

Résumé



Personal Information

Name: BelalAzab

Email: azab.belalm@gmail.com, B.Azab@ju.edu.jo

Citizenship: Jordanian citizen

Tel: (06) 535 5000

Education and Research Experience

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

- Visiting Research Scientist, Human and Molecular Genetics, summer 2013
- Postdoctoral Research Fellow, Human and Molecular Genetics, 2011 – 2012
- Visiting Scientist, Clinical Molecular Genetics, Clinical Pathology, 2011 – 2012
- PhD, Human and Molecular Genetics, 2006 – 2011

School of Business, Virginia Commonwealth University, Richmond, Virginia

- Post-Baccalaureate Certificate, Business Administration (BAD), 2009 – 2011

Jordan University of Science and Technology, Jordan

- B.Sc. Biotechnology and Genetic Engineering, 1999-2003

23 published research papers and reviews with > 350 citations

Patent: "MICROBUBBLE ASSISTED VIRAL DELIVERY", Patent number: WO/2011/017107

Teaching, Tutoring and Mentoring Experience

The University of Jordan, Amman, Jordan

- Assistant Professor, School of Science, Biology & Clinical Laboratory Department, Sep 2012- current
Instructor for:
 - Human & Molecular Genetics (Textbook: Essential Medical Genetics, 6th Ed. (2011); Tobias)
 - Advanced Molecular Genetics (Textbook: Human Molecular Genetics, 4th Ed. (2010); Strachan)
 - General Biology Classes (Textbook: Campbell Biology 9th global Ed. (2011); Reece, JB)
 - General Biology LaboratoryTeaching Instruments: Moodle, Multimedia, Traditional Chalk talk

John Tyler College, Chester, Virginia

- Adjunct Faculty, Mathematics, Natural and Behavioral Sciences, 2011- 2012
Instructor for:
 - General Biology Classes (Textbook: Campbell Biology 7th Ed. (2011); Reece, JB)
Classes Format: online, in-class (traditional), laboratoryTeaching Instruments: Blackboard "Bb", Multimedia, Traditional Chalk talk

Virginia Commonwealth University Richmond, Virginia

- Training and supervising graduate and undergraduate students' research projects, 2008- 2010
- Tutoring first year medical students genetics class, 2006

Scientific Awards and Professional Meeting Presentations

- Roscoe D. Hughes Excellence in Graduate Studies Award, Human & Molecular Genetics, Virginia Commonwealth University School of Medicine, 2012
- American Association for Cancer Research (AACR) Annual Meetings, 2010 & 2012
- Cold Spring Harbor (CSH) In Vivo Barriers to Gene Delivery Conference, 2009
- Peter Silverman Centre for International Health Research Extern at Mt. Sinai Hospital, Canada, 2004

Curriculum Vitae (CV)

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Education and Research Experience

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

- Visiting Research Scientist, Human and Molecular Genetics, June- Sep 2013
- Postdoctoral Research Fellow, Human and Molecular Genetics, August 2011 – August 2012
 - Principal Investigator (PI): Paul Fisher, MPh., PhD.
Research: Cancer Molecular and Gene Therapy

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

- Visiting Scientist, Clinical Molecular Genetics, Clinical Pathology, August 2011 – August 2012
Director: Andrea Ferreira-Gonzalez, PhD.

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

- PhD, Human and Molecular Genetics, August 2006 – August 2011
 - Graduate research with Paul Fisher, MPh., PhD. August 2008 – August 2011
Research: Cancer Molecular and Gene Therapy
 - Graduate research with Rita Shiang, PhD. December 2007 – August 2008
Research: Treachers Collins Syndrome and the Role of Tcf1 Gene in its Development
 - Thesis: Approaches for Enhancing Therapeutic Efficacy of a Novel *IL-10* Gene Family
Member: *MDA-7/IL-24*

School of Business, Virginia Commonwealth University, Richmond, Virginia

- Post-Baccalaureate Certificate, Business Administration, May 2009 – May 2011

Jordan University of Science and Technology, Jordan

- B.Sc. Biotechnology and Genetic Engineering, September 1999- May 2003

Teaching, Tutoring and Mentoring Experience

The University of Jordan, Amman, Jordan

- Assistant Professor, School of Science, Biology Department, September 2012- present
Instructor for:
 - Human & Molecular Genetics Classes (Textbook: Essential Medical Genetics, 6th Ed. (2011); Tobias)
 - Advanced Molecular Genetics (Textbook: Human Molecular Genetics, 4th Ed. (2010); Strachan)
 - General Biology Classes (Textbook: Campbell Biology 9th global Ed. (2011); Reece, JB)
 - General Biology LaboratoryTeaching Instruments: Moodle, Multimedia, Traditional Chalk talk

