

- 1. Name** Arthur R. Salomon
Assistant Professor,
Molecular Biology, Cell Biology, and Biochemistry Department
Brown University, Providence, RI
website: <http://cellpathway.com/>, <http://bi28.info/>
- 3. Education** **Case Western Reserve University**, Cleveland, OH
B.S. Chemistry,
Undergraduate Research with Professor Michael Zagorski
- Stanford University**, Stanford, CA
Ph.D. Chemistry,
with Professor Chaitan Khosla
Dissertation: "Chemistry and Biology of Apoptolidin, an Inhibitor of F0F1-ATPase that Selectively Induces Apoptosis"
- 4. Professional Appointments** **Genomics Institute of the Novartis Research Foundation (GNF)**
Postdoctoral Associate in proteomics with Professor Peter Schultz, December 2000-2004
- Brown University Department of Molecular Biology, Cell Biology, and Biochemistry**
Assistant Professor, September 2004-present
- Trainer- Molecular Biology, Cell Biology, and Biochemistry**
September 2004-present
- Trainer-Department of Chemistry**
September 2004-present
- Trainer-Molecular Pharmacology and Physiology**
November 2009-present
- Brown University Department of Chemistry**
Adjunct Assistant Professor, May 2006-present
- Brown University Center of Genomics and Proteomics**
Center Assistant Professor, March 2007-present
- 5. Publications** H. Shao, K. Marcinowski, E. Clancy, **A. Salomon** and M. Zagorski (1997).
b. Chapters in Books "The Solution Structures of the β -Amyloid Peptide Provide a Molecular Approach for the Treatment of Alzheimer's Disease." In K. Iqbal, B. Winblad, T. Nishimura, M. Takeda and H. M. Wisniewski (eds), *Alzheimer's Disease: Biology, Diagnosis and Therapeutics* New York, John Wiley & Sons, pp 729-739.

L. Cao, K. Yu, **A. Salomon** (2006). "Phosphoproteomic Analysis of Lymphocyte Signalling." In *Advances in Experimental Medicine and Biology*, Vol. **584**, C. Tsoukas, ed. Springer, New York, NY. chapter 19, Pgs. 277-88.

c. Refereed Journal Articles

Students and staff supported by the Salomon lab are underlined
A. Salomon, K. Marcinowski, R. Friedland, and M. Zagorski (1996). "Nicotine inhibits amyloid formation by the beta-peptide." *Biochemistry* 35(42): 13568-78.

H. Zeng, H. Shao, N. Menon, J. Yang, A. Salomon, R. Freidland, and M. Zagorski (2000). "Nicotine and Amyloid Formation" *Biological Psychiatry* 49(3): 248-257.

A. Salomon, D. Voehringer, L. Herzenberg, C. Khosla (2000). "Understanding and exploiting the mechanistic basis for selectivity of polyketide inhibitors of F0F1-ATPase." *Proc. Nat. Acad. Sci.*, 97(26): 14766-71.

A. Salomon, D. Voehringer, L. Herzenberg, C. Khosla (2001). "Apoptolidin, a selective cytotoxic agent, is an inhibitor of F0F1-ATPase." *Chemistry and Biology*, 8(1): 71-80.

A. Salomon, Y. Zhang, H. Seto, C. Khosla (2001). "Structure-activity relationships within a family of selectively cytotoxic macrolide natural products." *Organic Letters*, 3(1): 57-59.

J. Pennington, H. Williams, A. Salomon, G. Sulikowski (2002). "Toward a stable apoptolidin derivative: Identification of isoapoptolidin and selective deglycosylation of apoptolidin." *Organic Letters*, 4(22): 3823-3825.

A. Salomon, S. Ficarro, L. Brill, A. Brinker, Q. Phung, C. Ericson, K. Sauer, D. Horn, P. Schultz, E. Peters (2003). "Profiling of tyrosine phosphorylation pathways in human cells using mass spectrometry." *Proc. Nat. Acad. Sci.*, 100(2): 443-448.

C. Ericson, Q. Phung, D. Horn, E. Peters, J. Fitchett, S. Ficarro, A. Salomon, L. Brill, A. Brock (2003). "An automated noncontact deposition interface for liquid chromatography matrix-assisted laser desorption/ionization mass spectrometry." *Anal. Chem.* 75(10): 2309-2315.

A. Brock, D. Horn, E. Peters, C. Shaw, C. Ericson, Q. Phung, A. Salomon (2003). "An automated matrix-assisted laser desorption/ionization quadrupole fourier transform ion cyclotron resonance mass spectrometer for 'bottom up' proteomics." *Anal. Chem.* 75(14):3419-3428.

