9/29/22

CURRICULUM VITAE
ALEXANDER S. BRODSKY, Ph.D.

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EDUCATION

1988-1992	Undergraduate	University of Pennsylvania, Philadelphia, PA.
1988-1993	MS, Graduate Studies	University of Pennsylvania, Philadelphia, PA.
1992-1998	Doctoral/PhD	Massachusetts Institute of Technology, Cambridge, MA.

POSTGRADUATE TRAINING

1998-2005	Post-Doctoral- Fellow	The Dana-Farber Cancer Institute/Harvard Medical School, Boston, MA

POSTGRADUATE HONORS AND AWARDS

1992	Magna Cum Laude
1992	Phi Beta Kappa
1989-1992	Ben Franklin Scholars
1989-1992	University Scholars
1999 - 2002	Ruth L. Kirschstein National Research Service Award (NRSA), NIH Postdoctoral Fellowship, National Research Service Award.
2000	RPI/RNA Award for Young Scientists for most significant paper in RNA.
2001 - 2003	Research Award, Claudia Adams Barr Program for Innovative Basic Science.
2002	Best new and innovative project-Cancer Biology Retreat, DFCI.
2003-2008	NHGRI K22 Genome Scholar Career Award, NIH.
2000	RPI/RNA Award for Young Scientists for most significant

	paper in RNA
2002	Best new and innovative project, DFCI Cancer Biology retreat

ACADEMIC APPOINTMENTS

2005 - 2014	Assistant Professor of Medical Science, Department of Molecular Biology, Cell Biology and Biochemistry, Brown University, Providence, RI
2005 - 2014	Assistant Professor of Medical Science, Center for Genomics and Proteomics, Brown University, Providence, RI
2006 - 2014	Assistant Professor of Medical Science, Center for Computational Molecular Biology, Brown University, Providence, RI
2014 - Present	Assistant Professor of Pathology and Laboratory (Research), Pathology, Brown University, Providence, RI

HOSPITAL APPOINTMENTS

2014 - 2019	Research Associate, Department of Pathology, Molecular Pathology, Rhode Island Hospital, Providence, RI
2019-Present	Research Scientist, Department of Pathology, Molecular Pathology, Rhode Island Hospital, Providence, RI

OTHER APPOINTMENTS

2021-present	Member Caris Life Science Precision Oncology Alliance
2022-present	AACR Pathology in Cancer Research Task Force
2022-present	Associate Editor for Frontiers in Oncology and Frontiers in Cell and Developmental Biology, Frontiers in Immunology, Frontiers in Molecular Bioscience, Frontiers in Genetics,

Grant Review

2006	Ad hoc external reviewer, NSF
2007	Ad-hoc external reviewer, NSF
2008	Ad-hoc external reviewer, NSF
2015	North West Cancer Research, UK
2015–2016	Fondation contre le Cancer, Belgium

2010, 2017–2019 Ad-hoc external reviewer, United States-Israel Binational Science Foundation

Journals and Textbooks Reviewer

Nature Methods
PNAS
International Journal of Cancer
PLoS One
Cancer Research
BMC Cancer
Journal of Translational Medicine
Molecular Cancer
Journal of Experimental and Clinical Cancer Research
Oncotarget
Clinical and Experimental Metastasis
Molecular Carcinogenesis
Cancer Investigation
Clinical Cancer Research
BMC Medical Genomics
Gynecologic Oncology
Theranostics
International Journal of Molecular Sciences
Clinical Cancer Research
WIREs RNA
Aging Cell
Scientific Reports
Frontiers in Cell and Developmental Biology
Bioengineered
eLife
BMC Medicine

HOSPITAL COMMITTEES

2022 Pathology Research Committee

UNIVERSITY COMMITTEES

Service to Brown University:

2006–2007 MCB graduate program admission committee
2007 MCB executive committee
2008–2009 Systems Biology faculty search committee
2008–2009 MCB graduate program admission committee
2009 Vice-chair MCB department retreat

2010	Chair MCB department retreat
2010–2011	MCB executive committee

MEMBERSHIP IN SOCIETIES

1993–2014	American Association for the Advancement of Science (AAAS)
2007–2014	RNA Society
2018–2022	American Gastroenterological Association (AGA)
2015–present	American Association for Cancer Research (AACR)

PUBLICATIONS

ORIGINAL PUBLICATIONS IN PEER REVIEWED JOURNAL

* Corresponding author

1. **Brodsky A.S.**, Williamson, J. R. (1997) "The Solution Structure of the HIV-2 TAR-Argininamide Complex" J. Mol. Biol. 267 634-649. (PMID: 9126842).

