

Résumé

Personal Information

Name: Tareq Saleh, MD, PhD
Email: tareq@hu.edu.jo
saleht2@alumni.vcu.edu

Phone: +9625390333 Ex. 5574
Cell: +962792856128
P.O. Box: 3333, Irbid Main Post Office
Irbid, Jordan, 21110



Experience

The Hashemite University, Zarqa, Jordan

- Assistant Professor, Faculty of Medicine Feb 2019 – present
- Assistant Dean for Basic Medical Sciences Sep 2019 – Sep 2021

Massey Cancer Center, Virginia Commonwealth University, Richmond, VA, USA

- Research Assistant Jan 2015 – Jan 2019
- Visiting Scholar Jun 2021– Aug 2021

Education

Medical College of Virginia, Virginia Commonwealth University, Richmond, VA, USA

- PhD, Pharmacology and Toxicology Jan 2015 – Jan 2019

The Hashemite University, Zarqa, Jordan

- Doctor of Medicine (MD). Aug 2006 – June 2012

Selected Articles

Carpenter V, **Saleh T**, Lee SM, Murray G, Reed J, Souers A, Faber AC, Harada H, Gewirtz DA. Androgen-deprivation induced senescence in prostate cancer cells is permissive for the development of castration-resistance but susceptible to senolytic therapy. *Biochemical Pharmacology*. 2021 Nov 1; 193:114765.

Saleh T, Al-Hesa A, Al-Balas M, Abuelaish O, Mansour A, Awad H, El-Sadoni M, Carpenter VJ, Azab B. Expression of Therapy-Induced Senescence Markers in Breast Cancer Samples Upon Incomplete Response to Neoadjuvant Chemotherapy. *Bioscience Reports*. 2021 May 5.

Carpenter VJ, **Saleh T**, Gewirtz DA. Senolytics for Cancer Therapy: Is All That Glitters Really Gold? *Cancers*. 2021 Jan;13(4):723.

Saleh T, Carpenter VJ, Tyutyunyk-Massey L, Murray G, Levenson JD, Souers AJ, Alotaibi MR, Faber AC, Reed J, Harada H, Gewirtz DA. Clearance of therapy-induced senescent tumor cells by the senolytic ABT-263 via interference with BCL-XL–BAX interaction. *Molecular oncology*. 2020 Oct;14(10):2504.

Saleh, T., Bloukh, S., Carpenter, V.J., Alwohoush, E., Bakeer, J., Darwish, S., Azab, B. and Gewirtz, D.A., 2020. Therapy-Induced Senescence: An “Old” Friend Becomes the Enemy. *Cancers*, 12(4), p.822.

Saleh, T., Tyutyunyk-Massey, L., Patel, N.H., Alotaibi, M. and Gewirtz, D.A., 2020. Studies of Non-Protective Autophagy Provide Evidence that Recovery from Therapy-Induced Senescence is Independent of Early Autophagy. *International Journal of Molecular Sciences*, 21(4), p.1427.

Saleh, T., Tyutyunyk-Massey, L., Murray, G.F., Alotaibi, M.R., Kawale, A.S., Elsayed, Z., Henderson, S.C., Yakovlev, V., Elmore, L.W., Toor, A. and Harada, H., 2019. Tumor cell escape from therapy-induced senescence. *Biochemical Pharmacology*, 162, pp.202-212.

Saleh, T., Carpenter, V.J., Bloukh, S. and Gewirtz, D.A., 2020, December. Targeting Tumor Cell Senescence and Polyploidy as Potential Therapeutic Strategies. *Seminars in Cancer Biology*. Academic Press.

Patel NH, Xu J, **Saleh T**, Wu Y, Lima S, Gewirtz DA. Influence of nonprotective autophagy and the autophagic switch on sensitivity to cisplatin in non-small cell lung cancer cells. *Biochemical Pharmacology*. 2020 May 1; 175:113896.

