal.edu)
- Associate Prof. Volker Briken, Department of Cell Biology and Molecular Genetics, University of Maryland, College Park, USA. [Vbriken@umd.edu](mailto:Vbriken@umd.edu)
- Prof. Maria Lerm, Division of Medical Microbiology, Department of Clinical and Experimental Medicine, Linköping University, Sweden. [maria.lerm@liu.se](mailto:maria.lerm@liu.se)