2. **Brodsky A.S.**, Erlacher, H.A., and Williamson, J.R. (1998) "NMR Evidence for a Base Triple in the HIV-2 TAR-C-G.C+ Mutant Argininamide Complex", Nuc. Acids Res., 26 1991-1995. (PMID: 9518494, PMCID: PMC147484).

3. **Brodsky A.S.,** Silver, P. A. "Nuclear Transport HEATs Up", Nat Cell Biol, 1 E66-E67. (1999). PMID: 10559913.

4. Hennig, M., Williamson, J. R., **Brodsky A.S.,** Battiste, J. L. "Recent Advances in RNA Structure Determination by NMR" Curr Prog in Nuc Acid Chem, 7.7.1-7.7.29 (2000). PMID: 18428875.

5. **Brodsky A.S.**, Silver, P. A. (2000) "Pre-mRNA Processing Factors are required for Nuclear Export" RNA, 6 1737 (Awarded paper of the year in RNA). (PMID: 11142374, PMCID: PMC1370044).

6. Dayie, K., **Brodsky A.S.**, Williamson, J. R. (2002) "Base Flexibility in HIV-2 TAR RNA Mapped by Solution ^{15}N, ^{13}C NMR Relaxation" J. Mol. Biol., 317 263-278. (PMID: 11902842).

7. **Brodsky AS*,** Silver, P. A. (2002) "A microbead-based system for identifying and characterizing RNA-protein interactions by flow cytometry" Mol Cell Proteomics, 1 922-929. (PMID: 12543929).

8. **Brodsky A.S.,** Silver, P. A. "Identifying Proteins that Affect mRNA Localization

in Living Cells" Methods 26 151-5 (2002). PMID: 12054891.

9. **Brodsky A.S.***, Johnston, A.P., Trau, M., and Silver P.A. (2003) "Analysis of RNA-protein interactions by flow cytometry" Curr Opin Mol Ther. 5 235-40. (PMID: 12870432).

10. **Brodsky A.S.**, Silver PA. "Identifying Proteins that Affect mRNA Localization in Living Cells" (2002) Methods 26(2) 151-155. (PMID: 12054891).

11. Carroll, J. S., Liu, X. S., **Brodsky A.S.**, Li, W., Szary, A. J., Shao, W., Meyer, C. A., Hestermann, E. V., Geistlinger, T. R., Fox, E. A., Silver, P. A., Brown, M. (2005) "Chromosome-wide Mapping of Estrogen Receptor Binding Reveals Long-range Combinatorial Regulation" Cell 122 33-43. (PMID: 16009131).

12. **Brodsky A.S.***, Meyer, C. A., Hall, G., Swinburne, I., Keenan, B. K., Liu, X., Fox, E. A., and Silver, P. A. (2005) "Genomic Mapping of RNA Polymerase II Reveals Sites of Co-Transcriptional Regulation in Human Cells" Genome Biology 6(8):R64, Epub Jul 15. (PMID: 16086846, PMCID: PMC1273631) (designated highly accessed).

13. Swinburne, I, Meyer, C. A., Liu, X. S., Silver, P.A.* and **Brodsky A.S.*** (2006) "Genomic Localization of RNA-binding Proteins Reveals Links Between pre-mRNA Processing and Transcription" Genome Research, 16(7), Epub Jun 12, 2006. (PMID: 16769980, PMCID: PMC1484458).

