**Curriculum vitae 28/02/2022**

**Name:** Zaidoun Mahmoud Salah

**Date of birth:** May 18th, 1974

**Place of Birth:** Jerusalem

**Married with 4 children**

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 **EDUCATION**

October 1991- Jun1996 Bachelor Degree of Medical Technology, The Univ. of Jordan, Amman, Jordan

January 2000- December 2007: Master and PhD Degree, Experimental Medicine and Cancer Research. Department of Oncology, Hebrew University- Hadassah Medical School

December 2007-2012: Post doctoral fellow, The Lautenberg center for general and cancer immunology, The Hebrew University- Hadassah Medical School.

**Scholarships, grants and honors:**

1.The Hebrew University Hadassah Medical School scholarship for excellent students.
(2001-2004).

1. Jewish national fund, in memory of Dr. Arthur and LudmilaTzuker for cancer research, (2004).
2. Golda Meir Fellowship award for outstanding PhD students.
3. The Hebrew University Rector -Extended Scholarship for Outstanding achievements of PhD students (2004-2007).
4. Wolfish-Fund prize for post doctoral students for the academic year (2008-2009).
5. The Israeli Cancer Research Fund (ICRF) grant (Sept 2010-Sept 2012).
6. The Lady Davis Fellowship Trust grant for Post doctoral students (2010-2012).
7. DFG research grant, amount of fund 166,000Euros for two years (2014-2016).
8. Lab establishment Grant from Bard Annandale, NY, USA 50,000$ (2014).
9. Bard Annandale, NY, USA Center for Civic Engagement research fellowship for the fall semester 2014/15.

**Appointments and practical experience**

1. 2021-present: Associate prof at AAUP
2. 2019-2020: Lecturer and head of clinical genetics lab AAUP.
3. 2012-2019: Head, Biology program, Al Quds-Bard College for Arts and Sciences, Al Quds University, Palestine.
4. 2018-2019. Director, Medical Research Center, Al Quds University, Palestine.
5. 2014-present. Consultant, Molecular genetics laboratory, Augusta Victoria Hospital, Jerusalem, Palestine.
6. 2005-Present. Head, Molecular Genetics Department, Medicare Laboratories network, Palestine.
7. 2007-2009: Part time lecturer, Al Quds univ. School of medicine, Abu Dis, Jerusalem, Palestine.
8. 1997 - 1999: Clinical laboratory technician.

**TEACHING**

1. Cancer Biology
2. Molecular Biology
3. Basic Histology
4. Genetics
5. Basic Bioinformatics
6. Basic Immunology
7. Principles of life (General Biology)
8. Medical Physiology
9. General Physiology
10. Cell biology
11. Biochemistry
12. Gene expression regulation mechanisms
13. Advanced cell biology
14. Molecular basis of disease

**RESEARCH EXPERIENCE**

2000-2007: Molecular aspects of the oncogene *hPar1* in prostate and breast carcinoma progression and angiogenesis.

2008-present: Molecular pathways involved in the signaling of the tumor suppressor gene WWOX and WW domain-containing proteins in physiology and disease, DNA damage, and miRNAs in cancer. Regulation of the Hippo tumor suppressor pathway by WW domain-containing proteins

2012-present: Expression pattern and role of TET family enzymes in breast tumorigenesis

2014-present: Novel mechanisms of transcriptional reprogramming driving transformation in breast cancer.

**Patents**

Smart phone application for detection of breast cancer (registered in Palestinian economy ministry)

**TECHNICAL SKILLS**

Experience in Cell culture, Immunohistochemistry, *in situ* Hybridization, Immunofluorescence, conventional and real time PCR, Western blotting, Immunoprecipitation, Northern blotting, Electrophoretic mobility shift assay (EMSA), Transfection, ELISA, Fluorescent *In Situ* hybridization (FISH), Chromatin immunoprecipitation (ChIP), Nuclear Run-on, Cloning, Working with mice including orthotopic injection of cancer cells into prostate and breast, in addition to intratibialinjection.Gene knockdown by SiRNA constructs. Working with and preparation of Lentiviral vectors for overexpression and knockdown of target genes.Mutation and polymorphism analysis by RFLP, Reverse line blot, and ARMS PCR. Sanger sequencing. Basic knowledge of specific bioinformatics tools and databases. Application of molecular techniques in clinical diagnosis