Curriculum Vitae (CV)

Personal Information

Name: Tareq Saleh, MD, PhD
Email: tareq@hu.edu.jo
saleht2@alumni.vcu.edu

Phone: +9625390333 Ex. 5574
Cell: +962792856128
P.O. Box: 3333, Irbid Main Post Office,
Irbid, Jordan, 21110

Experience

The Hashemite University, Zarqa, Jordan

- Assistant Professor, Pharmacology and Toxicology
Department of Basic Medical Sciences, Faculty of Medicine Feb 2019- present
- Assistant Dean for Basic Medical Sciences, Academic Affairs Sep 2019 – Sep 2021
Faculty of Medicine

Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia, USA

- Research Assistant, Massey Cancer Center Jan 2015 - Jan 2019
Principal Investigator: Prof. David A. Gewirtz, PhD.

The Hashemite University, Zarqa, Jordan

- Research Associate, Department of Biology, Faculty of Sciences Mar 2013 - Nov 2013
Principal Investigator: Prof. Rana Dajani, PhD.

Ministry of Health, Jordan

- Medical Intern, Princess Basma Teaching Hospital Jul 2012 - Jul 2013

Education

Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia

- PhD, Pharmacology and Toxicology Jan 2015 - Jan 2019
 - *Principal Investigator:* David A. Gewirtz, PhD.
Dissertation: Novel Insights into The Contribution of Cellular Senescence to Cancer Therapy: Reversibility, Dormancy and Senolysis

The Hashemite University, Zarqa, Jordan

- Doctor of Medicine Aug 2006 - June 2012

Ongoing Research Projects

1. Investigating the Elimination of Senescent Tumor Cells by The Senolytic ABT263 and The Potential Interference with Their Tumor-initiating Potential.
2. Investigating the Elimination of HPV Infection-Induced Senescent Cells as An Approach to Decrease the Risk of Cervical Cancer
3. Investigating the Connection Between Therapy-Induced Senescence and Non-Cytoprotective Autophagy in Tumor Cells.

4. Investigating Cellular Senescence as A Response to Neoadjuvant Chemotherapy and A Contributor to Therapy Outcome.
5. The Use of the Senomorphic Metformin for The Mitigation of Chemotherapy-Induced Peripheral Neuropathy in Rats Through Senescence Modulation.
6. Molecular Identification of Oncogene-Induced Senescence in Precancerous and Cancerous Colonic Lesions