14. Carroll, J. S., Meyer, C. A., Song, J., Li, Wei, Geistlinger, T. R., Eeckhoute,J.,**Brodsky A.S.**, Keeton, E.K., Fertuck, K. C., Hall, G. F., Wang, Q., Bekiranov, S., Sementchenko, V., Fox, E. A., Silver, P. A., Gingeras, T. R., Liu, X. S., Brown, M. (2006) "Genome-wide Analysis of Estrogen Receptor Binding Sites" Nature Genetics 38 1289-97 Epub 2006 Oct. (PMID: 17013392).

15. Gama-Carvalho, M, Barbosa-Morais, N. L., **Brodsky A.S.**, Silver, P. and Carmo-Fonseca, M. (2006) "Genome wide identification of functionally distinct subsets of cellular mRNAs associated with two nucleocytoplasmic-shuttling mammalian splicing factors" Genome Biology Nov 30; 7(11):R113 [Epub ahead of print] (designated highly accessed). (PMID: 17137510, PMCID: PMC1794580).

16. McKee, A. M., Neretti, N., Carvalho, L. E., Meyer, C.A., Fox, E. A., **Brodsky A.S.***, and Silver, P. A. (2007) "Exon expression profiling reveals stimulus-mediated exon use in neural cells", Genome Biology Aug 2;8(8):R159 [Epub ahead of print] (designated highly accessed). (PMID: 17683528, PMCID: PMC2374990).

17. Neretti, N., Wang, P. Y, **Brodsky A.S.**, White, K. P., Rogina, B., and Helfand, S. L. (2009) "Long-live Indy induces reduced mitochondrial ROS production and oxidative damage", Proc Natl Acad Sci USA 106 2277 (PMID: 19164521, PMCID: PMC2629441).

18. Bronson, M. W., Hillenmeyer, S., Park, P. W., and **Brodsky A.S.*** (2010) "Estrogen Coordinates Translation and Transcription Revealing a Role for NRSF in Human Breast Cancer Cells" Mol Endo, Jun; 24(6):1120-35. Epub 2010 Apr 14 (PMID: 20392875, PMCID: PMC2875799).

19. Wood, J., Hillenmeyer, S., Lawrence, C., Chang, C., Hosier, S., Lightfoot, W., Mukerjee, E., Jiang, N., Schorl, C., **Brodsky A.S.,** Neretti, N., and Helfand, S. L. (2010) "Chromatin remodeling in the aging genome of Drosophila", Aging Cell, 9(6) 971-8, Epub 2010 Oct 21 (PMID: 20961390, PMCID: PMC2980570).

20. Stuckey, A., Fischer, A., Miller, D.H., Hillenmeyer, S., Kim, K.K., Singh, R.K., Raphael, B. J., Brard, L., and **Brodsky A.S.*** (2011) "Integrated Genomics of Ovarian Xenograft Tumor Progression and Chemotherapy Response". BMC Cancer, Jul 22; 11(1): 308 [Epub]. (PMID 21781307, PMCID: PMC3155912).

21. Miller D.H., Fischer A., Chu K.F., Burr R., Hillenmeyer S., Brard L., and **Brodsky A.S.*** (2011) "T0901317 Inhibits Cisplatin Induced Apoptosis in Ovarian Cancer Cells" Int. J. Gynecol. Cancer [Epub Sep 5, 2011] (PMID 21921802, PMCID: PMC3203312).

22. Moore, R.G., Lange, T.S., Robinson, K., Kim K.K., Uzun, A, Horan, T.C., Kawar, N., Yano, N., Chu, S.R., Mao, Q., Brard, L., DePaepe, M.E., Padbury, J.F., Arnold, L.A., **Brodsky A.S.,** Shen, T.L., Singh, R.K. (2012) "Efficacy of a non-hypercalcemic vitamin-D2 derived anti-cancer agent (MT19c) and inhibition of fatty acid synthesis in an ovarian cancer xenograft model" PLoS One; 7(4):e34443. Epub 2012 Apr 3. (PMID: 22509304, PMCID: PMC3317945).

23. Lu, S., Vincent, M. A., Mangray, S., Cleveland, K., Shillingford, N., Schorl, C., **Brodsky A.S.**, Resnick, M. B. (2012) "MicroRNA Profiling in Mucosal Biopsies of Eosinophilic Esophagitis Patients Pre and Post Treatment with Steroids and Relationship with mRNA Targets" PLoS One, 7(4) e40676 [Epub July 16, 2012] (PMID: 22815788, PMCID: PMC3398046).

