PhD Potential Supervisors College of Medicine

Professor Aida Habib, Professor of Pharmacology College of Medicine

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Dr. Aida Habib is a full professor of Pharmacology at the College of Medicine, Qatar University. Dr. Aida Habib obtained her MS in Molecular and Cellular Biology-

Immunology from Université de Pierre et Marie Curie, Paris, France, and her Ph.D. in Molecular and Cellular Biology of Vessels and Platelets-coagulation from Université Paris 7 (now Université de Paris), working on arachidonic acid and cyclooxygenase-2 in endothelial cells.

After a post-doctoral fellowship at the University of Pennsylvania, Philadelphia in the group of Garret FitzGerald, she was appointed as a senior researcher at the CNRS in Paris, France, conducting her research on the regulation of cyclooxygenases and the signaling of the thromboxane receptors in the vascular and inflammatory cells. In 2002, she joined the faculty of Medicine at the American University of Beirut as an associate professor of Biochemistry.

She was promoted to professor in 2008. During this time, she was a visiting researcher in the group « Inflammatory responses in chronic liver diseases », led by Dr. Sophie Lotersztajn at the Center for Research on Inflammation (CRI, INSERM U1149), Paris, France. Dr. Aida Habib is an internationally recognized researcher working on prostanoids and the arachidonic acid pathway in inflammation vascular biology.

She has also contributed to important studies on liver fibrosis. She carries out translational research on inflammation and liver pathophysiology through projects covering molecular and cellular aspects as well as animal models. Her research aims for a better understanding of the mechanisms of inflammatory disease and liver failure. The focus is on the identification of targets in macrophages that limit inflammation.

Dr. Aida Habib is the recipient of the Bronze Medal for research from the CNRS in France. She published more than 80 papers in peer-reviewed journals (Google scholar h-index 41, ˃ 6500 citations).

**Google scholar:** https://scholar.google.com/citations?user=521MHrcAAAAJ&hl=en

Professor Ala-Eddin Al Moustafa Professor of Molecular/Cell Biology College of Medicine

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Dr. Ala-Eddin Al Moustafa, is a professor at the College of Medicine and an associate member of the BRC of Qatar University, he is also still affiliated with his previous institution, the Oncology Department of McGill University, as an adjunct professor. Dr. Al Moustafa has been a cancer scientist since completing his PhD in 1992 at the University of Paris XIII, Paris, France. He did his training as a postdoctoral fellow in Montreal, Canada. Afterwards, Dr. Al Moustafa held a position as a PI and an Assistant Professor at the Lady Davis Institute (LDI) for Medical Research of JGH and the Oncology Dept. of McGill University, respectively. He also was the founder and the scientific director of the first Research Cancer Centre in Aleppo-Syria. Dr. Al Moustafa has published more than one hundred forty papers, book and book chapters on different aspects of human cancer including oncogene cooperation, cDNA and tissue microarray, HPVs and EBV. During his career, Dr. Al Moustafa obtained numerous grants from highly respected organizations in France, Canada, and Qatar such as the French Muscular Dystrophy Association, the Canadian Institutes of Health Research (CIHR), the Cancer Research Society, and the Colorectal Cancer Association of Canada as well as QNRF and Qatar University.

On the other hand, Dr. Al Moustafa founded the Middle-Eastern Association for Cancer Research (MEACR), and its official scientific peer-reviewed journal, the Clinical Cancer Investigation Journal (CCIJ). Dr. Al Moustafa is the principle organizer of the annual meetings of the MEACR and serves as the editor-in-chief of the CCIJ since their establishment in 2009 and 2011, respectively.

Dr. Al Moustafa’s main research focuses on the roles of several oncogenes, gene cooperation and oncoviruses in human carcinogenesis and metastasis. He is also interested in cancer drug discovery and delivery using nanoparticles.

