Mazin Al-Salihi MBBS PhD

Assistant Professor - Faculty of Medicine
Acting director of clinical research - Cell Therapy Center
The University of Jordan

Nationality: Jordanian Email: m.alsalihi@ju.edu.jo

As a researcher with a clinical background I am passionate in teaching and researching problems immediately relevant to patient health. My postgraduate career started with the prestigious Fulbright pre-doctoral award to work at an NCI-designated cancer center. I had the honor of working with and learning from researchers originally involved in discovery of the *APC* gene in colon cancer.

I am currently interested in colitis associated colon cancer. With only 1 week of prophylactic treatment in an inflammatory bowel disease model colon tumor load is reduced by 50%. I have been successful in obtaining significant funding and publishing my work.

Qualifications:

PhD Oncological Sciences, University of Utah, Salt Lake City, May 2008 (achieved in less than 5 years)
MBBS medicine and surgery with honors, University of Jordan, Amman, June 2001

Awards, Grants & Honors:

Scientific Research Fund Grant-MOHE 2016-2018 **(JD 110,000 preliminary approval)**
Medical Research Council Career Development Fellowship 2010-2013 **($200,000)**
Joan's Legacy Foundation Grant 2007-2008 **($100,000)**
Fulbright Pre-doctoral Award - US Department of State, 2003-2005 **($100,000)**
Dean of Medicine Award for Academic achievement, 2001
University of Jordan Academic Achievement Scholarship, 1995-2001

Research Experience:

2014-present **Assistant professor, Principal investigator**
University of Jordan, Faculty of Medicine & Cell Therapy Center

- Investigating the effect of mesenchymal stem cell endoscopic injections on inflammatory bowel disease pathogenesis & neutrophil myeloperoxidase.
- Characterizing the contribution of COX-2 signaling in "Never-Smokers" lung cancer in order to overcome resistance to tyrosine kinase therapy.

2010-2013 **Career Development Fellow**
Medical Research Council - Protein Phosphorylation Unit
University of Dundee

- Discovered the deubiquitylating enzymes USP11 and USP15 as novel regulators of TGFβ and BMP pathway signaling respectively.
- Documented the effect USP11 has on TGFβ induced epithelial to mesechymal transition, a process thought to be essential for cancer invasion and metastasis.

- USP11 is now being studied by the pharmaceutical companies involved in the division of signal transduction therapy as a druggable target.
- Authored papers on USP11 and USP15 as well as a comprehensive review on deubiquitylation in regulating TGFβ signaling.
- Co-authored the role of the deubiquitylating enzyme OTUB1 in TGFβ pathway signaling.
- Taught an MRes class on TGFβ in cancer, as part of the cancer biology lecture series.
- Supervised one undergraduate student and co-supervised three graduate students

2008-2010 **Postdoctoral Research Fellow**
Huntsman Cancer Institute, University of Utah

- Identified and authored the mechanism of action of 5-azacytidine in solid tumors in relation to their p53 and replicative status. This was a preliminary study to Phase II clinical trials of the azacytidine compounds in late stage colon adenocarcinoma patients.
- Studied and authored a paper on neutrophil myeloperoxidase (MPOx) activity as a high impact new therapeutic target in colitis associated colon cancer. 1 week of prophylactic treatment reduced tumor load by 50% in an inflammatory colon cancer model. Confirmed genetically.
- Supervised 2 undergraduate students and one lab technician. Co-supervised one graduate student.

2003-2008 **Graduate Research Assistant (Predoctoral Fulbright Award)**
Huntsman Cancer Institute, University of Utah

- Characterised and authored the mechanism of epidermal growth factor transactivation by prostaglandin E2. Excess PGE2 as a consequence of cyclooxgenase-2 (COX-2) over-activity or over-expression. Both common events in multiple cancers including colon cancer.
- Studied and authored the role of COX-2 in colon cancer initiation and progression in a non-inflammatory colon cancer mouse model based study.
- Devised a new technique for assaying COX-2 activity in colon crypts ex vivo.
- Assisted in exploring transcriptional regulation of stop codon truncating mutations in muscular dystrophy, a cell based study of bypassing stop codons during transcription.
- Assisted in creating a new Drosophila model for amyloidgenic diseases.
- Supervised one lab technician.

Technical Proficiency:

***In vitro* Biochemical**
- Protein biochemistry/analysis IP/Western/ELISA/Spec./ Filtration Chromatography
- DNA/RNA analysis PCR/rtPCR/HPLC/Reporter assays

***In vivo* Cell**
- Cloning/mutagenesis
- 3D cell culture
- Live cell microscopy/IF

***In vivo* Model Organisms**
- IP/IC/TV/SC injections
- Mouse dissection & surgery
- Tissue processing/sectioning
- H&E/IHC/IF
- Light & confocal microscopy
- Drosophila Brain dissection
- Embryo dissection/ISH

Teaching Experience:

2014-Date **Introduction & gastrointestinal pathology for 2nd year medical students**
Blood, lymphoreticular, gastrointestinal, & genitourinary systems Virology for 2nd & 3rd year medical students
Supervisor, Master students in Medical Analysis

2013 **Supervisor, Final year intern from University of Han** (1 student)
Students in their final year apply and are placed at research institutes to gain practical lab experience.