24**.** Vang, S., Wu, H.-T., Fischer, A., Miller, D.H., MacLaughlan, S., Douglass, E., Steinhoff, M., Collins, C., Smith, P.J. Brard, L., **Brodsky A.S.*** (2013) "Identification of Ovarian Cancer Metastatic miRNAs" PLoS One, 8(3) e58226 [Epub March 12, 2013] (PMID: 23554878, PMCID: PMC3595263).

25. **Brodsky A.S.***, Fischer, A., Miller, D.H., Vang, S., MacLaughlan, S., Wu, H.-T., Yu, J., Steinhoff, M., Collins, C., Smither, J.S., and Brard, L. (2014) "Expression Profiling of

Primary and Metastatic Ovarian Tumors Reveals Differences Indicative of Aggressive Disease" PLoS One, 9(4) e94476 [Epub April 14, 2014] (PMID: 24732363, PMC3986100).

26. Ellermeier, C., Vang, S., Cleveland, K., Durand, W., Resnick, M. B.* and **Brodsky, A. S.*** (2014) "Prognostic MicroRNA Expression Signature from Examination of Colorectal Primary and Metastatic Tumors", Anticancer Research, 34(8) 3957-67. (PMID: 25075017).

27. Casella C, Miller DH, Lynch K, **Brodsky A.S.***. Oxysterols synergize with statins by inhibiting SREBP-2 in ovarian cancer cells. Gynecol Oncol. 2014 Nov; 135(2):333-41. doi: 10.1016/j.ygyno.2014.08.015. Epub 2014 Aug 16. (PMID: 25134999).

28. Brown CW, **Brodsky A.S.**, Freiman RN. Notch3 Overexpression Promotes Anoikis Resistance in Epithelial Ovarian Cancer via Upregulation of COL4A2. Mol Cancer Res. 2015 Jan; 13(1):78-85. doi: 10.1158/1541-7786.MCR-14-0334. Epub 2014 Aug 28. (PMID: 25169943).

29. Yakirevich E, Ali SM, Mega A, McMahon C, **Brodsky A.S.**, Ross JS, Allen J, Elvin JA, Safran H, Resnick MB. A Novel SDHA-deficient Renal Cell Carcinoma Revealed by Comprehensive Genomic Profiling. Am. J. Surg. Pathol. 2015 Jun;39(6):858-63 (PMID: 25724004).

30**.** Friedman K, **Brodsky A.S.,** Lu S, Wood S, Gill AJ, Lombardo K, Yang D, Resnick MB. Medullary carcinoma of the colon: a distinct morphology reveals a distinctive immunoregulatory microenvironment. Mod Pathol. 2016 May;29(5):528-41. (PMID: 26965581).

31**.** **Brodsky A.S.***, Xiong J, Yang D, Schorl C, Fenton MA, Graves TA, Sikov WM, Resnick MB, Wang Y. Identification of stromal ColXalpha1 and tumor-infiltrating lymphocytes as putative predictive markers of neoadjuvant therapy in estrogen receptor-positive/HER2-positive breast cancer. BMC Cancer. 2016 Apr 18;16:274. (PMID: 27090210; PMCID: PMC4835834).

32. Chowanadisai W, Messerli SM, Miller DH, Medina JE, Hamilton JW, Messerli MA, **Brodsky A.S.***. Cisplatin Resistant Spheroids Model Clinically Relevant Survival Mechanisms in Ovarian Tumors. PloS one. 2016; 11(3):e0151089. (PMID: 26986722).

33. Grive KJ, Gustafson EA, Seymour KA, Baddoo M, Schorl C, Golnoski K, Rajkovic A, **Brodsky A.S.**, Freiman RN. TAF4b Regulates Oocyte-Specific Genes Essential for Meiosis. PLoS Genet. 2016; 12(6):e1006128. PMID: 27341508.