- L. Brill, A. Salomon, S. Ficarro, M. Mukherji, M. Stettler-Gill, E. Peters (2004). "Robust phosphoproteomic profiling of tyrosine phosphorylation sites from human T cells using immobilized metal affinity chromatography and tandem mass spectrometry." *Anal. Chem.* 76(10): 2763-2772.
- I. Lee, A. Salomon, S. Ficarro, I. Mathes, F. Lottspeich, L. Grossman, M. Huttemann (2005). "cAMP-dependent tyrosine phosphorylation of subunit I inhibits cytochrome c oxidase activity." *J. Biol. Chem.* 280(7): 6094-6100.
- S. Ficarro, A. Salomon, L. Brill, D. Mason, M. Stettler-Gill, A. Brock, E. Peters (2005). "Automated immobilized metal affinity chromatography/nano-LC electrospray ionization mass spectrometry platform for profiling protein phosphorylation sites." *Rap. Comm. Mass Spec.* 19(1):57-71.
- I. Lee, A. Salomon, K. Yu, J. Doan, L. Grossman, M. Huttemann (2006). "New Prospects for an Old Enzyme: Mammalian Cytochrome c Is Tyrosine Phosphorylated In Vivo." *Biochemistry.* 45(30): 9121-9128.
- T. Nuhse, K. Yu, A. Salomon (2006). "Isolation of Phosphopeptides by Immobilized Metal Affinity Chromatography." In *Cur. Prot. Mol. Biol.*, (Ausubel et al., eds.) 18.13.1-18.13.23. John Wiley & Sons, Hoboken, N.J.
- L. Cao, K. Yu, C. Banh, V. Nguyen, A. Ritz, B. Raphael, Y. Kawakami, T. Kawakami, A. Salomon (2007). "Quantitative Time-Resolved Phosphoproteomic Analysis of Mast Cell Signaling." *J. Immunology*, 179(9): 5864-5876.
- H. Yu, I. Lee, A. Salomon, K. Yu, M. Huttemann (2008). "Mammalian liver cytochrome c is tyrosine-48 phosphorylated in vivo, inhibiting mitochondrial respiration." *BBA-Bioenergetics*, 1777(7-8): 1066-71.
- A. Ritz, G. Shakhnarovich, A. Salomon, B. Raphael (2008). "Discovery of phosphorylation motif mixtures in phosphoproteomics data." *Bioinformatics*, 25(1):14-21.
- J. Pezza, S. Langseth, R. Yamamoto, S. Dorris, S. Ulin, A. Salomon, T. Serio (2009). "The NatA acetyltransferase couples Sup35 prion complexes to the [PSI⁺] phenotype." *Molec. Biol. Cell.*, 20(3):1068-80.
- I. Lee, A. Salomon, K. Yu, L. Samavati, P. Pecina, A. Pecinova, M. Hüttemann (2009). "Isolation of regulatory-competent, phosphorylated cytochrome c oxidase." *Methods Enzymol*, 457:193-210.
- K. Yu, A. Sabelli, L. DeKeukelaere, R. Park, S. Sindi, C. A. Gatsonis, A. Salomon (2009). "Integrated platform for manual and high-throughput statistical validation of tandem mass spectra." *Proteomics*, 9(11): 3115-25.

V. Nguyen, L. Cao, J. T. Lin, N. Hung, A. Ritz, K. Yu, R. Jianu, S. P. Ulin, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon (2009). "A new approach for quantitative phosphoproteomic dissection of signaling pathways applied to T cell receptor activation." *Molec. Cell. Proteomics*, 8:2418-2431.

K. Yu, A. Salomon (2009). "PeptideDepot: Flexible relational database for visual analysis of quantitative proteomic data and integration of existing protein information." *Proteomics*, 9(23):5350-8.

R. Jianu, K. Yu, L. Cao, V. Nguyen, A. Salomon, D. Laidlaw (2009). "Effective visual integration of quantitative proteomic data, pathways and protein interactions." *Transactions on Vis. and Comp. Graphics*, in press.

K. Yu, A. Salomon (2010). "HTAPP: High-throughput autonomous proteomic pipeline." *Proteomics*, in press.

**d. Non-refereed
Journal Articles**

E. Peters, A. Brock, D. Horn, Q. Phung, C. Ericson, A. Salomon, S. Ficarro, L. Brill (2002). "An automated LC-MALDI FT-ICR MS platform for high-throughput proteomics." *LCGC Europe*, 15(7): 423-8.

E. Peters, A. Brock, Q. Phung, J. Fitchett, D. Horn, C. Ericson, S. Ficarro, A. Salomon (2002). "Automated Liquid Chromatography MALDI FT-ICR MS Platform for Proteomics: Rationale for an Off-Line Approach and Optimized Implementation" *Am. Pharma. Rev.*, 5(3): 72-81.