John Tyler Community College, Chester, Virginia

- Adjunct Faculty, Mathematics, Natural and Behavioral Sciences, August 2011- May 2012
Instructor for:
 - General Biology Classes (Textbook: Campbell Biology: Concepts and Connections 7th Ed. (2011); Reece, JB)Classes Format: online, in-class (traditional), laboratory
Teaching Instruments: Blackboard "Bb", Multimedia, Traditional Chalk talk

Virginia Commonwealth University Richmond, Virginia

- Training and supervising graduate and undergraduate students' research projects, August 2008-August 2010
- Tutoring first year medical students genetics class, September 2006

- Human and Molecular Genetics Students Representative, Aug 2009- May 2010
- Honor council member, August 2006- May 2008

Publications- Research Papers

1. **Azab B**, Dash R, Das SK, Bhutia SK, Sarkar S, Shen XN, Quinn BA, Dent P, Dmitriev IP, Wang XY, Curiel DT, Pellecchia M, Reed JC, Sarkar D, Fisher PB. Enhanced prostate cancer gene transfer and therapy using a novel serotype chimera cancer terminator virus (Ad.5/3-CTV). *J Cell Physiol.* 2013 Jul 19. doi: 10.1002/jcp.24408. [Epub ahead of print]
2. Bhutia SK, Das SK, **Azab B**, Menezes ME, Dent P, Wang XY, Sarkar D, Fisher PB. Targeting breast cancer-initiating/stem cells with melanoma differentiation-associated gene-7/interleukin-24. *Int J Cancer.* 2013 May 30. doi: 10.1002/ijc.28289. [Epub ahead of print]
3. Rajput S, Kumar BN, Sarkar S, Das S, **Azab B**, Santhekadur PK, Das SK, Emdad L, Sarkar D, Fisher PB, Mandal M. Targeted Apoptotic Effects of Thymoquinone and Tamoxifen on XIAP Mediated Akt Regulation in Breast Cancer. *PLoS One.* 2013 Apr 17;8(4): e61342. doi: 10.1371/journal.pone.0061342. Print 2013.
4. Das SK, Bhutia SK, **Azab B**, Kegelman TP, Peachy L, Santhekadur PK, Dasgupta S, Dash R, Dent P, Grant S, Emdad L, Pellecchia M, Sarkar D, Fisher PB. MDA-9/Syntenin and IGFBP-2 Promote Angiogenesis in Human Melanoma. *Cancer Research.* 2013 Jan 15; 73(2): 844-54. doi: 10.1158/0008-5472.CAN-12-1681. Epub 2012 Dec 10.
5. Das SK, Bhutia SK, Sokhi UK, **Azab B**, Su ZZ, Boukerche H, Anwar T, Moen EL, Chatterjee D, Pellecchia M, Sarkar D, Fisher PB. Raf kinase inhibitor RKIP inhibits MDA-9/syntenin-mediated metastasis in melanoma. *Cancer Research.* 2012 Dec 1;72(23):6217-26. doi: 10.1158/0008-5472.CAN-12-0402. Epub 2012 Oct 11.
6. **Azab B**, Dash R, Das S, Bhutia SK, Dmitriev I, Su ZZ, Yacoub A, Dent P, Curiel DT, Grant S, Wu B, Stebbins J, Pellecchia M, Reed J, Wang X, Sarkar D, Fisher PB. Enhanced delivery of mda-7/IL-24 using a serotype chimeric adenovirus (Ad.5/3) in combination with the apogossypol derivative BI-97C1 (Sabutoclax) improves therapeutic efficacy in low CAR colorectal cancer cells. *J Cell Physiol.* 2012 May;227(5):2145-53. doi: 10.1002/jcp.22947.
7. Bhutia SK, Das SK, Kegelman TP, **Azab B**, Dash R, Su ZZ, Wang XY, Rizzi F, Bettuzzi S, Lee SG, Dent P, Grant S, Curiel DT, Sarkar D, Fisher PB. mda-7/IL-24 differentially regulates soluble and nuclear clusterin in prostate cancer. *Journal of Cellular Physiology.* 2012 May; 227(5): 1805-13. doi: 10.1002/jcp.22904.
8. Dash R, **Azab B**, Quinn BA, Shen X, Wang XY, Das SK, Rahmani M, Wei J, Hedvat M, Dent P, Dmitriev IP, Curiel DT, Grant S, Wu B, Stebbins JL, Pellecchia M, Reed JC, Sarkar D, Fisher PB. Apogossypol derivative BI-97C1 (Sabutoclax) targeting Mcl-1 sensitizes prostate cancer cells to mda-7/IL-24-mediated toxicity. *Proc Natl Acad Sci U S A.* 2011 May 24; 108(21): 8785-90. doi: 10.1073/pnas.1100769108. Epub 2011 May 9. *Contributed equally
9. Venkatesan P, Puvvada N, Dash R, Prashanth Kumar P, Sarkar D, **Azab B**, Pathak A, Kundu SC, Fisher PB, Mandal M, The potential of celecoxib-loaded hydroxyapatite-chitosan nanocomposite for the treatment of colon cancer. *Biomaterial.* 2011 May;32(15):3794-806. doi: 10.1016/j.biomaterials.2011.01.027.
10. Bhutia SK, Kegelman TP, Das SK, **Azab B**, Su ZZ, Lee SG, Sarkar D, Fisher PB. Astrocyte elevated gene-1 induces protective autophagy. *Proc Natl Acad Sci U S A.* 2010 Dec 21;107(51):22243-8. doi: 10.1073/pnas.1009479107. Epub 2010 Dec 2.
11. Das SK, Sokhi UK, Bhutia SK, **Azab B**, Su ZZ, Sarkar D, Fisher PB. Human polynucleotide phosphorylase selectively and preferentially degrades microRNA-221 in human melanoma cells.