**PUBLICATION LIST**

1. Mahmoud Alzahayqa, [Abrar Jamous](https://www.frontiersin.org/people/u/596807), Areej A. H. Khatib and **Zaidoun Salah**. TET1 Isoforms Have Distinct Expression Pattern, Localization and Regulation in Breast Cancer. Front. Oncol. 2022, 12:848544. doi: 10.3389/fonc.2022.848544

1. Adel Hidmi , Mahmoud Alzahayqa, Sharihan Erikat, Raghad Bahar, Lamia Hindi, Nawaf Al-Maharik and **Zaidoun Salah**. Nitric Oxide-Releasing NO–Curcumin Hybrid Inhibits Colon Cancer Cell Proliferation and Induces Cell Death In Vitro. Processes 2022, 10, 800. https://doi.org/10.3390/pr10050800
2. Qutob N, **Salah Z,** Richard D, Darwish H, Sallam H, Shtayeh I, Najjar O, Ruzayqat M, Najjar D, Balloux F, van Dorp L. Genomic epidemiology of the first epidemic wave of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Palestine

 Microb Genom. 2021 Jun;7(6). doi: 10.1099/mgen.0.000584.

1. Qutob N, Awartani F, **Salah Z,** Asia M, Abu Khader I, Herzallah K, Balqis N, Sallam H. Seroprevalence of SARS-CoV-2 in the West Bank region of Palestine: a cross-sectional seroepidemiological study BMJ Open. 2021 Feb 4;11(2):e044552. doi: 10.1136/bmjopen-2020-044552.
2. Schwartz M, Portugez AS, Attia BZ, Tannenbaum M, Cohen L, Loza O, Chase E, Turman Y, Kaplan T, **Salah Z,** Hakim O. Genomic retargeting of p53 and CTCF is associated with transcriptional changes during oncogenic HRas-induced transformation. Commun Biol. 2020 Nov 25;3(1):696. doi: 10.1038/s42003-020-01398-y.
3. Morabito F, Gentile M, Monti P, Recchia AG, Menichini P, Skafi M, Atrash M, De Luca G, Bossio S, Al-Janazreh H, Galimberti S, **Salah Z,** Morabito L, Mujahed A, Hindiyeh M, Dono M, Fais F, Cutrona G, Neri A, Tripepi G, Fronza G, Ferrarini M. TP53 dysfunction in chronic lymphocytic leukemia: clinical relevance in the era of B-cell receptors and BCL-2 inhibitors. Expert Opin Investig Drugs. 2020 Aug;29(8):869-880. doi: 10.1080/13543784.2020.1783239.
4. Vadim V. Maximov, Rania Akkawi, Saleh Khawaled, Zaidoun Salah, Lina Jaber, Ahlam Barhoum, Omer Or, Marco Galasso, Kyle Kurek, Eylon Yavin, and Rami I. Aqeilan. MiR-16-1-3p and miR-16-2-3p possess strong tumor suppressive and anti-metastatic properties in osteosarcoma. Int J Cancer. 2019 Apr 24. doi: 10.1002/ijc.32368
5. Abrar Jamous and Zaidoun Salah. WW-Domain Containing Protein Roles in Breast Tumorigenesis. Front Oncol. 2018; 8: 580. doi: 10.3389/fonc.2018.00580