34. Wang Y, Resnick MB, Lu S, Hui Y, **Brodsky A.S.**, Yang D, Yakirevich E, Wang L. Collagen Type III alpha1 as a useful diagnostic immunohistochemical marker for fibroepithelial lesions of the breast. Human Pathol. 2016 Nov;57:176-181. (PMID: 27498063).

35. Wood SM, Gill AJ, **Brodsky A.S.**, Lu S, Friedman K, Karashchuk G, Lombardo K, Yang D, Resnick MB. Fatty acid-binding protein 1 is preferentially lost in microsatellite instable colorectal carcinomas and is immune modulated via the interferon gamma pathway. Mod Pathol. 2017 Jan;30(1):123-133. PMID: 27687006.

36. Wang Y, **Brodsky A.S.**, Xiong J, Lopresti ML, Yang D, Resnick MB. Stromal Clusterin Expression Predicts Therapeutic Response to Neoadjuvant Chemotherapy in Triple Negative Breast Cancer. Clin Breast Cancer. 2018 Jun;18(3):e373-e379. PMID: 28890185.

37. Wang Y, Lu S, Xiong J, Singh K, Hui Y, Zhao C, **Brodsky AS**, Yang D, Jolly G, Ouseph M, Schorl C, DeLellis RA, Resnick MB. ColXα1 is a stromal component that colocalizes with elastin in the breast tumor extracellular matrix. J Pathol Clin Res. 2019 Jan;5(1):40-52. doi: 10.1002/cjp2.115. Epub 2018 Nov 1. PMID: 30207088; PMCID: PMC6317058.

38. Zhao CL, Singh K, **Brodsky AS**, Lu S, Graves TA, Fenton MA, Yang D, Sturtevant A, Resnick MB, Wang Y. Stromal ColXα1 expression correlates with tumor-infiltrating lymphocytes and predicts adjuvant therapy outcome in ER-positive/HER2-positive breast cancer. BMC Cancer. 2019 Nov 1;19(1):1036. doi: 10.1186/s12885-019-6134-y. PMID: 31675929; PMCID: PMC6825361.

39. Klinger JR, Pereira M, Del Tatto M, **Brodsky AS**, Wu KQ, Dooner MS, Borgovan T, Wen S, Goldberg LR, Aliotta JM, Ventetuolo CE, Quesenberry PJ, Liang OD. Mesenchymal Stem Cell Extracellular Vesicles Reverse Sugen/Hypoxia Pulmonary Hypertension in Rats. Am J Respir Cell Mol Biol. 2019 Nov 13; doi: 10.1165/rcmb.2019-0154OC. [Epub ahead of print] PMID: 31721618.

40. Baird GL, Walsh T, Aliotta J, Allahua M, Andrew R, Bourjeily G, **Brodsky AS**, Denver N, Dooner M, Harrington EO, Klinger JR, MacLean MR, Mullin CJ, Pereira M, Poppas A, Whittenhall M, Ventetuolo CE. Insights from the Menstrual Cycle in Pulmonary Arterial Hypertension. Ann Am Thorac Soc. 2021;18(2):218-28. Epub 2020/09/05. doi: 10.1513/AnnalsATS.202006-671OC. PubMed PMID: 32885987; PMCID: PMC7869782.

41. Aboulgheit A, Potz BA, Scrimgeour LA, Karbasiafshar C, Shi G, Zhang Z, Machan JT, Schorl C, **Brodsky AS**, Braga K, Pfeiffer M, Gao M, Cummings O, Sodha NR, Abid MR, Sellke FW. Effects of High Fat Versus Normal Diet on Extracellular Vesicle-Induced Angiogenesis in a Swine Model of Chronic Myocardial Ischemia. J Am Heart Assoc.

2021;10(4):e017437. Epub 2021/02/10. doi: 10.1161/JAHA.120.017437. PubMed PMID: 33559477.

42. Liu W, **Brodsky AS**, Feng M, Liu Y, Ding J, Jayasuriya CT, Chen Q. Senescent Tissue-Resident Mesenchymal Stromal Cells Are an Internal Source of Inflammation in Human Osteoarthritic Cartilage. Front Cell Dev Biol. 2021;9:725071. Epub 2021/09/24. doi: 10.3389/fcell.2021.725071. PubMed PMID: 34552931; PMCID: PMC8450518.