Proc Natl Acad Sci U S A. 2010 Jun 29; 107(26): 11948-53. doi: 10.1073/pnas.0914143107. Epub 2010 Jun 14.

12. Dash R, Su ZZ, Lee SG, **Azab B**, Boukerche H, Sarkar D, Fisher PB. Inhibition of AP-1 by SARI negatively regulates transformation progression mediated by CCN1. *Oncogene.* 2010 Aug 5;29(31):4412-23. doi: 10.1038/onc.2010.194. Epub 2010 Jun 7.
13. Dash R, Richards JE, Su ZZ, Bhutia SK, **Azab B**, Rahmani M, Dasmahapatra G, Yacoub A, Dent P, Dmitriev IP, Curiel DT, Grant S, Pellicchia M, Reed JC, Sarkar D, Fisher PB. 2010. Mechanism by which mcl-1 regulates cancer-specific apoptosis triggered by mda-7/IL-24, an IL-10-related cytokine. *Cancer Research.* 2010 Jun 15;70(12):5034-45. doi: 10.1158/0008-5472.CAN-10-0563. Epub 2010 May 25.
14. Bhutia SK, Dash R, Das SK, **Azab B**, Su ZZ, Lee SG, Grant S, Yacoub A, Dent P, Curiel DT, Sarkar D, Fisher PB. Mechanism of autophagy to apoptosis switch triggered in prostate cancer cells by antitumor cytokine melanoma differentiation-associated gene 7/interleukin-24. *Cancer Research.* 2010 May 1;70(9):3667-76. doi: 10.1158/0008-5472.CAN-09-3647. Epub 2010 Apr 20.
15. Dash R, Dmitriev I, Su ZZ, Bhutia SK, **Azab B**, Vozhilla N, Yacoub A, Dent P, Curiel DT, Sarkar D, Fisher PB. Enhanced delivery of mda-7/IL-24 using a serotype chimeric adenovirus (ad.5/3) improves therapeutic efficacy in low CAR prostate cancer cells. *Cancer Gene Therapy.* 2010 Jul;17(7):447-56. doi: 10.1038/cgt.2009.91. Epub 2010 Feb 12.

Publications – Reviews

16. Sarkar S, **Azab BM**, Das SK, Quinn BA, Shen X, Dash R, Emdad L, Thomas S, Dasgupta S, Su ZZ, Wang XY, Sarkar D, Fisher PB. Chemoprevention gene therapy (CGT): novel combinatorial approach for preventing and treating pancreatic cancer. *Curr Mol Med.* 2012 Nov 15. [Epub ahead of print].
17. Das SK, Bhutia SK, Kegelman TP, Peachy L, Oyesanya RA, Dasgupt S, Sokhi UK, **Azab B**, Dash R, Quinn BA, Kim K, Barral PM, Su ZZ, Boukerche H, Sarkar D, Fisher PB. MDA-9/syntenin: a positive gatekeeper of melanoma metastasis. *Front Biosci.* 2012 Jan 1; 17:1-15.
18. Quinn BA, Dash R, **Azab B**, Sarkar S, Das SK, Kumar S, Oyesanya RA, Dasgupta S, Dent P, Grant S, Rahmani M, Curiel DT, Dmitriev I, Hedvat M, Wei J, Wu B, Stebbins JL, Reed JC, Pellicchia M, Sarkar D, Fisher PB. Targeting Mcl-1 for the therapy of cancer. *Expert Opin Investig Drugs.* 2011 Oct; 20(10): 1397-411. doi: 10.1517/13543784.2011.609167. Epub 2011 Aug 19.
19. Bhutia SK, Das SK, **Azab B**, Dash R, Su ZZ, Lee SG, Dent P, Curiel DT, Sarkar D, Fisher PB. Autophagy switches to apoptosis in prostate cancer cells infected with melanoma differentiation associated gene-7/interleukin-24 (mda-7/IL-24). *Autophagy.* 2011 Sep;7(9):1076-7. Epub 2011 Sep 1.
20. Bhutia SK, Kegelman TP, Das SK, **Azab B**, Su ZZ, Lee SG, Sarkar D, Fisher PB. Astrocyte elevated gene-1 activates AMPK in response to cellular metabolic stress and promotes protective autophagy. *Autophagy.* 2011 May; 7(5): 547-8. Epub 2011 May 1.
21. Dash R, **Azab B**, Shen X, Sokhi UK, Sarkar S, Su ZZ, Wang XY, Claudio PP, Dent P, Dmitriev IP, Curiel DT, Grant S, Sarkar D, Fisher PB. Developing an effective gene therapy for prostate cancer: new technologies with potential to translate from the laboratory into the clinic. *Discov Med.* 2011 Jan;11(56):46-56.
22. Das SK, Bhutia SK, Sokhi UK, Dash R, **Azab B**, Sarkar D, Fisher PB. Human polynucleotide phosphorylase (hPNPase(old-35)): an evolutionary conserved gene with an expanding repertoire of RNA degradation functions. *Oncogene.* 2011 Apr 14; 30(15): 1733-43. doi: 10.1038/onc.2010.572. Epub 2010 Dec 13.