Pubmed publication list: https://pubmed.ncbi.nlm.nih.gov/?term=Ala- Eddin+Al+Moustafa+and%2For+Al+Moustafa+AE+and%2For+Almoustafa+AE

Google Scholar page: https://scholar.google.com/citations?user=25s5dVIAAAAJ&hl=en

Professor Laiche Djouhri Professor of Physiology College of Medicine

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My research is focussed on understanding of the processing of nociceptive “pain” information and in the peripheral mechanisms underlying hyperexcitability of dorsal root ganglion (DRG) neurons, and hypersensitivity associated with chronic inflammatory and neuropathic pain (NP), major health problems. My current research interests include the role of the immune and nervous systems, and ion channels (e.g. KCNQ/Kv7, and HCN channels) in spontaneous activity in DRG neurons that that drives chronic inflammatory and neuropathic pain. I have been using the following animal (rat) models of chronic pain and approaches:

Animal models of chronic pain

* CFA (Complete Freund’s adjuvant) model of chronic inflammatory pain
* SNL (spinal nerve ligation) model of neuropathic pain
* STZ (Streptozotocin) model of diabetes-induced neuropathic pain
* Paclitaxel model of chemotherapy-induced neuropathic pain

Approaches/techniques

* In vivo single electrode voltage clamp (SEVC) recordings in anaesthetized rats.
* In vivo voltage recordings in anaesthetized rats coupled with dye-injection and immunocytochemistry
* Immunohistochemistry of whole DRGs.
* Pharmacological and behavioural studies to examine effects of modulating ion channels (e.g. HCN and Kv7) and proinflammatory mediators (e.g. cytokines and NGF) on the excitability of nociceptors and pain hypersensitivity in the aforementioned animal models of chronic pain.

Google Scholar: https://scholar.google.com/citations?user=bZOxBqEAAAAJ&hl=en

Professor Saghir Akhtar Professor of pharmacology College of Medicine

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Saghir Akhtar is currently Professor of Pharmacology at the College of Medicine,

Qatar University and Editor-in-Chief of the Journal of Drug Targeting. He was previously Professor of Drug Delivery in the Welsh School of Pharmacy and Director for the Centre for Genome-based Therapeutics, Cardiff University, UK and more recently as Professor of Molecular Pharmacology at the Faculty of Medicine, Kuwait University,

Prof Akhtar obtained a First Class honors degree in Pharmacy from the Leicester School of Pharmacy (UK) and his Doctor of Philosophy degree from the University of Bath in the UK. He then undertook a post-doctoral fellowship at the University of North Carolina Medical School at Chapel Hill, North Carolina, USA and began his independent academic career at Aston University (Birmingham, UK), firstly as lecturer and then as Reader in Pharmaceutical Sciences. He was also a visiting fellow in the Department of Biochemistry, Oxford University, UK (with Professor Ed Southern).He has published well over 120 full peer-reviewed research articles in leading journals and holds several patents that have emanated from his research in medical and health sciences. In addition, Prof Akhtar has trained and mentored many research students and post-doctoral fellows and serves the research community through his roles as Editor-in-Chief, Associate Editor and Editorial Board member of several peer-reviewed research journals. Prof Akhtar has also served as an invited organizer and/or keynote speaker at numerous international conferences.

Professor Akhtar’s research and teaching has been recognized internationally with the award of several prestigious prizes including the Lilly Prize, the Pfizer Academic Award, the British Pharmaceutical Conference Science Medal, the Controlled Release Society (USA) Young Investigator Research Achievement Award, the Kappa Society Science Award and the Fazlur Rahman Khan Award for Excellence in Engineering, Science and Technology (London, UK). In 2020, he also received one of the top two best teacher awards from students at the College of Medicine at Qatar University. In addition to his research and teaching, Prof Akhtar has previously held several senior administrative positions including as Head of Department and Director of Postgraduate studies. He has also served as a curriculum advisor and external examiner for several international universities.

*Research interests*

Professor Akhtar conducts basic and translational research in the fields of cancer and diabetes. Current research interests include studying a) the molecular pharmacology and signal transduction pathways involved in breast and brain cancers, diabetes and/or hypertension-induced cardiovascular dysfunction; b) the nanotoxicology and biological activity of novel drug delivery systems especially for gene silencing nucleic acid-based nanomedicines and c) the impact of pharmacotherapy on clinical outcomes in COVID-19 patients.