43. Audesse AJ, Karashchuk G, Gardell ZA, Lakis NS, Maybury-Lewis SY, Brown AK, Leeman DS, Teo YV, Neretti N, Anthony DC, **Brodsky AS**, Webb AE. FOXO3 regulates a common genomic program in aging and glioblastoma stem cells. Aging and Cancer. 2021;2(4):137-59.

44. **Brodsky, AS***, Khurana, J., Guo, K., Wu, E. Y., Yang, D., Wong, I. Y., Uzun, E.D., Resnick, M.B. Somatic Mutations in Collagens are Associated with a Distinct Tumor Environment and Overall Survival in Gastric Cancer. BMC Cancer. 2022; 4; 22(1):139 PMID: 35120467.

45. Lakis NS#, **Brodsky AS**#, Karashchuk G, Audesse AJ, Yang D, Sturtevant A, Lombardo K, Wong IY, Webb AE, Anthony DC. Stem cell phenotype predicts therapeutic response in glioblastomas with MGMT promoter methylation. Acta Neuropathol Commun. 2022 Nov 4;10(1):159. doi: 10.1186/s40478-022-01459-9. PMID: 36333778.

co-first author

NON-MEDLINE PUBLICATIONS

* Corresponding author

1. Tan, R., **Brodsky A.S.**, Williamson, J.R., and Frankel, A.D. "RNA Recognition by HIV-1 Tat and Rev" Seminars in Virology, 8 186-193 (1997).

ABSTRACTS

1. **Brodsky A.S.** and Williamson, J.R. (1996) "The Solution Structure of the HIV-2 TAR-arginine Complex" International Conference on Magnetic Resonance Keystone, CO.

2. **Brodsky A.S.,** Silver, Pamela June 1999 "The Role of Pab1p in mRNA Export" RNA 1999, 4th Annual Meeting of the RNA Society, Edinburgh, Scotland.

3. **Brodsky A.S.,** Silver, Pamela A. (2004) "Mapping RNA-protein Interactions using ChIP-chip" RNA Processing Gordon Conference Andover, New Hampshire.

4. Bronson, M. and **Brodsky A.S.** (2009) "Estrogen Coordination of Protein Synthesis" Steroid Hormones in Cancer and Development Gordon Conference, Holderness, New Hampshire.

5. Bronson, M. and **Brodsky A.S.** (2009) "Estrogen Coordination of Protein Synthesis" The 14th Annual Meeting of the RNA Society, Madison, WI.

6. Fischer, A., Kristjansdottir K, Miller, D. H., MacLaughlan S., Lapuk, A., Collins, C., Disilvestro, P., Steinhoff, M., Brard, L., **Brodsky A.S**, Integrated Genomics Reveals Candidate Metastatic Drivers of Ovarian Cancer MRS/AACR Joint Conference on Metastasis and the Tumor Microenvironment, Sept 12-15, 2010.

7. Stuckey AR, Fischer A, Miller DH, Hillenmeyer S, Kim KK, Ritz A, Raphael BJ, Brard L, **Brodsky A.S**. Developing an Integrated Genomic Approach to Explore the Antitumor Activity of Vitamin D and Derivatives to Treat Ovarian Cancer. 30th Meeting of the New England Association of Gynecologic Oncologists, Booth Bay, ME, Jun 11-13, 2010. Oral Presentation by AR Stuckey.

8. MacLaughlan S, Fischer A, Kristjansdottir K, Ritz A, Raphael B, Steinhoff M, **Brodsky A.S.,** Brard L. Genetics of Primary and Metastatic Ovarian Cancer. 101st Annual AACR Meeting, Washington, DC, April 17- 21, 2010.

9. Stuckey, AR, Kim, KK, Singh, RK, Fischer, A, Miller, D, Hillenmeyer, S, Ritz, A, Raphael, B, **Brodsky A.S.**, Brard, L. Developing an Integrated Genomic Approach to Explore the Antitumor Activity of Vitamin D and Derivatives to Treat Ovarian Cancer. 41st Annual Meeting of the Society of Gynecologic Oncologists, San Francisco, CA, March 14-17, 2010. Selected Oral Presentation by AR Stuckey.

