

# ASMA HATOUM

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## EDUCATION

- 2001-2007      **Ph.D.** Biochemistry, Cornell University  
GPA 4.05 / 4.00  
Dissertation: “Sigma 70-dependent RNA polymerase pausing in *E. coli* and its implications for pause-mediated transcription regulation ”
- 1998-2001      **M.S.** Biochemistry, American University of Beirut, Beirut, Lebanon.  
GPA 91 / 100  
Thesis: “Molecular mechanisms of cell cycle control in retinoic acid receptor transduced neoplastic epidermal cell lines”
- 1995-1998      **B.S.** Molecular Biology, Florida Institute of Technology, Melbourne, FL.  
GPA 3.53 / 4.00

## ACADEMIC TEACHING EXPERIENCE

- 2002-2003      Ithaca, NY, Teaching assistant at Cornell University  
BIOBM334: Computer Graphics and Molecular Biology
- Lead discussions at the beginning of class on the biochemistry, structure, and function of a particular protein, and assisted students with visualizing the proteins’ structure in three dimensions using Silicon Graphic computers.
  - Lead a seminar series that covered current topics in molecular biology including but not limited to cystic fibrosis, prion diseases, genomics, x-ray crystallography, potassium channels, oncogenes and cancer.
  - Held regular office hours to answer questions outside of class.
  - Graded exams for the BIOBM330: Principles of Biochemistry, Individualized Instruction course.
- 1997-1998      Melbourne, FL, Tutor  
High school level chemistry
- Taught basic chemistry concepts to a high school junior to supplement the lectures he received in class.

## OTHER TEACHING EXPERIENCE

- 2005-present      Ithaca, NY, Teacher and volunteer for the Art of Living Foundation  
Youth Empowerment Seminar Plus course (YES!+, for undergraduates)

Art of Living Part 1 course (for adults)

- Organize Art of Living stress management workshops as the leader in a team of graduate and undergraduate student volunteers.
- Teach simple stress management techniques to students and adults in a 1-hour Art of Living workshop as an introductory session to the full 6-day program.
- Assist qualified Art of Living teachers in the Part 1 and YES!+ 6-day programs by leading some of the discussions, yoga, and breathing techniques.
- Lead ongoing weekly follow-up sessions with former course participants.

## RESEARCH EXPERIENCE

2007-2008

Cornell University, Postdoctoral Associate

Principal Investigator: Prof. Jeffrey W. Roberts

- Investigated the mechanisms of phage 82 Q-mediated antitermination.
- Established the role of antipausing during phage 82 Q-mediated antitermination.
- Demonstrated that phage 82 Q protein cross-links to RNA in the presence of the elongation factor NusA.

2001-2007

Cornell University, Ph.D. research

Principal Investigator: Prof. Jeffrey W. Roberts

- Developed an assay to detect paused RNA polymerase elongation complexes on chromosomal DNA in *E. coli in vivo*.
- Established the prevalence of  $\sigma^{70}$ -dependent pausing on *E. coli* chromosomal genes.
- Demonstrated that transcription repression can result from  $\sigma^{70}$ -dependent pausing in *E. coli in vivo*.
- Characterized an *E. coli* strain harboring a non-pausing  $\sigma^{70}$  mutant to assess the biological significance of RNA polymerase  $\sigma^{70}$ -dependent pausing.

2000-2001

American University of Beirut, Masters research

Principal Investigator: Prof. Nadine Darwiche

- Demonstrated that restored RAR $\alpha$  and RAR $\gamma$  expression in neoplastic keratinocyte cell lines promotes retinoic acid-induced growth arrest and apoptosis through overlapping as well as distinct signaling pathways.
- Demonstrated that N-(4-hydroxyphenyl)retinamide causes growth arrest and apoptosis in human (HTLV-1)-positive and (HTLV-1)-negative malignant T-cell lines that are resistant to retinoic acid treatment.