Google Scholar: https://scholar.google.com/citations?hl=en&user=vJQ51RMAAAAJ&view\_op=list\_works

Google Scholar: https://scholar.google.com/citations?hl=en&user=vJQ51RMAAAAJ&view\_op=list\_works

Professor Giridhara R Babu, MBBS, MPH, Ph.D. Professor, Department of Population Medicine, College of Medicine, Qatar University

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Giridhara R Babu has a medical degree (MBBS) from Kasturba medical college

Manipal and has completed MPH and PhD from UCLA (University of California Los Angeles). Giridhara is a member of the Faculty of Public Health (UK) and a chartered member of the National Board of Public Health Examiners (USA). He has two decades of experience in public health research, practice and academics. He began his career at the Center for Community Medicine of the All India Institute of Medical Sciences, New Delhi as a Junior Resident. Next, he worked with World Health Organization where he led the efforts in stopping polio transmission in the state of Karnataka. He initiated advocacy for Measles surveillance in Karnataka leading to constitution of Multi Year Plan (MYP) for Measles elimination in India. He is awarded intermediate and now the senior fellowship of Wellcome Trust-DBT India Alliance to start and expand cohort study. The cohort is named as MAASTHI (Maternal Antecedents of Adiposity Studying the Transgenerational role of Hyperglycemia and Insulin). He is also co-PI of 1 million GBP Newton Fund titled GUIDES to examine the role of educational intervention in screening and management of Gestational Diabetes Mellitus.

He is awarded Wellcome Trust Team Science grant of 1.3 million USD, where he will be leading a consortium of 18 investigators across 6 premiere public health institutions. This research program titled Nutritional, psychosocial and environmental determinants of neurodevelopment and child mental health (COINCIDE) aims to evaluate how multiple factors in a child’s immediate environment impact their development in the first decade of their life starting from pregnancy.

Giridhara has over 100 papers published in national and international high impact journals. He has served on several national and international committees. Some of them include Lancet Commission Task force on COVID19, ICMR National Task Force for COVID-I9 and the Technical Analysis Committee of the Government of Karnataka. He is the regional representative for LMICs on the DoHaD international society.

Research Interests: Primary Prevention of Non-Communicable diseases, Obesity, Type 2 Diabetes Mellitus, Global health, Health Policy, Life course Epidemiology.

Google Scholar Profile: https://scholar.google.com/citations?user=2d1vYIgAAAAJ&hl=en

# Dr. Ali H. Eid, MSc, Ph.D.

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Dr. Eid obtained his Ph.D. in Biomedical Sciences from the Ohio State University where he conducted his doctoral (and later postdoctoral) research at the Davis Heart and Lung Research Institute. He had previously obtained his MSc from Bowling Green State University, USA and his BSc from the American University of Beirut.

The main research focus in Dr. Eid's laboratory is the molecular and cellular pharmacology that culminates in drug discovery. Dr. Eid has leveraged his training and experience in cellular and molecular biology to pursue research questions related to alpha 2 adrenoceptors (α2-ARs) in the context of vascular disease. Specifically, the role of the neuronal (norepinephrine), humoral (epinephrine) and endocrine (estrogen and cortisol) factors that govern the function of vascular α2-ARs is of prime importance. Dr. Eid has set up a drug discovery program that screens, identifies and characterizes new drugs from natural and synthetic origins. For the natural sources, his team first selected several plants with established medicinal value in the culture. To this end, Dr. Eid and his students published several papers in highly reputable Q1 journals; many of these papers were invited papers, indicative of the team’s sought expertise. As an example of the synthetic chemistry element, Dr. Eid and his medicinal chemistry collaborators have identified a few compounds that are more efficacious and more potent than 5-fluouracil, a standard anti-cancer drug. Importantly, these newly discovered compounds elicit their anticancer effects even in cancer cells that are resistant to current treatment. Another aspect of Dr. Eid’s research tackles the molecular mechanisms implicated in adrenergic signaling, expression and trafficking.

