

ZAHER A. NAHLE, PhD
D-4116A Medical Center North,
Nashville, Tennessee 37232
zaher.nahle@vanderbilt.edu



A. EDUCATION

- 2003 Ph.D. *Physiology & Biophysics*
STONY BROOK University (SBU) & COLD SPRING HARBOR Laboratory (CSHL), New York
- 1995 B.Sc. *Chemistry*
AMERICAN UNIVERSITY of BEIRUT (AUB), Beirut, Lebanon

B. EMPLOYMENT/TRAINING

- 2011- **Assistant Professor of Neurosurgery & Cancer Biology**, Vanderbilt University
2008-2010 (2.1 yrs) **Assistant Professor**, Weill Medical College of Cornell University,
2004-2008 (4.2 yrs) **Research Assistant Professor of Medicine**, Washington University in St. Louis
--- In graduate school and post-doctoral training ---
1995-1998 (3.2 yrs) **Research Assistant** (laboratory technician), American University of Beirut.

C. ACADEMIC HONORS AND AWARDS

- 2011-14 **Qatar Foundation**, National Priorities Research Program Award
(Trans-Atlantic Collaboration US/Qatar)
- 2011 **American Cancer Society (ACS) Scholar Award**
(Score: OUTSTANDING, 1.1 (scale 1-5))
Approved for funding, due to financial shortfall at the ACS, this award is placed in the
'pay if funds become available' category to be funded when/if funds are secured*
- 2006-08 **American Heart Association (AHA) BGIA Award** (aka, *career development award*)
(Score: OUTSTANDING, 94%)
- 2001-03 **Department of Defense (DoD) Army Breast Cancer Fellowship Award**
(Score: OUTSTANDING, 96%)
- 2002 **International Society for Translational Research Young Investigator** (travel) Award
1998-00 **The Research Foundation**, full scholarship (Graduate), SUNY at Stony Brook
1991-95 **Hariri Foundation**, full scholarship (Undergraduate), American University of Beirut

As Co-investigator:

- 2010-13 **James S. McDonnell Foundation**, 21st Century Science Initiative Award
2004-08 **Philip Morris USA Extramural Research Program**

Others: Research work selected for reviews and commentaries in the following science media outlets:

- HIGHLIGHTS, *Nature Medicine* Vol 10:907, Sep. (2004)
- 'News and Views', *Nature Cell Biology* Vol 6:806, Sep. (2004),
- *Science* magazine Editors' Choice, Issue 246, p. tw293 (2004).
- HIGHLIGHTS *Nature Reviews Mol. Cell. Biol.* 3: 889, Dec. (2002);
- HIGHLIGHTS *Nature Reviews Cancer.* 2: 892, Dec. (2002);
- Biology Reports Ltd, Faculty of 1000, (2002).

D. EDITORIAL RESPONSIBILITIES

Peer reviewer for the following scientific journals: *Oncogene; Cell Research; Journal of Biotechnology Progress; Diabetes Obesity and Metabolism.*

E. TEACHING ACTIVITIES

- 2011-2012 Member, Graduate program, Vanderbilt University
2009-2010 Conference group leader; Course: *Molecules, Genes and Cells*, Weill Cornell Medical College
2008-2010 Volunteer Mentor: prep for pre program for minority students, New York City

2004-2008 Volunteer Mentor: undergraduate research program, Washington University in St Louis
2000-2003 Graduate teaching assistant (Courses: *Medical Physiology, Neuroscience*), SUNY at Stony Brook

F. MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

2009- Diabetes Research Training Center (DRTC), Albert Einstein College of Medicine (elected)
2008- American Society of Biochemistry and Molecular biology (elected)
2007- American Heart Association
• AHA Council on Basic Cardiovascular Sciences
• Interdisciplinary working group on Functional Genomics & Translational Biology
2003- American Association for Cancer Research AACR
2002- New York Academy of Science
1999- American Physiological Society
1995- American Chemical Society

G. GRANT REVIEW/STUDY SECTIONS

Philip Morris USA external research programs review board

H. RESEARCH PUBLICATIONS, PEER REVIEW

A. Fernandez-L, M. Squatrito, P. Northcott, Awan A, E. C. Holland, M.D. Taylor, **Z. Nahlé**, A.M. Kenney. Oncogenic YAP promotes radioresistance and genomic instability in medulloblastoma through IGF2-mediated Akt activation, oncogene (in press)

B. Bhatia, M. Hsieh, A.M. Kenney and **Z. Nahlé***. Mitogenic Sonic hedgehog signaling activates E2F1-mediated lipogenesis in progenitor cells and medulloblastoma. *Oncogene*. Oct 4, 2010. [Epub ahead of print]
* Corresponding author.