Published Literature

- 1) **Saleh T**, Gewirtz DA. Considering therapy-induced senescence as a mechanism of tumour dormancy contributing to disease recurrence. *British Journal of Cancer*. 2022 Mar 19:1-3.
- 2) **Saleh T**, Alhesa A, El-Sadoni M, Abu Shahin N, Alsharaiah E, Al Shboul S, Awad H, Bloukh S, Al-Balas M, Alsalem M, Azab B. The Expression of the Senescence-Associated Biomarker Lamin B1 in Human Breast Cancer. *Diagnostics*. 2022 Feb 28;12(3):609.
- 3) Alhesa A, Awad H, Bloukh S, Al-Balas M, El-Sadoni M, Qattan D, Azab B, **Saleh T**. PD-L1 expression in breast invasive ductal carcinoma with incomplete pathological response to neoadjuvant chemotherapy. *International Journal of Immunopathology and Pharmacology*. 2022 Feb 5;36:03946320221078433.
- 4) Sobeai HM, Alohaydib M, Alhoshani AR, Alhazzani K, Almutairi MM, **Saleh T**, Gewirtz DA, Alotiabi MR. Sorafenib, rapamycin, and venetoclax attenuate doxorubicin-induced senescence and promote apoptosis in HCT116 cells. *Saudi Pharmaceutical Journal*. 2021 Dec 31.
- 5) **Saleh T**, El-Sadoni M, Alhesa A, Awad H, Jaradat M, Al-hazaimeh M, Dawoud R, Mryyian A, Azab B. Expression of Senescence and Apoptosis Biomarkers in Synchronous Bilateral Breast Cancer: A Case Report. *Current Oncology*. 2021 Oct;28(5):3836-45.
- 6) Carpenter V, **Saleh T**, Lee SM, Murray G, Reed J, Souers A, Faber AC, Harada H, Gewirtz DA. Androgen-deprivation induced senescence in prostate cancer cells is permissive for the development of castration-resistance but susceptible to senolytic therapy. *Biochemical Pharmacology*. 2021 Nov 1;193:114765.
- 7) Ramadan M, Kheirallah K, **Saleh T**, Bellizzi S, Shorman E. The Relationship Between Spirituality and Post-Traumatic Stress Symptoms in Syrian Adolescents in Jordan. *Journal of Child & Adolescent Trauma*. 2021 Sep 4:1-9.
- 8) **Saleh T**, Carpenter VJ. Potential Use of Senolytics for Pharmacological Targeting of Precancerous Lesions. *Molecular Pharmacology*. 2021 Dec 1;100(6):580-7
- 9) **Saleh T**, Al-Hesa A, Al-Balas M, Abuelaish O, Mansour A, Awad H, El-Sadoni M, Carpenter VJ, Azab B. Expression of Therapy-Induced Senescence Markers in Breast Cancer Samples Upon Incomplete Response to Neoadjuvant Chemotherapy. *Bioscience Reports*. 2021 May 5.
- 10) Kheirallah K, Bloukh S, Khasawneh W, Alsulaiman J, Khassawneh A, Al-Mistarehi AH, Alqudah M, Elsalem L, Al Bashir S, Awad HH, Al-Shatanawi T., **Saleh T**. Medical students' relative immunity, or lack thereof, against COVID-19 emotional distress and psychological challenges; a descriptive study from Jordan. *F1000Research*. 2021 Apr 19;10(297):297.
- 11) Nelson A, Wang Y, Ma L, He S, Henn M, Shahoei SH, **Saleh T**, Carpenter V, Gewirtz D, Spinella MJ, Nelson ER. Functional Characterization of the Orphan Nuclear Receptor TLX in Triple Negative Breast Cancer. *Journal of the Endocrine Society*. 2021 Apr;5(Supplement_1): A1019-.
- 12) Azab B, Dardas Z, Aburizeg D, Al-Bdour M, Abu-Ameerh M, **Saleh T**, Barham R, Maswadi R, Ababneh NA, Alsalem M, Zouk H. Unique Variant Spectrum in a Jordanian Cohort with Inherited Retinal Dystrophies. *Genes*. 2021 Apr;12(4):593.
- 13) Murray GF, Leslie KA, **Saleh T**, Guest D, Gewirtz DA, Reed J. The spectrum of single cell drug response through the lens of long-term high-speed live cell interferometry. In Quantitative Phase Imaging VII 2021 Mar 5 (Vol. 11653, p. 1165316). *International Society for Optics and Photonics*.
- 14) Ramadan M, Hasan Z, **Saleh T**, Jaradat M, Al-hazaimeh M, Bani Hani O, Al-Tammemi AA, Shorman E, Al-Mistarehi AH, Kheirallah K. Beyond knowledge: Evaluating the practices and precautionary measures towards COVID-19 amongst medical doctors in Jordan. *International Journal of Clinical Practice*. 2021 Mar 1:e14122.
- 15) Carpenter VJ, **Saleh T**, Gewirtz DA. Senolytics for Cancer Therapy: Is All That Glitters Really Gold? *Cancers*. 2021 Jan;13(4):723..
- 16) **Saleh, T.**, Carpenter, V.J., Bloukh, S. and Gewirtz, D.A., 2020, December. Targeting Tumor Cell Senescence and Polyploidy as Potential Therapeutic Strategies. *Seminars in Cancer Biology*. Academic Press.
- 17) Khasawneh, A.I., Himsawi, N., Abu-Raideh, J., Salameh, M.A., Al-Tamimi, M., Mahmoud, S.A.H. and **Saleh, T.**, 2020. Status of Biofilm-Forming Genes among Jordanian Nasal Carriers of Methicillin-Sensitive and Methicillin-Resistant *Staphylococcus aureus*. *Iranian Biomedical Journal*, 24(6), p.386.