Dr. Eid has garnered several teaching and research awards, has secured many national and international research awards, and serves as an editor for many Q1 journals. Dr. Eid enjoys teaching his students the art of research and scientific writing. Indeed, his students have a strong record in publishing in top Q1 jounals. He has published over 170 peer-reviewed papers in highly reputable journals. His h-index is currently 36, with a steady increase in citations as per the following scholar link.

Google scholar link: [https://scholar.google.com/citations?user=Pj2rOPkAAAAJ&hl=en](https://scholar.google.com/citations?user=Pj2rOPkAAAAJ&hl=en" \o "https://scholar.google.com/citations?user=Pj2rOPkAAAAJ&hl=en)

Dr. Asad Zeidan

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Dr. Asad Zeidan is an Associate Professor of physiology in the College of Medicine at the University of Qatar. He received fellowships for graduate study in vascular

physiology from Swedish Institute and Faculty of Medicine at Lund University in Lund, Sweden. In 2003 he received his Ph.D. degree in vascular physiology at Lund University, Sweden. His Ph.D. study focused on stretch-dependent growth and remodeling in vascular smooth muscle cells (VSMC). The major goal of his Ph.D. research was to identify the signals behind mechanical stretch-induced growth and differentiation marker proteins in VSMC. In January 2004, Dr. Zeidan moved to London, Ontario, Canada, for his postdoctoral studies in the department of physiology and pharmacology, Faculty of Medicine at University of Western Ontario. His research involved studies of the molecular mechanisms underlying hypertrophic effect of the obesity associated protein leptin in vascular and cardiac tissues. In December 2009, Dr. Zeidan accepted a faculty position in the Cardiovascular Research Institute at the University of Rochester, New York. During his stay, he received the highly competitive and prestigious Scientist Development Grant (#10SDG4250012 success rate: 8.3%) from the American Heart Association (AHA), which is reserved for promising young scientists. In 2011, Dr. Zeidan joined the Department of Anatomy, Cell Biology, and Physiology at American University of Beirut (AUB) as an Assistant Professor of Physiology. At the same time, he established his own research profile working on hypertension and obesity. His main research focus was on studying the relationship between obesity-associated proteins (adiponectin and leptin), hypertension, and mechanotransduction signaling in VSMCs/endothelial cells in vitro and in vivo. His projects utilize his experience and knowledge from both his graduate and postdoctoral training in vascular and cardiac research in order to study, in-depth, novel molecular mechanisms in the regulation of cardiovascular function in health and disease. In 2012, he received the Talal Zein award in Hypertension and Cardiovascular Prevention from the European Society of Hypertension. He was later awarded a travel research fellowship from the Royal College of Physicians (Daniel Turnberg Travel Fellowships). Dr. Asad has around 60 peer-reviewed publications and book chapters in highly ranked scientific journals and his H- Index stands right now at 28.

His principal research activities focus on:

1. Characterizing the mechanisms by which VSMC in the vascular wall sense changes in blood pressure and modulate vessel size and tone. Using blood vessels organ culture, models of hypertension (in vivo) and cardio-vascular-proteomics platform; molecular signalling that are involved in hypertension-induced VSMC remodelling are being investigated. The goal is to identify novel biomechanical sensing molecules.
2. Understanding of the mechanisms of the obesity associated proteins (such as leptin and adiponectin)- and diabetes-induced cardiac and vascular remodelling.
3. Design and validation of a model for *In Vitro* investigation of shear stress and its role in atherosclerosis.