S R. Parathath, L Mainwaring, A Fernandez-L, C G. Guldal, **Z. Nahlé**, A M Kenney. β -Arrestin-1 links mitogenic Sonic hedgehog signaling to the cell cycle exit machinery in neural precursors. *Cell Cycle* 9, (19):4013-4024, 2010.

M. Hsieh, D. Das, M. Q. Zhang, N. Sambandam and **Z. Nahlé***. Transcriptional Regulation of the PDK4 Isozyme by the Rb/E2F1 Complex. *J Biol. Chem.* 283 (41):27410-7, 2008. * Corresponding author.

Z. Nahlé*, M. Hsieh, T. Pietka, C. C. Coburn, P. A. Grimaldi, M. Q. Zhang, D. Das, N. A. Abumrad. CD36-dependent regulation of FoxO1 and PDK4 in the PPAR δ / β -mediated adaptation to metabolic stress. *J Biol. Chem.* 283(21):14317-26, 2008. * Corresponding author.

D. Das, **Z. Nahlé** and M.Q. Zhang. Adaptively Inferring Human Transcriptional Network. *Molecular Systems Biology* E1-14, 2006.

C.C. Bastie, **Z. Nahlé**, T. McLoughlin, K. Esser, W. Zhang, T. Unterman, N. Abumrad. FoxO1 stimulates fatty acid uptake and oxidation in muscle cells through CD36-dependent and independent mechanisms. *J Biol Chem.* 8; 280(14):14222-9, 2005.

(**Z. Nahlé***, E. Hernando*), G. Juan, M. Alaminos, E. Diaz-Rodriguez, M. Hemann, L. Michel, V. Mittal, R. Benezra, W. Gerald, S. W. Lowe, C. Cordon-Cardo. *Rb Inactivation promotes genomic Instability by Uncoupling Cell Cycle Progression from Mitotic Control.* *Nature* 430: 799-802, 2004. (*equal contribution)

Selected for HIGHLIGHTS, *Nature Medicine*. Vol 10:907, Sep. (2004); News and Views', *Nature Cell Biology*. Vol 6:806, Sep. (2004); and Science Editors' Choice Issue 246, p. tw293 (2004).

Z. Nahlé', J. Polyakoff, R V. Davuluri, M E. McCurrach, M D. Jacobson, M. Narita, M Q. Zhang, Y. Lazebnik, D. Bar-Sagi, and S W. Lowe. *Direct coupling of the cell cycle and cell death machinery by E2F.* *Nature Cell Biology* 4: 280-33, 2002.

Selected for HIGHLIGHTS *Nature Reviews Mol. Cell. Biol.* 3: 889, Dec. (2002), HIGHLIGHTS *Nature Reviews Cancer*. 2: 892, Dec. (2002), and Biology Reports Ltd, Faculty of 1000. (2002).

G. E. Haddad, F. A. Saadeh, L. H. Sharaf, **Z. A. Nahle'**, Abou Fares, M.F., Haddad, R.E., Bitar, K.M., Bikhazi, A.B. *Alterations in IGF-I binding on cardiac myofibers and capillary endothelium during chronic volume-overload-induced hypertrophy. Journal of Biochem Mol Biol Biophys 3: 65-74, 1999.*

A. B. Bikhazi, R. E. Haddad, **Z. A. Nahle'**, and K. M. Bitar. *Angiotensin II Delivery and Binding at the Microvascular Endothelium and Cardiac Myocyte Surfaces in Perfused Rat Hearts. Journal of Pharmaceutical Sciences 87: 1363-1367, 1998.*

Bikhazi AB, **Nahlé ZA**, El-Sabban M, Bitar K. Measurement of the binding parameters of therapeutically active peptides (e.g., insulin, insulin-like growth factor-1 [IGF-1], endothelin-1 [ET1], angiotensin-II [ATII]) and their antagonists on the endothelium of the coronary vasculature and myocytes, in perfused heart models. Expert Opinion on Therapeutic Targets 2(1): 65-67, 1998.