- 18) Carpenter, V.J., Patel, B.B., Autorino, R., Smith, S.C., Gewirtz, D.A. and **Saleh, T.**, 2020. Senescence and castration resistance in prostate cancer: A review of experimental evidence and clinical implications. *Biochimica et Biophysica Acta (BBA)-Reviews on Cancer*, p.188424.
- 19) **Saleh, T.**, Carpenter, V.J., Tyutyunyk-Massey, L., Murray, G., Levenson, J.D., Souers, A.J., Alotaibi, M.R., Faber, A.C., Reed, J., Harada, H. and Gewirtz, D.A., 2020. Clearance of therapy-induced senescent tumor cells by the senolytic ABT-263 via interference with BCL-XL–BAX interaction. *Molecular Oncology*, 14(10), p.2504.
- 20) Khasawneh, A.I., Humeidan, A.A., Alsulaiman, J.W., Bloukh, S., Ramadan, M., Al-Shatanawi, T.N., Awad, H.H., Hijazi, W.Y., Al-Kammash, K.R., Obeidat, N. and **Saleh, T.**, 2020. Medical Students and COVID-19: Knowledge, Attitudes, and Precautionary Measures. A Descriptive Study from Jordan. *Frontiers in Public Health*, 8.
- 21) Khasawneh, A.I., Himsawi, N., Abu-Raideh, J., Salameh, M., Abdullah, N., Khasawneh, R. and **Saleh, T.**, 2020. Prevalence of Human Papillomavirus Associated with Head and Neck Squamous Cell Carcinoma in Jordanian Patients. *The Open Microbiology Journal*, 14(1).
- 22) **Saleh, T.**, Bloukh, S., Carpenter, V.J., Alwohoush, E., Bakeer, J., Darwish, S., Azab, B. and Gewirtz, D.A., 2020. Therapy-Induced Senescence: An “Old” Friend Becomes the Enemy. *Cancers*, 12(4), p.822.
- 23) Patel, N.H., Xu, J., **Saleh, T.**, Wu, Y., Lima, S. and Gewirtz, D.A., 2020. Influence of nonprotective autophagy and the autophagic switch on sensitivity to cisplatin in non-small cell lung cancer cells. *Biochemical Pharmacology*, p.113896.
- 24) Azab, B., Allassaf, A., Abu-Humdan, A., Dardas, Z., Almousa, H., Alsalem, M., Khabour, O., Hammad, H., **Saleh, T.** and Awidi, A., 2019. Genotoxicity of cisplatin and carboplatin in cultured human lymphocytes: a comparative study. *Interdisciplinary Toxicology*, 12(2), pp.93-97
- 25) **Saleh, T.**, Tyutyunyk-Massey, L., Patel, N.H., Alotaibi, M. and Gewirtz, D.A., 2020. Studies of Non-Protective Autophagy Provide Evidence that Recovery from Therapy-Induced Senescence is Independent of Early Autophagy. *International Journal of Molecular Sciences*, 21(4), p.1427.
- 26) Alsalem, M., Altarifi, A., Haddad, M., Aldossary, S.A., Kalbouneh, H., Aldaoud, N., **Saleh, T.** and El-Salem, K., 2019. Antinociceptive and Abuse Potential Effects of Cannabinoid/Opioid Combinations in a Chronic Pain Model in Rats. *Brain Sciences*, 9(11), p.328.
- 27) Azab B, Dardas Z, Alzghoul L, Masri A, Hasan D, **Saleh T**, et al. Genotoxicity assessment in autism spectrum disorder patients using sister chromatid exchange and chromosomal aberration assays. *Int J Clin Exp Med*. 2019;12(5):12–7
