

Diala W Abu-Hassan

DDS, PhD

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Academic and Technical Experience

2014- present: Assistant Professor of Biochemistry and Molecular Biology,
Department of Physiology and Biochemistry, School of Medicine, the University of Jordan,
Amman, Jordan.

Teaching the following courses:

Introduction to Biochemistry for medical students.

Biochemistry I for dental students.

Biochemistry II for medical students.

Biochemistry II for dental students.

Biochemistry for nursing students.

Cell biology, molecular biology and genetics for medical students

Stem cell lectures in central nervous system for medical students

Main research interests:

Vision research including both glaucoma and diabetic retinopathy.

Stem cell research.

Medical education research.

2015-2016: Assistant Professor of Biochemistry, Yemen University of Science and Technology.

Teaching metabolic biochemistry, biochemistry of blood block, genitourinary system, gastrointestinal system, musculoskeletal system and clinical biochemistry for medical students.

2008-2013: Graduate Student at Oregon Health and Science University (OHSU)

- Graduate Student in the lab of Drs. Ted Acott and Mary Kelley (Co-Mentors)

- Research Rotations at OHSU:

Dr. Peter Rotwein laboratory. Studying the effect of post-translational modifications on Hemojuvelin functionality by site-directed mutagenesis and investigating the role of IGF signaling pathway in both skeletal muscle and bone development.

Dr. Michael Chapman laboratory. Computational studies and modeling of AAV-2 structure.

Dr. Larry David laboratory. Studying the methylation of crystallins by mass spectrometry.

- Technical Experience at OHSU:

Cell culture of both cell lines and primary cultures.

Stem cell culture of mesenchymal stem cells and induced pluripotent stem cells.

Organ culture of human and porcine eyes.

Fluorescent microscopy.

Confocal microscopy.

Molecular biology techniques including, PCR, immunoblotting, immunocytochemistry, immunohistochemistry, cloning lentiviral and adenoviral techniques.

Applying and differentiating induced pluripotent stem (iPS) cells for treating glaucoma and studying the mechanisms of regulating intraocular pressure.

2006-2008: Teaching and research assistant, Department of Physiology and Biochemistry, School of Medicine, the University of Jordan, Amman, Jordan.

-Teaching Assistant for Biochemistry and Physiology related courses; this includes preparation of exams and evaluations for multidisciplinary students (medical, dental, nursing, and pharmacy majors) and teaching part of the biochemistry course for nursing students.

-Molecular Biology Research Lab: Biostatistical analysis of data and hand-on experience related to diagnostic techniques such as PCR, RNA extraction and reverse transcription.

2006: General dental practitioner - private sector, Amman, Jordan.

Performed general dentistry work on patients.

Manuscripts and Book Chapters

Acott TS, Kelley MJ, Keller KE, Vranka JA, **Abu-Hassan DW**, Li X, Aga M, Bradley JM (2016). IOP Homeostasis – Why Most People Do Not Ever Develop Glaucoma. Glaucoma Research and Clinical Advances 2016 to 2018. Simon Bakker, Kugler Publications/SPB Academic Publishing. Amsterdam, The Netherlands.

Kelley MJ, Acott TS, **Abu-Hassan DW**, Li, X, Phan KG, Samples JR. Glaucoma and Stem Cells (2016). Glaucoma Research and Clinical Advances 2016 to 2018. Simon Bakker, Kugler Publications/SPB Academic Publishing. Amsterdam, The Netherlands.

Abu-Hassan DW, Li X, Ryan EI, Acott TS, Kelley, MJ, Induced pluripotent stem cells restore function in a human cell loss model for open-angle glaucoma. **Stem Cells** 2015;33 (3):751-761. *, **, ***

Abu-Hassan DW, Acott TS, Kelley MJ. The Trabecular Meshwork: A Basic Review of Form and Function. (2014), **J Ocular Biol.** 2(1).

Acott TS, Kelley MJ, Keller KE, Vranka JA, **Abu-Hassan DW**, Li X, Aga M, Bradley JM. Intraocular Pressure Homeostasis: Maintaining Balance in a High-Pressure Environment. (2014), *J Ocul Pharmacol Ther.*, 30: 94-101.