6. Fuad Al-Rimawi, Suzi Rishmawi, Sharehan H. Ariqat, Mahmoud F. Khalid, Ismail Warad, and Zaidoun Salah, “Anticancer Activity, Antioxidant Activity, and Phenolic and Flavonoids Content of Wild Tragopogon porrifolius Plant Extracts,” Evidence-Based Complementary and Alternative Medicine, vol. 2016, Article ID 9612490, 7 pages, 2016. doi:10.1155/2016/9612490
7. Salah Z, Arafeh R, Maximov V, Galasso M, Khawaled S, Abou-Sharieha S, Volinia S, Jones KB, Croce CM, Aqeilan RI. [miR-27a and miR-27a\* contribute to metastatic properties of osteosarcoma cells.](http://www.ncbi.nlm.nih.gov/pubmed/25749032) Oncotarget. 2015 Jan 30; 5(21):10886-900.
8. Grisaru-Granovsky S, Salah Z, Maoz M, Tevet A, Margalioth E, Samueloff A, Altarescu G, Bar-Shavit R [Protease-activated-receptor 1 polymorphisms correlate with risk for unexplained recurrent pregnancy loss: a pilot study querying an association beyond coagulation.](http://www.ncbi.nlm.nih.gov/pubmed/25496845) Eur J Obstet Gynecol Reprod Biol. 2015 Feb;185:13-8.
9. Abu-Odeh M, Salah Z, Herbel C, Hofmann TG, Aqeilan RI. WWOX, the common fragile site FRA16D gene product, regulates ATM activation and the DNA damage response. Proc Natl Acad Sci U S A. 2014 Nov 4;111(44):E4716-25.
10. Salah Z, Itzhaki E, Aqeilan RI. The ubiquitin E3 ligase ITCH enhances breast tumor progression by inhibiting the Hippo tumor suppressor pathway. Oncotarget. 2014 Nov 15;5(21):10886-900.
11. Iatan I, Choi HY, Ruel I, Reddy MV, Kil H, Lee J, Abu Odeh M, Salah Z, Abu-Remaileh M, Weissglas-Volkov D, Nikkola E, Civelek M, Awan Z, Croce CM, Aqeilan RI, Pajukanta P, Aldaz CM, Genest J. The WWOX Gene Modulates HDL and Lipid Metabolism. J. Circ Cardiovasc Genet. 2014 Aug;7(4):491-504
12. Abu-OdehM, Bar-Mag T, Huang H, Kim T, **Salah Z**, AbdeenS K., SudolM, Reichmann D, SidhuS, Kim P M., AqeilanRI. Characterizing WW domain interactions of tumor suppressor WWOX reveals its association with multiprotein networks. J Biol Chem. 2014 Mar 28;289(13):8865-80
13. **Salah Z,** Cohen S, Itzhaki E, Aqeilan RI.NEDD4 E3 ligase inhibits the activity of the Hippo pathway by targeting LATS1 for degradation. Cell Cycle. 2013 Dec 15;12(24):3817-23
14. Salah Z, Bar-Mag T, Kohn Y, Pichiorri F, Palumbo T, Melino G, Aqeilan RI.

Tumor suppressor WWOX binds to ΔNp63α and sensitizes cancer cells to chemotherapy. Cell Death Dis. 2013 Jan 31;4:e480. doi: 10.1038/cddis.2013.