A. B. Bikhazi, **Z. A. Nahle'**, M. E. El-Sabban, and K. M. Bitar. *Peptides and Their Antagonists in The Endothelium of The Coronary Vasculature and Myocytes. Emerging Therapeutic Targets 2: 65-67, 1998.*

A. B. Bikhazi, F. A. Saadeh, R. E. Haddad, **Z. A. Nahle'**, M. F. Abou Fares, K. M. Bitar, and A. E. Birbari. *Insulin receptor binding characteristics in perfused SHR and WKY rat hearts. Comparative Biochemistry and Physiology 120C.127-136, 1998.*

A. Bikhazi, **Z. Nahle'**, S. Kreydiyyeh, R. Haddad, K. Bitar, G. Haddad, A. Abdelnoor. *Endotoxin binding on capillary endothelium and myocyte plasma membranes in perfused rat heart. Journal of Endotoxin Research 4: 45-51, 1997.*

R.E. Haddad, A. R. Jurjus, M. Ibrahim, **Z. A. Nahle'**, M. M. El-Kasti, K. M. Bitar, S. I. Kreydiyyeh, F. A. Saadeh, and A. B. Bikhazi. *Binding of ¹²⁵I-Insulin on Capillary Endothelial and Myofiber Cell Membranes in Normal and Streptozotocin-Induced Diabetic Perfused Rat Hearts. Comparative Biochemistry and Physiology 117A:523-530, 1997.*

I. EDITORIALS, REVIEWS, CHAPTERS

Zaher Nahlé. *Medulloblastoma: Role of Sonic Hedgehog-E₂F₁-FASN in Lipogenesis. Methods of Cancer Diagnosis, Therapy, and Prognosis, 2011 (book chapter, in preparation)*

B. Bhatia, **Z. Nahlé**, and A. M. Kenney. *Double trouble: when Sonic hedgehog signaling meets TSC inactivation. Cell Cycle 9 (3):456-9, 2010. (extra view)*

Zaher Nahlé. *PPAR trilogy from metabolism to cancer. Current Opinion in Clinical Nutr. Metab. Care 7:397- 402, 2004 (Journal review article).*

J. COMMUNITY INVOLVEMENT

1998 - 01 **Stony Brook University Hospital**, Department of Radiation oncology

- Developed a new mathematical model for assessing treatment efficacy of lymphedema in breast cancer patients. Model presented at the international Lymphedema conference: **Z. A. Nahle**, A. G. Meek, S. A. Russo, J. L. Andersen, D. Dahlgren, C. Tuppo. *Lymphedemic Arm Measurement (I): Application of a New Mathematical Model to Breast Cancer Patients (II)*. Lymphedema: Sharpening the Focus For The New Millennium (Sep.14-17, 2000) p52. The 4th National Lymphedema Network International Conference, New Orleans LA.

2001 - 03 **Graduate Student Organization, Stony Brook University (US)**

Senator and Class representative (Elected)

1995 - 98 **Hariri Foundation Alumni Association (HFAA)**

Chair of the Education and Cultural Committee, Beirut chapter

Recipient of the HFAA Leadership award

1995 - 98 **Syndicate of Chemists in Lebanon**

Chair of the Public Relations Committee

1993 - 95 **Chemistry Students Society, American University of Beirut (Lebanon)**

President (Elected)

K. LECTURES BY INVITATION

- May 2011 Mitogenic Sonic hedgehog signaling activates E2F1-mediated lipogenesis in progenitor cells and medulloblastoma. 2011 Pediatric Neuro-Oncology Basic and Translational Research Conference, New Orleans, Louisiana (host: Society for Neuro-oncology (SNO)).
- Jan 2011 Tumor metabolism in pediatric brain cancer: work in progress. Vanderbilt Brain Tumor Program seminars (host: Michael Cooper, MD).
- May 2010 Mitogenic Signaling in the Control of the Lipogenic/Lipolytic Balance. New York Regional Diabetes Meeting, Albert Einstein College of Medicine, New York (host: Jeff Pessin, PhD).
- Nov. 2009 E2F in Cardiac Metabolism and Tumor Metabolism: Work in Progress. Albert Einstein Diabetes and Research Training Center (DRTC), New York (host: Meredith Hawking, MD).
- Jun. 2008 TumorMetabolism. Weill Medical College of Cornell University, Department of Cardiothoracic Surgery, New York.
- May 2008 Novel Roles for the Rb/E2F Tumor Suppressor Complex in Metabolism and Cancer. Saint Louis University, Department of Biochemistry, St Louis, Missouri (host: David Ford, PhD).
- Mar. 2008 Beyond Apoptosis and genomic instability:A role for E2F in Cellular Metabolism. Stony Brook University, Department of Physiology & Biophysics, New York (host: Peter Brink, PhD).
- Oct. 2007 E2Fs and cellular metabolism. Signaling/Cell Cycle Series, Siteman Cancer Center, Washington University in St. Louis (host: Helen Piwnicka-Worms, PhD).
- Sep. 2006 Transcriptional Reprogramming in the Diabetic Heart. Center for Cardiovascular Studies, Washington University in St. Louis (host: Dan Ori, MD).
- Apr. 2005 Fatty Acid flux and the control of apoptosis. Center for Human Nutrition, Washington University in St. Louis (host: Sam Klein, MD).
- Aug. 2002 E2F-1 Directly Regulates Caspases Coupling Cell Cycle to Cell Death. Cancer Genetics & Tumor Suppressor Genes, Cold spring Harbor Laboratory, New York (host: CSHL meetings).
- Oct. 2002 The Cell Cycle as a Target in Chemoprevention and Cancer Therapy. International Society for Translational Research, Austin, Texas (host: Pablo Conti, MD).