*Highlighted in *International Review of Glaucoma*, vol. 16-3, 2015, a journal read by most glaucoma surgeons. In the Glaucoma Dialogues section, a published manuscript of import and potential impact for discussion is selected to provide a forum for manuscripts that some might judge to be controversial or where further discussion of the experimental models or data is warranted.

**Also featured in *Regenerative Medicine Weekly*, highlights of stem cell research from the sister journals, Nov.25, 2014.

***Also highlighted in *the Journal of Clinical and Experimental Ophthalmology*, 2016.

Conference Abstracts

Kelley, M, Li, X, Huang, S, Staverosky, J, Wang, Y, Li, D, **Abu-Hassan, D.W**, Ryan, E, Rose, A, Acott, T. "Gene Editing to Evaluate Glaucoma Gene Variants/SNPs". TM Society Meeting, San Francisco, CA, December 1-3, 2016.

Abu-Hassan, D.W, Bdour, M, Alsaleh, I, Elkhateeb, M. "The frequency of Alu repetitive elements in angiotensin-converting enzyme in Jordanian diabetic retinopathy patients". The XXII Biennial Meeting of the International Society for Eye Research, Tokyo, September 25-29, 2016.

Kelley, M, Li, X, Huang, S, Staverosky, J, **Abu-Hassan, D.W**, Ryan, E, Acott, T. "Patient-derived stem cells for IOP control". The XXII Biennial Meeting of the International Society for Eye Research, Tokyo, September 25-29, 2016.

Acott, T, Vranka, J, Keller, K, Bradley, J, Aga, M, Li, x, **Abu-Hassan, D.W**, Kelley, M. "Molecular and cellular components of compromised and restored IOP homeostasis in glaucoma". The XXII Biennial Meeting of the International Society for Eye Research, Tokyo, September 25-29, 2016.

Abu-Hassan, D.W. "Advancing Research in Undergraduate Medical Education". The 2nd Turkish Arab Congress on Higher Education, Istanbul, April 26-30, 2016.

Abu-Hassan, D.W, Kelley, M.J, Li, X, Ryan EI and Acott, T.S. "The Use of Induced Pluripotent Stem Cells as a New Therapeutic Strategy for Glaucoma", Al-Zaytoonah University of Jordan and the University of Toledo International Pharmaceutical Conference (ZTIPC 2015), Amman, Jordan, October 21-22, 2015.

Kelley, M.J, Li, X, **Abu-Hassan, D.W**, Bradley, J, Ryan, E, Rose, A, and Acott, T.S. "Restoration of Trabecular Meshwork Functions with iPSC and MSC in a Human Cell Loss Model of Glaucoma", The 5th Annual International Vision Restoration: Regenerative Medicine in Ophthalmology Conference, Pittsburgh, PA, June 25-26, 2015.

Abu-Hassan, D.W, Kelley, M.J, Li, X, Ryan E and Acott, T.S. “Induced Pluripotent Stem Cells Restore Intraocular Pressure Homeostasis in a Human Model of Glaucoma”, The 12th International Congress of the Jordanian Ophthalmological Society, Amman, Jordan, May 6-9, 2015.

Kelley, M.J, **Abu-Hassan, D.W,** Li, X, and Acott, T.S. “Restoration of Trabecular Meshwork Functions”, The Association For Research In Vision and Ophthalmology, Orlando, FL, May 4-8, 2014.

Kelley, M.J, Li, X, **Abu-Hassan, D.W,** Ryan, E, Rose, A, Bradley, J, and Acott, T.S. “Restoration of Trabecular Meshwork by stem cells”, The Annual Trabecular Meshwork & Angle Closure Study Club, San Francisco, CA, December 15, 2012.

Abu-Hassan, D.W, Li, X, Ryan, E, Acott, T.S and Kelley, M.J. “A Novel Model for Primary Open Angle Glaucoma”, The Annual Biomedical Research Conference for Minority Students, San Jose, CA, November 7-10, 2012.