1. Abdeen SK, Salah Z, Khawaled S, Aqeilan RI. Characterization of WWOX inactivation in murine mammary gland development. Journal of Cellular Physiology Volume 228, Issue 7, pages 1391–1396, July 2013
2. Abdeen SK, Del Mare S, Hussain S, Remaileh MA, Salah Z, Hagan J, Rawahneh M, Pu XA, Russell S, Stein JL, Stein GS, Lian JB, Aqeilan RI. Conditional inactivation of the mouse Wwox tumor suppressor gene recapitulates the null phenotype. J Cell Physiol. Volume 228, Issue 7, pages 1377–1382, July 2013
3. Qurei L, Seto D, Salah Z, Azzeh M. A molecular epidemiology survey of respiratory adenoviruses circulating in children residing in Southern Palestine. PLoS One. 2012;7(8):e42732.
4. Biophysical Basis of the Binding of WWOX Tumor Suppressor to WBP1 and WBP2 Adaptors. McDonald CB, Buffa L, Bar-Mag T, Salah Z, Bhat V, Mikles DC, Deegan BJ, Seldeen KL, Malhotra A, Sudol M, Aqeilan RI, Nawaz Z, Farooq A. J Mol Biol. 2012 Sep 7;422(1):58-74.
5. Salah Z, Jaber M, Maoz M, Cohen I, Weiss E, Uziely B,Bar-Shavit R.Regulation of human protease-activated receptor 1 (hPar1) gene expression in breast cancer by estrogen FASEB J. 2012 May;26(5):2031-42
6. Maria Sundvall, Korhonen A, Vaparanta K, Anckar J, Halkilahti K, Salah Z, Aqeilan R, Palvimo JJ, Sistonen L, and Elenius K. Nuclear sequestration of ErbB4 receptor tyrosine kinase by PIAS3. J Biol Chem. 2012 Jun 29;287(27):23216-26
7. Jones K, Salah Z, Marco Galasso, Sara Del Mare, Eugenio Gaudio, Gerard Nuovo, Francesca Lovat, Kimberly LeBlanc, Jeff Palatini, R. Lor Randall, Stefano Volinia, Gary Stein, Carlo Croce, Jane Lian, and Rami Aqeilan. MicroRNA signatures associate with pathogenesis and progression of osteosarcoma. (Cancer Res. 2012 Apr 1;72(7):1865-77 First two authors are equal contributors)
8. Salah Z, AlianA, AqeilanRI. WW domain-containing proteins: Retrospectives and the future. Front Biosci. 2012 Jan 1;17:331-48.
9. Salah Zand Aqeilan RI. WW domain interactions regulate the Hippo pathway Cell Death Dis. 2011 Jun 16;2:e172
10. Bar-Shavit R, Turm H, Salah Z, Maoz M, Cohen I, Weiss E, Uziely B, Grisaru-Granovsky S. PAR(1) plays a role in epithelial malignancies: Transcriptional regulation and novel signaling pathway. IUBMB Life. 2011 Jun;63(6):397-402.
11. Abdeen SK, Salah Z, Maly B, Smith Y, Tufail R, Abu-Odeh M, Zanesi N, Croce CM, Nawaz Z, Aqeilan RI. Wwox inactivation enhances mammary tumorigenesis.Oncogene. 2011 Sep 8;30(36):3900-6
12. Salah Z, MelinoG and AqeilanRI. Negative Regulation of the Hippo Pathway by the E3 Ubiquitin Ligase ITCH promotes tumorigenicity. Cancer Res. 2011 Mar 1;71(5):2010-20.
13. Sundvall M, Veikkolainen V, Kurppa K, Salah Z, Tvorogov D, van Zoelen EJ, Aqeilan R, Elenius K. Cell Death or Survival Promoted by Alternative Isoforms of ErbB4. MolBiol Cell. MolBiol Cell. 2010 Dec;21(23):4275-86
14. Kurek KC, Del Mare S, Salah Z, Abdeen S, Sadiq H, Lee SH, Gaudio E, Zanesi N, Jones KB, DeYoung B, Amir G, Gebhardt M, Warman M, Stein GS, Stein JL, Lian JB, Aqeilan RI. Frequent attenuation of the WWOX tumor suppressor in osteosarcoma is associated with increased tumorigenicity and aberrant RUNX2 expression. Cancer Res. 2010 Jul 1;70(13):5577-86 .
15. Salah, Z., Aqeilan RI, and Huebner K. The WWOX gene and gene product: tumor suppression through specific protein interactions. Future Oncol. 2010 Feb;6(2):249-59.
16. Del Mare S, Salah Z, Aqeilan RI. WWOX: its genomics, partners, and functions. J Cell Biochem. 2009 Nov 1;108(4):737-45.
17. Aqeilan RI, Hagan JP, de Bruin A, Rawahneh M, Salah Z, Gaudio E, Siddiqui H, Volinia S, Alder H, Lian JB, Stein GS, Croce CM. Targeted ablation of the Wwox tumor suppressor leads to impaired steroidogenesis. Endocrinology. 2009 Mar;150(3):1530-5.