- 28) Murray, G.F., Turner, T., **Saleh, T.**, Alzubi, M., Toor, A., Gewirtz, D.A., Harrell, J.C. and Reed, J., 2019, March. Application of Quantitative Phase Imaging mass accumulation measurements to research and clinical problems in cancer. In *Quantitative Phase Imaging V* (Vol. 10887, p. 108871E). *International Society for Optics and Photonics*.
- 29) **Saleh, T.**, Tyutyunyk-Massey, L. and Gewirtz, D.A., 2019. Tumor Cell Escape from Therapy-Induced Senescence as a Model of Disease Recurrence after Dormancy. *Cancer Research*, 79(6), pp.1044-1046.
- 30) **Saleh, T.**, Tyutyunyk-Massey, L., Murray, G.F., Alotaibi, M.R., Kawale, A.S., Elsayed, Z., Henderson, S.C., Yakovlev, V., Elmore, L.W., Toor, A. and Harada, H., 2019. Tumor cell escape from therapy-induced senescence. *Biochemical Pharmacology*, 162, pp.202-212.
- 31) Dajani, R., **Saleh, T.**, Shbailat, S.J., Wei, Z., Daas, M. and Hakonarson, H., 2018. Genes associated with cancer, schizophrenia and type 2 diabetes in the Circassian and Chechen populations in Jordan. *Jordan Medical Journal*, 52(1), pp.59-75.
- 32) Xu, J., Patel, N.H., **Saleh, T.**, Cudjoe Jr, E.K., Alotaibi, M., Wu, Y., Lima, S., Hawkrigde, A.M. and Gewirtz, D.A., 2018. Differential Radiation Sensitivity in p53 Wild-Type and p53-Deficient Tumor Cells Associated with Senescence but not Apoptosis or (Nonprotective) Autophagy. *Radiation Research*, 190(5), pp.538-557.
- 33) **Saleh, T.**, Tyutyunyk-Massey, L., Cudjoe Jr, E.K., Idowu, M.O., Landry, J.W. and Gewirtz, D.A., 2018. Non-Cell autonomous effects of the senescence-associated secretory phenotype in cancer therapy. *Frontiers in Oncology*, 8.
- 34) Dajani, R., Li, J., Wei, Z., March, M.E., Xia, Q., Khader, Y., Hakooz, N., Fatahallah, R., El-Khateeb, M., Arafat, A. and **Saleh, T.**, 2017. Genome-wide association study identifies novel type II diabetes risk loci in Jordan subpopulations. *PeerJ*, 5, p.e3618.
- 35) Cudjoe Jr, E.K., **Saleh, T.**, Hawkrigde, A.M. and Gewirtz, D.A., 2017. Proteomics insights into autophagy. *Proteomics*, 17(20), p.1700022.
- 36) **Saleh, T.**, Cuttino, L. and Gewirtz, D.A., 2016. Autophagy is not uniformly cytoprotective: a personalized medicine approach for autophagy inhibition as a therapeutic strategy in non-small cell lung cancer. *Biochimica et Biophysica Acta (BBA)-General Subjects*, 1860(10), pp.2130-2136.
- 37) Alotaibi, M., Sharma, K., **Saleh, T.**, Povirk, L.F., Hendrickson, E.A. and Gewirtz, D.A., 2016. Radiosensitization by PARP inhibition in DNA repair proficient and deficient tumor cells: proliferative recovery in senescent cells. *Radiation Research*, 185(3), pp.229-245.