Li, X, **Abu-Hassan, D.W,** Vranka, J.A, Acott, T.S and Kelley, M.J. “Cell-Matrix and Cell-Cell Interactions And The Aqueous Humor Outflow In Trabecular Meshwork (TM) Cells”, The Association For Research In Vision and Ophthalmology, Fort Lauderdale, FL, May 6-10 2012.

Kelley, M.J, Li, X, **Abu-Hassan, D.W,** Vranka, J.A, Hayashi, L., and Acott, T.S. “Relationship between Type VI Collagen, Integrin, and Non-Integrin Receptors in Trabecular Meshwork”, The Annual Trabecular Meshwork & Angle Closure Study Club, Denver, AR, 2011.

Abu-Hassan, D.W and Rotwein, P, “AKT role in skeletal muscle differentiation”, Student Research Forum, Oregon Health and Science University, Portland, OR, May 2011.

Education:

2008 – 2013: Ph.D, Biochemistry and Molecular Biology, Oregon Health and Science University (OHSU), Portland, OR.

2000 – 2005: DDS, Doctor of Dental Surgery, the University of Jordan, Amman, Jordan.

Training workshops:

2017: Problem Based Learning Workshop. School of Medicine, the University of Jordan, Amman, Jordan.

2016: How to Integrate Simulation in Medical Curriculum Workshop. The 3rd Arab simulation in Medical Education Conference (ASCME), School of Medicine, the University of Jordan, Amman, Jordan.

2016: Blueprinting in Medical Education Workshop. The 3rd Arab simulation in Medical Education Conference (ASCME), School of Medicine, the University of Jordan, Amman, Jordan.

2015: Student Counseling Workshop. School of Medicine, the University of Jordan, Amman, Jordan.

2015: Next Generation Sequencing Workshop. Cell Therapy Center, the University of Jordan, Amman, Jordan.

2015: Towards Qualifying Clinician Researchers in Research and Bioethics, ISESCO, Amman, Jordan.

2015: Teaching and Assessment in Dental Education Workshop, The 8th Scientific Conference of the School of Dentistry, the University of Jordan, Amman, Jordan.

2015: Staff development workshops, Accreditation and Quality Assurance Center, the University of Jordan, Amman Jordan.

2011: Derivation of Induced Pluripotent Stem Cells and Human Pluripotent Stem Cell Culture Methods course, Theory and Hands-On. WiCell Laboratories, Madison, Wisconsin.

2008: Basics of mammalian cell culture course, Consultation center, the University of Jordan, Amman, Jordan.

2008: Computerized statistics (SPSS) course, Consultation center, the University of Jordan, Amman, Jordan.

Funded Research Projects:

The efficiency of using oleogels and bigels in treating periodontitis in an in vitro host-parasite interaction model. Scientific Research Support Fund, Ministry of Higher Education, Jordan.

The Relationship between Methylenetetrahydrofolate Reductase Polymorphisms and Hypothyroidism in Jordanian Females. King Abdullah II Design and Development Bureau and King Abdullah II Fund for Development, Amman, Jordan.

Determining the single nucleotide polymorphisms in diabetic retinopathy patients and the relationship between these polymorphisms and severity of the disease. Deanship of Academic Research, the University of Jordan, Amman, Jordan.

A Study of the effect of hyper-serotonin on gene expression in neuronal tissue and its possible role in the etiology of autism. Deanship of Academic Research, the University of Jordan, Amman, Jordan.

Awareness to glaucoma among Jordanians. Deanship of Academic Research, The University of Jordan, Amman, Jordan.

Medical specialty selection criteria among medical students at the University of Jordan. Deanship of Academic Research, The University of Jordan, Amman, Jordan.

Internships, Scholarships, Honors and Awards:

2017: Rudin Glaucoma Prize for manuscript, *Abu-Hassan DW*, Li X, Ryan EI, Acott TS, Kelley, MJ, Induced pluripotent stem cells restore function in a human cell loss model for open-angle glaucoma. *Stem Cells* 2015;33 (3):751-761. New York Academy of Medicine, NY.