A. Brock, D. Horn, C. Shaw, E. Peters, C. Ericson, Q. Phung, S. Ficarro, A. Salomon (2002). "FT-ICR MS Platform for Proteomics: Automated High Performance Mass Spectrometry and Data Analysis" *Am. Pharma. Rev.*, 5(4): 94-99.

L. Cao, K. Yu, A. Salomon (2006). "Phosphoproteomic Analysis of Lymphocyte Signalling." In *Advances in Experimental Medicine and Biology*, Vol. 584, CD Tsoukas, ed. Springer, New York, NY. Pgs. 277-88.

f. Poster Presentation 55th American Society of Mass Spectrometry (ASMS) National Conference on Mass Spectrometry and Allied Topics
Indianapolis, IN, June 3-7, 2007.

"A software suite to expedite the study of cell signaling pathway: automated acquisition, organization and annotation."

K. Yu, L. Cao, R. Jianu, R. Park, C. Gatsonis, D. Laidlaw, A. Salomon

55th American Society of Mass Spectrometry (ASMS) National Conference on Mass Spectrometry and Allied Topics
Indianapolis, IN, June 3-7, 2007.

"Time-resolved quantitative phosphoproteomic analysis of mast cell signaling."

L. Cao, K. Yu, C. Banh, V. Nguyen, A. Ritz, B. Raphael, A. Salomon

FASEB Summer Research Conference on Immunoreceptors

New Haven, CT, August 3-8, 2008

"A New Approach for Quantitative Phosphoproteomic Dissection of Signaling Pathways Applied to T Cell Receptor Activation"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

Keystone Asthma and Allergy (J1) Conference

Keystone, CO, January 20-25, 2009

"Quantitative Phosphoproteomic Dissection of Immunological Signaling Pathways Applied to Mast Cell and T Cell Signaling"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

Keystone Omics Meets Cell Biology (B2) Conference

Breckenridge, CO, January 25-30, 2009

"Quantitative Phosphoproteomic Dissection of Immunological Signaling Pathways Applied to Mast Cell and T Cell Signaling"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

ABRF 2009

Memphis, TN, Feb 7-10, 2009

"Quantitative Phosphoproteomic Dissection of Immunological Signaling Pathways Applied to Mast Cell and T Cell Signaling"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

57th American Society of Mass Spectrometry (ASMS) National Conference on Mass Spectrometry and Allied Topics

Philadelphia, PA, April 31-May 4, 2009.

"Quantitative Phosphoproteomic Dissection of Immunological Signaling Pathways Applied to Mast Cell and T Cell Signaling."

V. Nguyen, L. Cao, J. T. Lin, K. Yu, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

57th American Society of Mass Spectrometry (ASMS) National Conference on Mass Spectrometry and Allied Topics

Philadelphia, PA, April 31-May 4, 2009.

"High-Throughput Autonomous Proteomic Pipeline."

K. Yu, A. Salomon

96th Annual Meeting of The American Association of Immunologists

Immunology 2009

Seattle, WA, May 8-12, 2009

"Quantitative Phosphoproteomic Dissection of Immunological Signaling Pathways Applied to Mast Cell and T Cell Signaling"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

96th Annual Meeting of The American Association of Immunologists
Immunology 2009

Seattle, WA, May 8-12, 2009

"A New Approach For Quantitative Phosphoproteomic Dissection of Signaling Pathways Applied to T Cell Receptor Activation"

V. Nguyen, L. Cao, J. T. Lin, A. Ritz, N. Hung, R. Jianu, B. J. Raphael, D. H. Laidlaw, L. Brossay, A. Salomon

6. Research Grants

a. Current Grants

Beckman Young Investigator Award 09/01/06 to 08/31/10

"Phosphoproteomic analysis of cellular signaling pathways in allergy and asthma"

Percent Effort: 4%

Role: PI

R21 AI083908-01 (PI: A. Salomon) 07/17/09 to 06/30/11

NIH/NIAID

"Towards a Molecular Signature of Neutrophil Priming"

The goal of this proposal is the analysis of signaling pathways in human neutrophil priming utilizing novel phosphoproteomic techniques developed in our lab.