Google Scholar: https://scholar.google.com/citations?user=WleqHWoAAAAJ&hl=en

Dr. Michail Nomikos

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Dr. Nomikos earned his B.Sc. in Biochemistry from the University of Liverpool (UK) in

2000; and his M.Sc. in Medical Genetics with Immunology from Brunel University (London, UK) in 2002. The same year, he was awarded a Ph.D. studentship from the School of Medicine to perform his Ph.D. studies at Cardiff University (UK). After completing his Ph.D., he joined the National Center for Scientific Research (N.C.S.R.) ‘Demokritos’ in Athens (Greece). In 2014, Dr. Nomikos was awarded a highly competitive Intra-European Marie Curie Fellowship from European Commission to perform his research and teaching duties in the School of Medicine at Cardiff University until 2016. In September 2016, he joined Qatar University as an Assistant Professor of Biochemistry in the College of Medicine. One of the main research interests of Dr. Nomikos revolves around understanding the cell signaling mechanisms and metabolism during mammalian fertilization and early embryonic development. Moreover, Dr. Nomikos uses multidisciplinary approaches to study the structure and function of proteins involved in various signaling cascades in cardiomyocytes in an effort to understand their role, as well as the role of their disease-causing variants (mutants), in the pathogenesis, predisposition and diagnosis of human cardiac disease (such as arrhythmias, cardiac hypertrophy and early onset cardiac death). Dr. Nomikos has over 40 peer-reviewed publications (as well as 2 book chapters) in highly ranked scientific journals. In 2013, Dr. Nomikos was awarded the prestigious ‘Fertility and Sterility Investigator Achievement Award’ by the American Society for Reproductive Medicine. More recently, Dr. Nomikos received the international "Outstanding Paper Award 2017" of the Asian Journal of Andrology (AJA), the official journal of The Asian Society of Andrology, in recognition of his publication ‘Is PAWP the "real" sperm factor?’ in AJA, for which Dr Nomikos was the primary and senior author. In 2019, Dr. Nomikos was promoted to Associate Professor and appointed as the Head of Research and Graduate studies in the College of Medicine at Qatar University.

Google Scholar: https://scholar.google.com/citations?user=H0sHU\_QAAAAJ&hl=en

Dr. Mubarak Bidmos

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Dr. Mubarak Bidmos received an MBBS (1996) from the University of Lagos, Nigeria,

and was awarded an MSc in Anatomy (2002) and a Ph.D. in Anatomy (2009) from the University of the Witwatersrand, South Africa. He was a lecturer at the University of the Witwatersrand, South Africa, a tutor at Canadian Memorial Chiropractic College, and an Assistant Professor of Anatomy at the University of Toronto, Canada. He has contributed significantly to the undergraduate training of medical students in South Africa and Canada. In addition, he has been heavily involved in the teaching of developmental anatomy, clinical anatomy, and forensic anthropology to postgraduate students.

Dr Mubarak has supervised/co-supervised postgraduate students from the University of the Witwatersrand (South Africa) and Western Sydney University (Australia) and is an Honorary Research Fellow with Human Variation and Identification Research Unit of the University of the Witwatersrand, South Africa. He has published more than 50 peer-reviewed research articles in internationally reputable journals and has served as a reviewer for a number of international journals including Forensic Science International published by Elsevier. He is recognized as one of the top 2% researchers in the field of Forensic Science in the world and is currently the Sectional Editor of the new addition to the Forensic Science International family, *FSI: Reports*.

Dr Bidmos main research interest is in the establishment and validation of standards for sex estimation and stature reconstruction for human identification. His current focus is in the use of data acquired from CT and MRI scans in the assessment of standards for human identification. He is also interested in studies that explore human anatomical variations of clinical significance.

# Research Profile Links:

* Scopus: https://[www.scopus.com/Mubarak Bidmos](http://www.scopus.com/MubarakBidmos)
* Google Scholar: https://scholar.google.com/Mubarak Bidmos
* ResearchGate: https://[www.researchgate.net/profile/Mubarak\_Bidmos](http://www.researchgate.net/profile/Mubarak_Bidmos)

Dr. Ayman Ghazi Yaseen Mustafa Associate professor of Anatomy College of Medicine, Qatar University Po Box: 2713

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College of medicine

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Dr. Ayman Mustafa has earned his PhD in Anatomy and neurobiology from University of Kentucky USA in 2010. Since then, he has been teaching anatomical sciences to medical students in Jordan and Qatar. Dr Ayman original line of research is to study the role of oxidative stress in central nervous system injury. In addition to that, Dr Ayman is interested in studying oxidative stress in other biological and experimental systems including isolated smooth muscle contractility, cancer cell lines and others. Another line of research that Dr Ayman is currently pursuing is human surgical and radiologic anatomy and its application in forensic sciences. He conducted several studies in this field and published them in reputable international journals. Moreover, Dr Ayman is conducting research projects in medical education and research bioethics.