2012 **MRes TGFβ in cancer lecture**
Part of the Cancer biology lecture series designed for newly matriculated masters students. College of life sciences, University of Dundee

2010-2013 **Co-supervsisor, 3 PhD candidates in Molecular Biology**
Medical Research Council, University of Dundee

2008-2010 **Supervisor, ACCESS Program for Women in Science and Mathematics** (2 students)
This program is designed to provide early research experience to young women undergraduates. College of Science, University of Utah

2008-2010 **Co-Supervisor, successful PhD candidate in Oncological Sciences**
Huntsman Cancer Institute, University of Utah

2005 **Teaching assistant, Human Physiology** (pre-med)
Department of Biology, University of Utah

2003 **International teaching assistant certification**
Graduate school, University of Utah

Presentations:

Wrestling with USPs: The Oompa Loompas of deubiquitylation. Medical Research Council Christmas symposium, **invited speaker** (2012)

USP11 augments TGFβ signalling by deubiquitylating ALK5. ZOMES VII. International conference and annual meeting of the DFG-SPP1365, poster presentation (2012)

USP11 and 15: New regulators of the TGFβ pathway? Medical Research Council Christmas symposium, **invited speaker** (2010)

Effect of myeloperoxidase inhibitor resorcinol on colon tumorigenesis in $APC^{min/+}$ mice. Proceedings of the American Association for Cancer Research Annual Meeting, poster presentation (2010)

EGFR and COX-2 in Colon Carcinogenesis, Breaking the Vicious Cycle. Oncological Sciences Departmental Retreat, University of Utah, **invited student speaker** (2006)

Cyclooxygenase-2 Transactivates the Epidermal Growth Factor Receptor through Specific E-prostanoid Receptors and Tumor Necrosis Factor-α Converting Enzyme. Molecular Biology, Biological Chemistry Department Retreat, University of Utah, poster presentation (2005)

Further Professional Development:

Writing proposals for funding. Medical Research Council. Nov 2011

The role of minorities in the political process. Fulbright Enrichment Seminar. Mar 2004

Bibliography:

1. **Al-Salihi MA**, Reichert E, Fitzpatrick FA. (2015) Influence of myeloperoxidase on colon tumor occurrence in inflamed versus non-inflamed colons of APCMin/+ mice. Redox biology. 6:218-225.

   1a. ***Al-Salihi MA****, Reichert E, Fitzpatrick FA. (2010) Effect of myeloperoxidase inhibitor resorcinol on colon tumorigenesis in APC(min/+) mice. Proceedings of the American Association for Cancer Research Annual Meeting. Volume: 51 Page: 552*

2. Herhaus L, **Al-Salihi MA**, Dingwell K, Cummins T, Wasmus L, Vogt J, Ewan R, Bruce D, Macartney T, Weidlich S, Smith JC, Sapkota GP. (2014) USP15 targets ALK3/BMPR1A for deubiquitylation to enhance bone morphogenetic protein signalling. Open Biol. 4: 140065.

3. Herhaus L, **Al-Salihi MA,** Macartney T, Weidlich S, Sapkota GP. (2013) OTUB1 augments TGFβ signalling by inhibiting SMAD3 ubiquitylation. Nature Commun. 4: 2519.

4. **Al-Salihi MA**, Herhaus L, Macartney T, Sapkota GP. (2012) USP11 augments TGFβ signalling by deubiquitylating ALK5. Open Biol. 2: 120063.

   4a. ***Al-Salihi MA****, Herhaus L, Macartney T, Sapkota GP. (2012) USP11 augments TGFβ signalling by deubiquitylating ALK5. ZOMES VII. International conference and annual meeting of the DFG-SPP1365. Volume: 7 Page:1*

5. **Al-Salihi MA**, Herhaus L, Sapkota GP. (2012) Regulation of the TGFβ Pathway by Reversible Ubiquitylation. Open Biol. 2: 120082.

6. **Al-Salihi MA**, Yu M, Burnett DM, Alexander A, Fitzpatrick FA. (2011) The depletion of DNA methyltransferase-1 and the epigenetic effects of 5-aza-2'deoxycytidine (decitabine) are differentially regulated by cell cycle progression. Epigenetics. 6: 1021-28.

7. **Al-Salihi MA**, Pearman T, Reichert E, Rosenberg D, Prescott SM, Stafforini DM, Topham MK. (2009) Transgenic expression of Cyclooxygenase-2 in mouse intestine epithelium is insufficient to initiate tumorigenesis but promotes tumor progression. Cancer Lett. 273: 225-32.

8. **Al-Salihi MA**, Ulmer SC, Doan T, Nelson CD, Crotty T, Prescott SM, Stafforini DM, Topham MK. (2007) Cyclooxygenase-2 transactivates the epidermal growth factor receptor through specific E-prostanoid receptors and tumor necrosis factor-alpha converting enzyme. Cell Signal. 19: 1956-63.

Professional Memberships:

2009-present Affiliate member, American Association for Cancer Research

2001-present Registered Physician, Jordan Medical Association

2006-2007 Member, Retention, Promotion, and Tenure student committee, Department of Oncological Sciences, University of Utah

2004-2007 Sponsored member, American Association for the Advancement of Science

Clinical Experience:

Feb. 2003-May 2003 John Radcliffe Hospital, Oxford Radcliffe Hospital NHS Trust
Clinical attachment with junior house officer duties in GI surgery.

Jul. 2001-Jul.2002 Jordan University Hospital, University of Jordan
Clinical Internship; 12-month rotation in the following departments:

Radiology & Interventional Radiology
Accident & Emergency (Regional Trauma and Burn Center)
Obstetrics and Gynaecology
Paediatrics
Medicine
Surgery

Jul. 2000-Sept. 2000 Aberdeen Royal Infirmary, Grampian NHS
Clinical Attachment in Surgery and Paediatrics as part of final year training.

Medical Licensing Examinations:

Professional and Linguistic Assessments Board examination part 2 pass (pass/fail only), 2003

Professional and Linguistic Assessments Board examination part 1 pass 163/200 (Mark needed to pass 120, Average 125), 2002