2017: ERASMUS+ International Credit Mobility (ICM) Scholarship for Teaching Recipient. Ataturk University, Erzurum, Turkey.

2016: King Abdullah II Design and Development Bureau and King Abdullah II Fund for Development Research Fund Recipient. Project: The Relationship between Methylenetetrahydrofolate Reductase (MTHFR) Polymorphisms and Hypothyroidism in Jordanian Females.

2008-2013: Oregon Health and Science University PhD scholarship, 5-year long scholarship to pursue PhD in Biochemistry and Molecular Biology at Oregon Health and Science University, Portland, OR.

2008-2013: The University of Jordan PhD scholarship, 5-year long scholarship to pursue PhD in Biochemistry and Molecular Biology at Oregon Health and Science University, Portland, OR.

2005 –2006: Dental intern - University of Jordan Hospital, Amman, Jordan.

2002: The University of Jordan Academic Excellence Award, a competitive year-long scholarship for dental students with the best academic accomplishment, the University of Jordan, Amman, Jordan.

2001: The University of Jordan Academic Excellence Award, a competitive year-long scholarship for dental students with the best academic accomplishment, the University of Jordan, Amman, Jordan.

Memberships:

2016: Editorial Board Member-EC Ophthalmology Journal.

2016-2017: Section of Biochemistry chair- Department of Physiology and Biochemistry - School of Medicine – the University of Jordan, Amman, Jordan.

2014: Member of the Conferences Committee - School of Medicine – the University of Jordan, Amman, Jordan.

June 2016-August 2016: Department of Physiology and Biochemistry chair- School of Medicine – the University of Jordan, Amman, Jordan

2016: Editorial Board Member-International e-Journal of Biochemistry.

2016: Editorial Board Member-Gavin Journal of Cell Biology & Tissue Biology.

2015: Editorial Board Member- Journal of Ocular Biology.

2015-2016: Section of Biochemistry chair- Department of Physiology and Biochemistry - School of Medicine – the University of Jordan, Amman, Jordan.

2015-2016: Department Representative at Faculty Committee - School of Medicine – the University of Jordan, Amman, Jordan.

2016: Member of the Student Union Election Committee - School of Medicine – the University of Jordan, Amman, Jordan.

2015: Member of the Alumni Committee - School of Medicine – the University of Jordan, Amman, Jordan.

2014: Member of the Conferences Committee - School of Medicine – the University of Jordan, Amman, Jordan.

2012 – 2013: Graduate Student Member of Association for Research in Vision and Ophthalmology (ARVO).

2010 – 2013: Member of the Conjoint Curriculum Committee (CCC). Revising and improving the first year conjoint classes in the Program of Molecular and Cellular Biosciences (PMCB), OHSU, Portland, OR.

2010: Member of the Student Retreat Committee. Planning the retreat for the incoming graduate students, fall 2010, OHSU, Portland, OR.

2009 – 2013: Member of the American Association for the Advancement of Science (AAAS).

2005 – present: Member of Jordan Dental Association (JDA), Amman, Jordan.

Volunteering and Community Activities:

Reviewer at Jordan Medical Journal (2016-present).

Student Research Forum Organizer, March 2016, School of Medicine, the University of Jordan, Amman, Jordan.

Reviewer at the International Journal of Ophthalmology (2015-present).

Student Research Forum Organizer, April 2015, School of Medicine, the University of Jordan, Amman, Jordan.

Molecular and Cellular Biomedical Sciences Journal Club Organizer and Director, 2015-present, School of Medicine, the University of Jordan, Amman, Jordan.

Annual Biomedical Research Conference for Minority Students (ABRCMS), Nov., 2012 San Jose, CA. OHSU Student Exhibitor, Volunteer Poster Judge (biochemistry).

Annual Biomedical Research Conference for Minority Students (ABRCMS), Nov., 2011 St. Louis, MO. OHSU Student Exhibitor, Volunteer Poster Judge (cell biology).

Oregon Food Bank OHSU volunteer.

Dental Volunteer Days Participant – Oct 2005 – Jordan.

Student Dental Volunteer Days Participant – Mar 2004 – Jordan