Google Scholar: https://scholar.google.com/citations?user=tRB7zGoAAAAJ&hl=en

Dr. Mohamed Maged Emara Associate professor of Microbiology College of Medicine, Qatar University Po Box: 2713

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Dr. Mohamed Emara is an Associate Professor of Microbiology at CMED-QU. He has 20 years of experience in the field of molecular and cell biology with a specific focus on understanding the gene transcriptional regulation in cells subjected to different types of stresses. Dr. Emara has his PhD from Georgia State University, where he is the first one to discover the inhibition of specific stress related genes in cells infected with viruses and understand the exact pathways behind this inhibition (Emara and Brinton, 2007, PNAS). He is one of the pioneers to establish a virus-cell system to study the effect of different viruses on the molecular components of cell stress response program and how it regulates cell gene expression, which is a widely used approach today (Emara and Brinton, 2007, PNAS; Khaperskyy, Emara, et al., 2014, PloS Pathogen). As a molecular and cell biologist at Harvard Medical School, he is the first one to report the ability of different cells to control the expression of certain genes in response to specific type of non-coding RNA molecules to induce the formation of SGs in different types of cells (Emara et al, 2010, JBC). Along with his colleagues he was able to discover the novel function of this RNA and identify the pathways and mechanisms of how those genes are regulated within the cell (Ivanov, Emara, et al, 2011, Mol Cell). Recently, he was among the group who identify a protective effect of the DNA form these RNA molecules in motor neurons and highlight its possible role in motor neuron diseases pathogenesis (Ivanov, O’Day, Emara, et al., 2014, PNAS). In 2012, Dr. Emara moved to Qatar and joined QBRI, his research focus was directed towards using iPSC in disease modeling. Since he came to QBRI, he has been focused in establishing an iPSC niche at QBRI, where he is a key member in founding a fully functional stem cell platform at QBRI.

Dr. Emara’s research focuses is directed towards using iPSC in disease modeling of Cystic Fibrosis (CF). His lab generate iPSC from CF patients in Qatar, differentiate them into airway organoids, and perform transcriptomic and epigenomic analysis on these organoids aiming to identifying candidate genes that play role in the disease pathogenesis. In addition, his research focuses in identifying novel transcription factors that play a role in improving iPSC generation (Swaidan et al., 2020l Scientific Reports). Another branch in Dr. Emara’s lab is the understanding the possible role of stress response program components in regulating stem cell self- renewal and differentiation, with a special focus on airway differentiation. His lab was the first to elucidate the possible role of SGs in regulating stem cell fate (Palangi et al., 2017, PloS ONE; Asfar et al., 2021, Stem cells International). Also, he is currently a key member of other collaborative projects to use iPSC approach in modeling diabetes and ASD. Dr. Emara’s team is composed of a highly experienced senior research associate, research assistant, and six undergraduate students. Team members are highly skilled in cell culture, molecular and cell biology techniques and are well trained to handle iPSC cell lines and characterize them in a very efficient and reliable way.