L. MEETING PROCEEDINGS (selected)

1. B. Bhatia, A.M. Kenney and **Z. Nahlé.** Mitogenic Sonic hedgehog signaling activates E2F1-mediated lipogenesis in progenitor cells and medulloblastoma. 2011 Pediatric Neuro-Oncology Basic and Translational Research Conference (May 19-20, **2011**), New Orleans, Louisiana
2. **Z. Nahlé,** R. Davuluri , M. McCurrach , J. Polyakoff , M. Jacobson ,M. Zhang , Y. Lazebnik , D. Bar-Sagi and S. Lowe. Direct Coupling of Cell cycle Progression and Apoptosis by E2F-1. Apoptosis and Cancer: Basic Mechanisms and Therapeutic Opportunities in the Post-Genomic Era (February 13-17, **2002**) Hawaii.
3. **Z. Nahlé,** M. McCurrach, R. Davuluri, M. Jacobson, J. Polyakoff, M. Zhang, Y. Lazebnik, D. Bar-Sagi and S. Lowe. E2F-1 Directly Regulates Caspases Coupling Cell Cycle to Cell Death. Cancer Genetics & Tumor Suppressor Genes (August 14-18, **2002**, pp.293) Cold spring Harbor Lab, NY.
4. **Z. Nahlé.** Cell Cycle and Cell Death. The Cell Cycle as a Target in Chemoprevention and Cancer Therapy (October 3-4, **2002**, pp.32) *Holiday Inn - Town Lake*, Austin, Texas.
5. **Z. Nahlé,** M. McCurrach, J. Polyakoff, R. Davuluri, M. Zhang, J. Pelletier, Y. Lazebnik, and S. Lowe. Oncogenic Induction of Caspases via an ARF-p53 Independent Pathway. Programmed Cell Death (November 9-11, **2001**) P.186, Cold Spring Harbor Laboratory, New York.
6. **Z. A. Nahlé,** A G.Meek, S A. Russo, J L. Andersen, D. Dahlgren, C. Tuppo. Lymphedemic Arm Measurement (I): Application of a New Mathematical Model to Breast Cancer Patients (II). Lymphedema: Sharpening the Focus For The New Millennium (Sep.14-17,**2000**) P52,. The 4th National Lymphedema Network International Conference, New Orleans LA.
7. J. Polyakova, **Z. Nahlé,** T. Lee, Y. Lazebnik, J. Pelletier and S. Lowe. Induction of Pro-Caspases by The E1A Oncogene. Cancer Genetics and Tumor Suppressor Genes (August 16- 20, **2000**) P147. Cold Spring Harbor Laboratory, New York.