Books

- 1) Patel NH, Bloukh S, Alwohosh E, Alhesa A, **Saleh T**, Gewirtz DA. Autophagy and senescence in cancer therapy. *Advances in Cancer Research*. 2021 Mar 12; 150:1-74.
- 2) Cudjoe, E.K., Kyte, S.L., **Saleh, T.**, Landry, J.W. and Gewirtz, D.A., 2019. Autophagy Inhibition and Chemosensitization in Cancer Therapy. *In Targeting Cell Survival Pathways to Enhance Response to Chemotherapy* (pp. 259-273).

Patents

Title: "Elimination of tumor cells induced into senescence by senolytic agents as a therapeutic strategy".

Under consideration

Current Funding

2019-2022

Grant No. 465/83/2019

Source: The Hashemite University, Deanship of Scientific Research

Elimination of HPV Infection-Induced Senescent Cells as An Approach to Decrease the Risk of Cervical Cancer

Principal Investigator.

Overall fund: 19,150 JOD (27,010 USD)

2020-2022

Grant No. 418/84/2019

Source: The Hashemite University, Deanship of Scientific Research

Title: Cellular Senescence as A Response to Neoadjuvant Chemotherapy and A Contributor to Therapy Outcome.

Principal Investigator

Overall fund: 5,600 JOD (7,898 USD)

2022-now

Grant No.

Source: The Hashemite University, Deanship of Scientific Research

Title: The Use of the Senomorphic Metformin for The Mitigation of Chemotherapy-Induced Peripheral Neuropathy in Rats Through Senescence Modulation

Overall fund: 24,900 JOD (35,120 USD)

Research and Clinical Molecular Techniques

- DNA, RNA, and protein extraction
- Protein quantification and analysis
- Gel electrophoresis
- Polymerase Chain Reaction (PCR) and Real Time PCR
- Microscopy: Confocal, fluorescent, light, live cell
- Molecular cloning
- Tissue Culture
- Cell lines preservation and storage
- *In vivo* murine handling and cancer research
- Stable cell line production
- Proliferation assay
- Apoptosis assays
- Senescence assays
- Autophagy assays
- Viral transduction
- Genetic editing
- Plasmid transfection
- Immunohistochemistry

Meetings

- 1) Carpenter V, **Saleh T**, Gewirtz D. Clearance of therapy-induced senescent cancer cells by the senolytic ABT-263 in a model of non-small cell lung cancer. 2020, AACR.
- 2) Tyutyunyk L, **Saleh T**, Gewirtz DA. Selective clearance of cells undergoing therapy-induced senescence in a model of triple negative breast cancer, 2019, AACR.
- 3) Carpenter VJ, **Saleh T**, Gewirtz DA. The antiandrogen bicalutamide induces senescence in LNCaP cells and quiescence in Myc CaP cells, 2019, AACR.
- 4) Xu J, Patel N, **Saleh T**, Wu Y, Lima S, Gewirtz DA. A comparison of drug sensitivity in isogenic tumor cell lines confirms that cytoprotective autophagy confers intrinsic resistance to cisplatin, 2019, AACR.
- 5) Xu J, Cudjoe EK, **Saleh T**, Patel N, Alotaibi M, Wu Y, Lima S, Gewirtz D. Nonprotective autophagy fails to confer resistance to radiation, 2019, AACR.
- 6) **Saleh T**, Thekkudan T, Alotaibi MR, Gewirtz DA. Proliferative recovery after chemotherapy induced senescence in non-small cell lung cancer as a model of tumor dormancy and disease recurrence. 2016 American Association for Cancer Research Annual Meeting, New Orleans, LA.
- 7) Alotaibi MR, **Saleh T**, Povirk L, Gewirtz DA. Autophagy, Senescence and Proliferative Recovery Subsequent to DNA Damage in Radiation Sensitization by PARP Inhibition. 2016 American Association for Cancer Research Annual Meeting, New Orleans, LA.
- 8) Tyutyunyk-Massey L, **Saleh T**, Thekkudan T and Gewirtz DA. Autophagy and senescence as possible mechanisms leading to proliferative recovery and escape from treatment induced tumor dormancy. 2017 American Association for Cancer Research Annual Meeting, Washington, DC.
- 9) Cudjoe EK, **Saleh T**, Gewirtz DA, Hawkrigde AM. Mass spectrometry-based proteomics analysis of the non-small cell lung cancer secretome.
- 10) Tyutyunyk-Massey L., **Saleh T**, Landry J and Gewirtz DA. Synergistic effects of chemotherapy-induced autophagy and epigenetic remodeling. 2017 American Association for Cancer Research Annual Meeting, Washington, DC.
- 11) Thekkudan T, Sharma K, **Saleh T**, Gewirtz D. Vitamin D/EB 1089 mediated radio-sensitization of lung cancer cells and head and neck cancer cells.
- 12) **Saleh T** and Gewirtz DA. Proliferative recovery and reversibility of therapy-induced senescence in nonsmall cell lung cancer. The Annual Meeting 94, Virginia Academy of Science, May 18-20, 2016, Frederiksberg, VA.
- 13) **Saleh T**, Alotaibi MR, Sharma K, Gewirtz DA. The role of autophagy in sensitization to chemotherapy in non-small cell lung cancer cells. 2015 Cancer Research Retreat. Annual Conference of VCU Massey Cancer Center; 2015 May 22; Richmond, VA.