Google scholar: https://scholar.google.com/citations?user=X0394fsAAAAJ&hl=en

Dr. Semir Vranic,

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Dr. Vranic graduated from the University of Sarajevo School Of Medicine in 2004. Completed residency program in pathology in 2011 and obtained PhD in pathology in 2012 at the Zagreb University School of Medicine. Worked as a consultant pathologist at the Department of Pathology, Clinical Center of the University of Sarajevo from 2012-2017. Joined the College of Medicine, Qatar University in September 2017. Did two post-doc fellowships (2008/2009 at the Creighton University School of Medicine, Omaha, Nebraska, USA; 2012/2013, Department of Medical Sciences, University of Turin, Italy). Additional training programs in breast pathology were completed at Nottingham City Hospital (UK) in 2008 and at Guy's and St. Thomas' NHS Foundation Trust/King's College London (2012). Was awarded as UICC Lifetime Fellow in 2010 and "The rising stars in pathology" by the Pathologist in 2016. Active in many professional and academic associations related to pathology and academic/scientific publishing (USCAP, European Society of Pathology, UICC, COPE, WAME, CSE). Actively involved in pathology education through establishment of the Bryan Warren School of Pathology (since 2007 annually) in collaboration with the British Division of the International Academy of Pathology (BDIAP) and Bosnian Turkish School of Cytopathology (since 2016 annually) in collaboration with the Turkish Division of IAP (TDIAP). Served as a president of national association of pathologists in Federation of Bosnia and Herzegovina (2015-2017). Has been section editor and editor-in-chief of Bosnian Journal of Basic Medical Sciences (since 2014), consulting editor in Breast Cancer: Targets and Therapy (2015-2019), academic editor in PLOS One (since 2018), associate editor in Cancer Cell International (2019-2020) and editorial board member of Annals of Translational Medicine (2017-2022). Has been serving as a peer-reviewer for >100 academic biomedical journals.

*Research interests:*

Has been actively involved in breast cancer, genitourinary and gynecologic cancer research as well as novel predictive biomarkers for precision medicine purposes (175 peer-reviewed publications + 110 abstracts for scientific conferences/meetings). Published one book (Review of Gynecologic and Breast Pathology, 2017) and six book chapters (two in Encyclopedia of Pathology, Springer 2018 and 2020, one in WHO Classification of Breast Tumors, IARC Lyon, 2019, one in book “Precision Medicine in Cancer Therapy” (2019), and one in book “Handook of Immunology and Cancer” (Springer, 2022, in press).

Google Scholar: https://scholar.google.com/citations?user=9FowakAAAAAJ&hl=en Scopus: https://[www.scopus.com/authid/detail.uri?authorId=6506742049](http://www.scopus.com/authid/detail.uri?authorId=6506742049)

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Dr. Shona Pedersen graduated with honors from Natal University with a B.Sc. in Biomedical Science in 1992; and a M.Sc. in Medical Biochemistry from Pretoria University in 1998. In 2004, she was awarded a Ph.D. in Medical Biotechnology, Biochemistry, and Protein Engineering from the Faculty of Engineering and Science at Aalborg University, Denmark.

After completing her doctoral degree, she continued as a Senior Scientist (2004 –2021) at the Department of Clinical Biochemistry, Aalborg University Hospital, where she played a central role in initiating and developing the proteomics and metabolomics research laboratory. In 2007, she was also awarded an Associate Professor position from the Department of Clinical Medicine at Aalborg University, Denmark. In addition, Dr. Pedersen serves as a board member of the Clinical Cancer Research in Denmark and an Associate Editor for Molecular Signalling, a specialty section of Frontiers in Molecular Neuroscience. Dr. Pedersen joined Qatar University in August 2021 as an Associate Professor in Biochemistry at the School of Medicine, Department of Basic Medical Science. To date, Dr. Pedersen has published more than 60 scientific research papers and was awarded two patents for her discoveries. In addition, she has supervised and examined numerous undergraduate and master's students. Five Ph.D. students successfully completed their PhD under her supervision. Currently, Dr. Pedersen is leading the neuro-cardio networking group at Qatar University.

Dr. Pedersen's primary research focuses on discovering **novel diagnostic and Predictive Protein and Metabolite biomarkers in disease through multi-omic techniques**. Dr. Pedersen's research group has positioned itself to map the protein and metabolite diagnostic and predictive signatures in small cell lung cancer, multiple myeloma, cancer-associated thrombosis, Acute Lung Injury, Atrial Fibrillation, and Alzheimer's disease.