23. Dash R, BhutiaSK, **Azab B**, Su ZZ, Quinn BA, Kegelman TP, Das SK, Kim K, Lee SG, Park MP, Yacoub A, Rahmani M, Emdad L, Dmitriev IP, Wang XY, Sarkar D, Grant S, Dent P, Curiel DT, Fisher PB. mda-7/IL-24: A Unique Member of the IL-10 Gene Family Promoting Cancer-Targeted Toxicity. *Cytokine Growth Factor Rev.* 2010 Oct;21(5):381-1. doi:10.1016/j.cytogfr.2010.08.004.

Patent

Title: MICROBUBBLE ASSISTED VIRAL DELIVERY

Publication date: 2011/2/10

Patent number: WO/2011/017107

Research and Clinical Molecular Techniques

- DNA, RNA and protein extraction
- Capillary electrophoresis
- Primer design
- Polymerase Chain Reaction (PCR) & Real Time PCR
- Genotyping
- Sequencing
- Western blot
- Molecular cloning
- In situ hybridization
- Zebrafish model
- Mice: Studying the effect of genetic mutations and deletions on the phenotypes of transgenic mice and their progeny; Evaluating the response and effect of molecular therapy on tumor xenografts; *In vivo* Bioluminescent Imaging (BLI)
- Tissue Culture
- Cell lines preservation & storage
- Stable cell line production
- Proliferation assay
- Apoptosis assays
- Cell death assays
- Viral transduction
- Plasmid transfection
- Immunohistochemistry
- Microscopy: Confocal, fluorescent, light

Professional Meeting Presentations

- American Association for Cancer Research (AACR) Annual Meeting, April 2012
Poster Presentation: A new serotype chimera Cancer Terminator Virus (Ad.5/3-CTV) expands the efficiency and specificity of prostate cancer gene transfer and therapy.
AzabB, Dash R, Das SK, Bhutia S, Shen X, Quinn B, DasguptaS, DentP, DmitrievI, WangX, Curiel D, Grant S, Pellecchia M, Reed J, Sarkar D, Fisher PB.
- American Association for Cancer Research (AACR) Conference
Second AACR Dead Sea International Conference, Advances in Cancer Research: From the Laboratory to the Clinic, March 2010
Poster Presentation: Enhancing the Efficiency and Specificity of Gene Therapy Using a Serotype Chimeric Adenovirus (Ad.5/3), Microbubble and Ultrasound
Aazb B, Dash R, Sarkar D, Claudio PP, Dent P, Curiel D, Fisher PB.
- Cold Spring Harbor (CSH) In Vivo Barriers to Gene Delivery Conference, November 2009
Poster Presentation: *in vivo* Molecular Delivery of Therapeutic Molecules Using Microbubbles and Ultrasound. **Azab B**, Dash R, Bhutia S, Sarkar D, Claudio PP, Fisher PB.
- Royal Medical Services, Jordan, 2005
Lecture: Hereditary Hearing Loss and Blindness in the Jordanian Population
Middle East Hearing Association (MEHA), Lecture: Usher Syndrome, Jordan, 2004

Scientific Awards

- Roscoe D. Hughes Excellence in Graduate Studies Award, Human & Molecular Genetics, Virginia Commonwealth University School of Medicine, May 2012
- Joukowsky Family Foundation scholarship, New York, April 2007
- Peter A. Silverman Centre for International Health Research Extern at Mt. Sinai Hospital, Ontario, Canada, September 2004
- Canadian International Scientific Exchange Program (CISEPO) Professional Development Scholarship in Genetics, September 2004