Scientific Review Contributions

Frontiers in Oncology	Reviewer
Frontiers in Pharmacology	Reviewer
Journal of Clinical Medicine, MDPI	Reviewer
Journal of Personalized Medicine	Reviewer
Cancers, MDPI	Reviewer
Seminars in Cancer Biology	Reviewer
Medicina, MDPI	Reviewer
Scientific Reports	Reviewer
Bioscience Reports	Reviewer
Biochemical Pharmacology	Reviewer
Journal of Experimental & Clinical Cancer	Reviewer
Aging Research Reviews	Reviewer
Frontiers in Aging	Reviewer
Cancer and Metastasis Reviews	Reviewer

Molecular Therapy
 Current Oncology, MDPI
 Frontiers in Dental Medicine
 Journal of Experimental & Clinical Cancer
 BBA - Molecular Basis of Disease

Reviewer
 Reviewer
 Reviewer
 Reviewer
 Reviewer

Scientific Awards

- Anthony Ambrose Award for Outstanding PhD Students, Department of Pharmacology and Toxicology, Virginia Commonwealth University, Richmond, Virginia, USA, 2017
- The C. C. Clayton Award for Excellence, School of Medicine, Virginia Commonwealth University, Richmond, Virginia, USA, 2016

Memberships

- The International Cell Senescence Association Nov 2019 – present
- American Association for Cancer Research Nov 2015 – present
- Jordan Medical Association Jul 2013 – present
- Jordan Medical Council Jul 2013 – present

Teaching Experience

Course ID	Course	School	Department	Credit Hours	Level	Semesters Taught
BIOL452	Biology of Drugs	Virginia Commonwealth University	Department of Biology	3	Advanced Undergraduate	2
111501305	Neuroscience I (Pharmacology)	The Hashemite University	Department of Basic Medical Sciences	4	Medical Students	3
181501207	Hematopoietic System (Pharmacology)	The Hashemite University	Department of Basic Medical Sciences	4	Medical Students	3
111501203	General Pharmacology	The Hashemite University	Department of Basic Medical Sciences	3	Medical Students	3
702731	Advanced Pharmacology - Oncology	The Hashemite University	Faculty of Nursing	3	Master's Students (Nursing)	1

Student Advising

Ahmad Alhesa, Medical Laboratories Sciences, The University of Jordan – M.Sc. (2021) Co-adviser

Mohammad Saduni, Medical Laboratories Sciences, The University of Jordan – M.Sc. (2022) Co-adviser

References

References are available upon request.