18. [S**alah Z**,Grisaru-Granovsky S, Maoz M,[Uziely B](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Search&itool=pubmed_AbstractPlus&term=%22Uziely+B%22%5BAuthor%5D), [Cohen I](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Search&itool=pubmed_AbstractPlus&term=%22Cohen+I%22%5BAuthor%5D), [Turm H](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Search&itool=pubmed_AbstractPlus&term=%22Turm+H%22%5BAuthor%5D), Peretz T, and Bar-Shavit R.](http://www.ncbi.nlm.nih.gov/pubmed/17942914?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum) The role of thrombin and its receptors in epithelial malignancies: Lessons from transgenic mouse model and transcriptional regulation. Springer publishing book on Thrombin physiology and disease, Chapter 10. ISBN: 978-0-387-09636-0 e-ISBN: 978-0-387-09637-7 DOI: 10.1007/978-0-387-09637-7
19. [**Salah Z,**Maoz M, Bella M, Baraz L, Haupt Y, and Bar-Shavit R.](http://www.ncbi.nlm.nih.gov/pubmed/17942914?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum)p53 controls *hPar1* function and expression. Oncogene. 2008 Nov 20;27(54):6866-74.
20. Grisaru-Granovsky S, Tevet A, Bar-Shavit R, Salah Z, Elstein D, Samueloff A, Altarescu G. Association study of protease activated receptor 1 gene polymorphisms and adverse pregnancy outcomes: results of a pilot study in Israel. Am J Med Genet A. 2007 Nov 1;143(21):2557-63.
21. Salah Z, Maoz M, Pizov G, Bar-Shavit R. Transcriptional regulation of human protease-activated receptor 1: a role for the early growth response-1 protein in prostate cancer. Cancer Res. 2007 Oct 15;67(20):9835-43.
22. Salah Z, Maoz M, Pokroy E, Lotem M, Bar-Shavit R and Uziely B. Protease Activated Receptor-1 (hPar1), a survival factor eliciting tumor progression. Molecular Cancer research ,2007 Mar;5(3):229-40
23. Granovsky-Grisaru S, SalahZ, Grisaru D, Yekel Y, Prus D, Beller U, Bar-Shavit R. The pattern of Protease Activated Receptor 1 (PAR1) expression in endometrial carcinoma. Gynecol Oncol. 2006 Dec;103(3):802-6.
24. Yin YJ, Katz V, Salah Z, Maoz M, Cohen I, Uziely B, Turm H, Grisaru-Granovsky S, Suzuki H, Bar- Shavit R. Mammary gland tissue targeted overexpression of human protease-activated receptor 1 reveals a novel link to beta-catenin stabilization.Cancer Res. 2006 May 15;66(10):5224-33.
25. Salah Z, Maoz M, Cohen I , Pizov G, Pode D, Runge M S, and Bar-Shavit R Identification of a Novel Functional Androgen Response Element within *hPar1* Promoter: Implications to Prostate Cancer Progression. The FASEB Journal. FASEB J. 2005 Jan;19(1):62-72.
26. Grisaru-Granovsky S, Salah Z, Maoz M, Pruss D, Beller U andBar-Shavit R*.Protease Activated Receptor 1 (Par1)* expression in human ovarian tissue samples: Correlation malignant progression and pY397FAK Int J Cancer. 2005 Jan 20;113(3):372-8.
27. Yin YJ, Salah Z, Grisaru-Granovsky S, Cohen I, Cohen Even-Ram S, Maoz M, Uziely B, Bar-Shavit R. Human protease activated receptor 1 (hPar1) expression in malignant epithelia: a role in invasiveness. Arterioscler Thromb Vasc Biol. 2003 Jun 1;23(6):940-4.
28. Even-Ram SC, Grisaru-Granovsky S, Pruss D, Maoz M, Salah Z,Yong-Jun Y, Bar-Shavit R. The pattern of expression of protease-activated receptors (PARs) during early trophoblast development. J Pathol. 2003 May;200(1):47-52.
29. Yin YJ, Salah Z, Maoz M, Ram SC, Ochayon S, Neufeld G, Katzav S, Bar-Shavit R. Oncogenic transformation induces tumor angiogenesis: a role for PAR1 activation. FASEB J. 2003 Feb; 17(2): 163-174
30. Zawahreh,K., Qawasmi,M., Qurei,L., Ali,D., Hamadeh,F., Salah,M., Salah,Z., Kattan,R., Abu Diab,A., Hindiyeh,M. and Azzeh,M. Influenza A virus (A/Bethlehem/CBH-70G6/2009(H1N1)) segment 6 neuraminidase (NA) gene, partial cds. GenBank: GU049677.1
31. Qurei,L., Salah,Z. and Azzeh,M. A molecular epidemiology survey of respiratory adenoviruses circulating in children residing in Southern Palestine. Published sequences found on( <http://www.ncbi.nlm.nih.gov/nuccore?term=salah%20Z%20adenovirus> )