## PUBLICATIONS

- **Hatoum A**, Roberts JW (2008). “Prevalence of RNA polymerase stalling at *E. coli* promoters after open complex formation” *Molecular Microbiology* 68(1), 17-28.
- Shankar S, **Hatoum A**, and Roberts JW (2007). “A Transcription Antiterminator Constructs a NusA-Dependent Shield to the Emerging Transcript” *Molecular Cell* 27, 914-927.
- Darwiche N, Bazzi H, El-Touni L, Abou-Lteif G, Doueiri R, **Hatoum A**, Maalouf S, Gali-Muhtasib H (2005). “Regulation of ultraviolet B radiation-mediated activation of AP-1 signaling by retinoids in primary keratinocytes” *Radiation Research* 163(3), 296-306.
- Kabbout M, **Hatoum A**, Abou-Lteif G, Chakroun I, Homaidan FR, Darwiche, N (2004). “Stage-specific effect of N-(4-hydroxyphenyl)retinamide on cell growth in squamous cell carcinogenesis” *Molecular Carcinogenesis* 40(1), 12-23.
- Darwiche N, **Hatoum A**, Dbaibo G, Kadara H, Nasr R, Abou-Lteif G, Bazzi R, Hermine O, de The H, Bazarbachi A (2004). “N-(4-hydroxyphenyl)retinamide induces growth arrest and apoptosis in HTLV-I-transformed cells” *Leukemia* 18(3), 607-615.
- **Hatoum A**, El-Sabban ME, Khoury J, Yuspa SH, Darwiche N (2001), “Overexpression of retinoic acid receptors alpha and gamma into neoplastic epidermal cells causes retinoic acid-induced growth arrest and apoptosis” *Carcinogenesis* 22(12), 1955-1963.

## HONORS AND AWARDS

2005      Award of Excellence, Vincent du Vigneaud Memorial Symposium

## PROFESSIONAL MEETINGS AND PRESENTATIONS

- Smita Shankar, Asma Hatoum, and Jeffrey W. Roberts: Mechanism of Transcription Antitermination by Phage 82 Q protein. Cornell Postdoctoral Symposium October 2007- **Talk**
- Smita Shankar, Asma Hatoum, and Jeffrey W. Roberts: Mechanism of Transcription Antitermination by Phage 82 Q protein. Molecular Genetics of Bacteria and Phages August 2007- **Poster**
- Asma Hatoum and Jeffrey W. Roberts: Identification of genes with a  $\sigma^{70}$ -dependent promoter proximal RNA Polymerase pause in *E. coli*. FASEB-Mechanism and Regulation of Prokaryotic Transcription July 2005- **Talk and Poster**
- Asma Hatoum and Jeffrey W. Roberts: Identification of genes with a  $\sigma^{70}$ -dependent promoter proximal RNA Polymerase pause in *E. coli*. Vincent du Vigneaud Memorial Symposium, May 2005- **Poster**
- Asma Hatoum and Jeffrey W. Roberts: Identification of genes with a  $\sigma^{70}$ -dependent promoter proximal RNA Polymerase pause in *E. coli*. Molecular Genetics of Bacteria and Phages August 2004- **Talk**

## OUTREACH

- 2003: Participated in a one-day workshop hosted by the Graduate School Student Outreach

Program to present advanced science topics and techniques to K-12 teachers in a way that is fun and easy to comprehend.

- 2002: *Expanding Your Horizons* (One day conference to stimulate interest in science among middle school girls through hands-on activities, to provide them with female scientist role models, and to foster awareness of opportunities in science-related careers.)

## **OTHER**

- 2003-2005: Served on the Sevana Park Condominium Association Board of Managers, and served as secretary during the second of my two-year term.
- Speak some Arabic.

## **REFERENCES**

1. Jeffrey W. Roberts  
Robert J. Appel Professor of Molecular and Cell Biology  
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2. Eric Alani  
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3. James E. Blankenship  
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## **ADDITIONAL REFERENCE**

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