Role: PI 10% effort

b. Past Grants

NIH COBRE grant #2P20RR015578 07/01/05 to 02/28/10

"Center for Cancer Signaling Networks" Dr. John Sedivy PI

Program Project 3:"High-throughput Proteomic Analysis of Signaling Pathways"

2009-10 allocation of 155,322\$ direct costs to the Salomon lab

Role: CoPI, 20% effort

NIH R21 grant #1R21DA021765-01 09/31/06 to 09/30/08

"The Neuronal Nicotinic Acetylcholine Receptor Interactome via a Knock-In Mouse"

275,000\$ requested total direct costs to the Hawrot lab

Role: Co-PI 5% AY effort

c. In Review

R01 AI083636-01A1 (PI: A. Salomon) 04/01/10 to 03/31/15

"Phosphoproteomic Analysis of T Cell Activation Pathways"

The goal of this grant is the analysis of signaling pathways in human T cells utilizing a combination of novel phosphoproteomic techniques combined with traditional approaches.

Role: PI 10% AY effort

PI: Salomon; Laurent Brossay and Ben Raphael are listed as key personnel with roles of "Faculty"

7. Service

a. To the University MCB department graduate admissions committee, March, 2005.

MCB department curriculum committee, October, 2005 - March 2006.

MCB Department executive committee, September 2006-2007, September 2009-2010.

MCB Department graduate admissions committee, March, 2007.

MCB Department/Program Curriculum Committee 2008-9

Brown Academic Technology Steering Committee 2009-10

MCB Department graduate admissions committee, January, 2010.

Establishment of the mass spectrometry component of the NSF/EPSCoR Proteomics Facility

Acquisition of a LTQ-FTICR mass spectrometer to be used primarily for academic collaboration within Brown University

Graduate Student PhD thesis committees

Present:

-Gokhan Demirkan

-Bill Holmes

-Kyle Skottke

-Vinh Nguyen

-Yiyuan Ding

-Radu Jianu

-Anna Ritz

-Angel Byrd

-Dorothy Koveal

-Chao Gong

-Teresa Ramirez

-Yiying Zhu

Past:

-Wananit Wimuttisuk

-Alma Zecevic
-Megan Gasparovic
-Kebing Yu
-Lulu Cao
-Yiyuan Ding

b. External

NIH Study Section ZRG1 BST-D(55) National Technology Centers for Networks and Pathways, June 2005.

NIH Study Section ZRG1 BST-D(51) Continued Development and Maintenance of Software, September 2006.

Ad hoc reviewer for the Journal of the American Chemical Society, Angewandte Chemie, Aging Cell, Analytical Chemistry, Biochemistry, Bioessays, Diabetes, Journal of the American Chemical Society, Journal of Clinical Investigation, Journal of Proteome Research, OMICS, Proceedings of the National Academy of Sciences, Proteomics.

Session Chair for Technological Innovations in Immunology session of 96th Annual Meeting of The American Association of Immunologists
Immunology 2009
Seattle, WA, May 12, 2009

8. Fellowships

NIH Biotechnology Training Grant (8/95-8/97)

9. Teaching

a. Classes

BI121 Lecture on "Mass Spectrometry: Journey Through the Proteome" on 10/6/2008 in this course entitled "Synthetic Biological Systems" led by Gary Wessel

BI127/BI227 Lecture on "Intro to mass spectrometry" 10/19/2004

BI0187 Lecture on "Mass Spectrometry: Journey through the proteome" in the course entitled Techniques in Pathobiology, 2/5/2009

BI213 Lecture on "Mass Spectrometry: Journey through the proteome" delivered in three different semesters 11/9/2004, 11/8/2005, 11/7/2006, 11/6/2007, 11/11/2008

BI154/BI254 Lecture on "Mass spectrometry: Overview to proteomics" delivered in three different semesters, on 4/12/2005, 3/11/2006, and 4/10/2007, 4/8/2008.

BI28 "Introductory Biochemistry", Spring 2006.

BI28 "Introductory Biochemistry", Spring 2007.

BI28 “Introductory Biochemistry”, Spring 2008.

BI28 “Introductory Biochemistry”, Spring 2009.

BI28 “Introductory Biochemistry”, Spring 2010.

BI232 “Topics in Developmental Biology”, Spring 2006.

BI221 "Current Topics in Biochemistry and Molecular Biology", Fall 2006.

BI221 "Current Topics in Biochemistry and Molecular Biology", Fall 2007.

BI221 "Current Topics in Biochemistry and Molecular Biology", Fall 2008.

BC0261 Lecture on “Proteomics: Journey through the proteome” 3/22/2005

BC0261 Lecture on “Statistical and Bioinformatic Topics in Proteomics”
3/23/2006

CH156 Biological Mass Spectrometry. Lecture on “Introduction to MS
quantitation”, 4/2/2007 and 4/1/8

CS296 Lecture on “Statistical and Bioinformatic Topics in Proteomics”
4/24/2007

Phys2620F Topics in Biological Physics. Lecture on “Overview to
Proteomics and Mass Spectrometry”
3/20/8

d. Academic Advising Undergraduate Biochemistry advising 2006-present
MCB Graduate Student Advising 2004-present