8. G. Haddad, L. Sharaf, **Z. Nahlé**, K. Bitar, and A. Bikhazi. IGF-I Receptor Kinetics During Regression of Cardiac Hypertrophy Following ACE-inhibitor or AT₁-antagonist Treatment. The FASEB Journal Vol. 13(4), pp. A438, April **1999**. Experimental Biology' 99, Washington D.C.
9. G. Haddad, F. Saadeh, L. Sharaf, **Z. Nahlé**, M. Abou Fares, R. Haddad, K. Bitar, and A. Bikhazi. Kinetics of IGF-I Binding on Cardiac Myofibers and Capillary Endothelium During Eccentric Hypertrophy. The FASEB Journal Vol. 12 (4), pp. A709, April **1998**. Experimental Biology' 98, San Francisco, CA.
10. A. Bikhazi, **Z. Nahlé**, R. Haddad, K. Bitar. Binding of Angiotensin II and DUP 753 on Capillary Endothelium and Myofibers in Perfused rat Hearts. The FASEB Journal Vol. 2 (4), pp.A408, April **1998**. Experimental Biology' 98, San Francisco, CA.
11. A B. Bikhazi, **Z A. Nahlé**, M F. Abou Fares, R E. Haddad, and K M. Bitar. Polypeptide Delivery at Myocyte-Surfaces in a Perfused Rat Heart Preparation. Drugs Formulation and Delivery II pp.84, #84, Oct. **1997**. (presented at the American Chemical Society conference: La Jolla, CA.)
12. A. Bikhazi, **Z. Nahlé**, R. Haddad, K. Bitar. Angiotensin II Binding on Capillary Endothelial and Myocyte Surfaces in Perfused Heart of Normal and Streptozotocin-Induced Diabetic Perfused Rats. The FASEB Journal Vol. 11(3), pp. A498, Feb. **1997**. Experimental Biology'97, New Orleans, LA.
13. R E. Haddad, A B. Bikhazi, **Z A. Nahlé**, M. El-Kasti, and A M. Abdelnoor. A Novel Rat Heart Perfusion Method to Assess Endotoxin Binding. Measurement of Binding and Residency Time on Capillary Endothelial and Myocyte Plasma Membrane. Journal of Endotoxin Research Vol. 3, pp.57, **1996**. Fourth conference of the International Endotoxin Society, Nagoya, Japan.
14. R E. Haddad, A B. Bikhazi, **Z A. Nahlé**, and A M. Abdelnoor. A Novel Rat Heart Perfusion Method to Assess Endotoxin Binding: Description of Perfusion Model (1). Journal of Endotoxin Research Vol. 3, pp.56, **1996**. International Endotoxin Society, Nagoya, Japan.

M. GRANT SUPPORT AND FUNDING

PAST SUPPORT

No.	Name of Grant	Period of Award	Grant Category	Role in Grant	% Effort	Funding Source	Annual Direct Cost
1	"Analysis of the ARF-p53 Pathway During Oncogenic Stimulation"	12/01 to 05/03	Federal Grant	Principal Investigator	100%	Department of Defense (DoD)	\$33,000
2	"Fatty Acid Transporter: Regulation, identification"	03/03 to 02/08	Federal Grant	Co-Investigator*	15%	National Institute of Health (NIH)	\$250,000
3	"Metabolic Regulation in Cell Growth and Apoptosis"	08/04 to 08/07	Private Foundation	Co-Investigator	85%	Philip Morris External Research Programs	\$250,000
4	"Potential Roles for E2F1 in the Pathogenesis of the Diabetic Heart"	01/07 to 12/08	Nonprofit Organization	Principal Investigator	10%	American Heart Association (AHA)	\$75,000

CURRENT SUPPORT

No.	Name of Grant	Period of Award	Grant Category	Role in Grant	% Effort	Funding Source	Annual Direct Cost
1	<i>"Nicotine Signaling in Obesity-Induced Diabetic Cardiomyopathies"</i>	05/11 to 04/14	Nonprofit Organization	Lead Principal Investigator	10%	Qatar Foundation	\$290,000
2	<i>"Hedgehog and Hippo signaling as drivers of medulloblastoma & cell division-associated metabolic choice"</i>	10/10 to 10/13	Nonprofit Organization	Co-Investigator	10%	James S. McDonnell Foundation	\$150,000
3	<i>"Sonic hedgehog and insulin-like growth factor interactions in proliferating neural precursors"</i>	9/07 to 4/12	Federal Grant (R01)	Co-Investigator	15%	National Institute of Health (NIH) NINDS	\$200,000

PENDING SUPPORT

No.	Name of Grant	Period of Award	Grant Category	Role in Grant	% Effort	Funding Source	Annual Direct Cost
1	<i>Hedgehog Signaling and Rb/E2F regulation in development and cancer</i>	01/11 to 12/14	Nonprofit Organization	Principal Investigator	20%	American Cancer Society (ACS)	\$200,000

N. LANGUAGE SKILLS Fluent in Arabic (native), French, and English