Recently, she has expanded her research I) to explore the role of exosomes in non-obese insulin resistance (IR) and insulin sensitive (IS) prediabetic patients on triggering the process ofcancer onset in normal. II) To investigate the effect of enriched exosomes from non-obese IR and IS prediabetic patients on triggering the progression of cancer invasiveness in cancer cells. III) Proteomics and metabolomics profiling of non-obese IR and IS prediabetic Qatari patients and matching controls **with the aim of establishing highly reliable diagnostic tools and to provide novel therapeutic targets for IR prediabetic individuals.**

Dr. Pedersen's research also focuses on exploring the proteomes by shotgun proteomics from I) cohort of primary triple-negative breast and HER2+ carcinomas compared with normal and/or benign breast tissues II) SCLC tumors before and after treatment with combined immunotherapy, and III) ovarian tumors compared borderline (low malignant potential) and benign tumors. These studies aim to **enable accurate molecular diagnosis and a better prognosis and to identify novel predictive biomarkers for the eventual development of medical and therapeutic interventions.**

Google Scholar:

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**Dr. Susu Zughaier** is an Associate Professor of Microbiology and Immunology. Trained as a clinical microbiologist, earned a Diploma in Clinical Microbiology, University College London; MSc in Medical Microbiology and PhD in Microbiology and Immunology from Cardiff University, UK. She did her postdoctoral training at Harvard Medical School in Boston, USA. Dr. Zughaier was an Assistant Professor at the Department of Microbiology and Immunology, Emory University School of Medicine in Atlanta, USA before joining Qatar University College of Medicine in Fall 2017. Her research interests are focused on host-pathogen interactions and vaccine development. She investigates antibiotic resistance mechanisms and implements nanotechnology for rapid detection of bacterial infections. Her translational research is focused on vitamin D immune modulatory effects. To date, Dr. Zughaier published more than 65 scientific research papers and awarded two patents on her discoveries. She serves as the Scientific Microbiology Councilor for the International Endotoxin and Innate Immunity Society. She serves as Guest Editor, editorial board member and ad-hoc reviewer for multiple international journals. Dr. Zughaier is an expert in Meningococcal and Gonococcal nanovaccines and therefore served as consulted for Pfizer and the World Health Organization (WHO). In 2019 she joined Bacterial Vaccines Experts Network (BactiVac), University of Birmingham UK. Dr Zughaier is listed among the top 2% global scholars based on the Stanford study in 2020; her Google Scholar H-index is 31 and i10 index is 50, her research is highly cited as well with more than 12,000 citations. Dr Susu Zughaier Laboratory is currently awarded NPRP12S grant, as well as QU internal, collaborative and student grants.

# Research Interests:

Dr Susu Zughaier research interests are focused on host-pathogen interactions, vaccine development and antibiotic resistance. She implements nanotechnology for rapid detection of bacterial infections and nanovaccine development and she has several international collaborations. Her translational research is focused on vitamin D immune modulatory effects. Dr. Zughaier research laboratory at Qatar University implements various biological and molecular methods, as well as *in silico* and bioinformatics approaches. Current projects are:

**A**: **Host-pathogen interactions**: Main research interests are in the field of host-pathogen interactions focusing on Toll-like Receptors and Innate Immunity in terms of macrophage inflammatory immune responses, epigenetic adaptation, and autophagy modulation in response to bacterial infection, bacterial virulence and immune evasion mechanisms.

**B**: **Antibiotics resistance mechanisms** in terms of mobile genetic determinants that transfer resistance among bacterial pathogens in Qatar; how antibiotic resistance enables bacterial survival in the host and identifying novel bacterial targets for antibiotic adjuvants discovery.

**C**: **Vitamin D immune modulatory effects:** Vitamin D status and it association with chronic diseases in Qatar in collaboration with Qatar Bio Bank as the main source for population-based biological data.

**D: Nanotechnology based research for biosensors and nanovaccines discovery**: Developing sensor for rapid detection of bacterial infections in biological fluids using nanosubstrates and smart material; as well as developing bacterial nanovaccine formulations for novel vaccine discovery and enhanced delivery methods for current vaccin

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