**ABSTRACTS & LECTURES in international conferences (To mention few):**

1. **Salah Z**, Zahayqa M, Ali Abrar. Expression pattern and regulation of TET enzyme activity in breast cancer. The 4th Middle East Molecular Biology Congress and Exhibition 2017 - Abu Dhabi. Nov 1st-Nov 4th, 2017. **(Oral talk)**
2. **Salah Z**, Zahayqa M, Al Khatib A. The Expression Pattern of TET Enzymes in Breast Cancer. The 7th internationalconference on tumor microenvironment: Progression, Therapy and Prevention. October 2015**.( Poster presentation)**
3. **Salah Z**, Jones K B., Del Mare S, and AqeilanR. MicroRNA signatures associate with pathogenesis and progression of osteosarcoma. AACR 103rd Annual Meeting 2012-- Mar 31-Apr 4, 2012; Chicago, IL. **(Poster session)**
4. **Salah Z**, Aqeilan RI. Negative Regulation of the Hippo Pathway by the E3 Ubiquitin Ligase ITCH promotes tumorigenicity. 102nd AACR Annual Meeting, April 2-6, 2011, at the Orange County Convention Center, Orlando, Florida*.***(Poster presentation).**
5. **Salah Z**, Abdeen S, Aqeilan RI. WWOX Expression Suppresses Tumorigenecity by Inducing Apoptosis and Attenuating Migration of Metastatic Cells. Fifth International Conference on Tumor Microenvironment: Progression, Therapy & Prevention Versailles, France, October 20-24, 2009**(Oral talk).**
6. **Salah Z,** Maoz M, Cohen I ,Pizov G, Pode D, Runge M S, and Bar-Shavit R. Identification of a Novel Functional Androgen Response Element within *hPar1* Promoter: Implications to Prostate Cancer Progression. The 3rd international
conference on tumor microenvironment: Progression, Therapy and Prevention. Prague, Czech, 2004 **.( Oral talk)**
7. **Salah Z** ,Yin YJ, , Maoz M, Pizov G, Ktazav S , and Bar-Shavit R. The role *of ProteaseActivated receptor 1* (PAR1) in tumor metastasis and angiogenesis. Second interdisciplinary european conference on angiogenesis, Oct 2002, Cascais, Portugal**.( Oral talk).**
8. **Salah Z,** Yin YJ, Maoz M, Pizov G, Pode D, Bar-Shavit R. The involvement of Protease Activated Receptor 1 (PAR1) in prostate carcinoma invasion metastasis. The 2nd international conference on tumor microenvironment: Progression, Therapy and Prevention. Baden, Austria, 2002 .**( Selected for oral talk).**
9. **Salah Z,** Yin YJ, ,Maoz M, Zuberi B, Bar-Shavit R. The involvement of *protease activatedreceptors (PARs)* in prostate carcinoma invasion and metastasis . FASEB summer research conferences: Vascular Medicine and Thrombin 2001,Whitefish, Montana