10. **Brodsky A.S.** Hsin-Ta Wu, Souriya Vang, Benjamin J. Raphael, and Laurent Brard, "From Tumors to the Laboratory and Back Again: Genomic Analysis of Ovarian Cancer Metastasis Reveals a Predictive Gene Signature and Therapeutic Targets" Translation of the Cancer Genome, Oct 15-18, 2011.

11. **Brodsky A.S.,** Daniel H. Miller, Elijah Douglass, Souryia Vang, Andrew Fischer, Shannon MacLaughlan, Katrin Kristjansdottir, Margaret Steinhoff, Laurent Brard **"**Integrated Genomics Reveals Candidate Metastatic Drivers of Ovarian Cancer**"** Cold Spring Harbor, N.Y. Apr 26-30, 2011.

12. **Brodsky A.S**., Hsin-Ta Wu, Souriya Vang, Benjamin J. Raphael, and Laurent Brard "miRNA Regulators of Ovarian Cancer Metastasis that Predict Patient Outcomes" Noncoding RNAs and Cancer, Jan 8-11, 2012.

13. Ellermeier, C., Cleveland, K., **Brodsky A.S.,** Resnick, M. "Differential MicroRNA Expression in Colorectal Cancer Patients Presenting with Synchronous Hepatic Metastases" United States & Canadian Academy of Pathology's 102nd Annual Meeting, Baltimore, MD, March 2-8, 2013.

14. Casella, C. and **Brodsky A.S.** "New Approaches to Target Mevalonate Biosynthesis" AACR Molecular Targets and Cancer Therapeutics, Boston, MA, Oct 19-23, 2013.

15. Casella, C. and **Brodsky A.S.** "New Approaches to Target Mevalonate Biosynthesis" Advances in Ovarian Cancer Research: From Concept to Clinic, Miami, Fl, Sept. 18-23, 2013.

16. Karashchuk, G. and **Brodsky A. S.** "Cholesterol Pathway Determines Ovarian Drug Resistance Through Transcription Factor SREBP2", AACR 2017 Ovarian Cancer Meeting, Pittsburgh, PA.

17. Karashchuk, G., Karashchuk, N., Caksa, S., Smith, T., and **Brodsky A.S**. "Cholesterol Pathway Determines Ovarian Drug Resistance Through Transcription Factor SREBP2" AACR 2017 Annual Meeting, Washington, DC, April 1-5, 2017.

18. **Brodsky. A. S.**, Khurana, J., Gamsiz, D., Wong, I., and Resnick, M. "Somatic Mutations in Collagens Impact Patient Outcomes in Cancer", AACR 2019 Annual Meeting, Atlanta, GA.

19. Guo, K.S., Agbortoko, V., Khoo, A., Wong, I.Y., Wu, E.Y., and **Brodsky, A.S.*** "Classification of Tumors by Collagen Expression Reveals Genotype-Tumor ECM Interactions", AACR 2021 The Evolving Tumor Microenvironment in Cancer Progression, virtual meeting.

INVITED PRESENTATIONS

Local

03/1996	"The Solution Structure of the HIV-2 TAR-Arginine Complex" Macromolecular Structure Function Series, MIT, Cambridge, MA.
12/2011	"Ovarian Cancer Metastasis", 6th Annual BioNES Conference Bristol, RI.
09/2014	"Ovarian Cancer Metastasis", WIHRI Department of Pathology Petit Rounds. Providence, RI.
11/2014	"Targeting the Mevalonate Pathway in Ovarian Cancer", WIHRI Department of Pathology Petit Rounds. Providence, RI.

9/2019	"The Birth of Collagenomics: Somatic Mutations in Collagen Impact Tumors", Gastrointestinal Translational Research Disease Group, Providence, RI.
10/2020	"Classifying Tumors by Collagens", Gastrointestinal Translational Research Disease Group, Providence, RI.
7/2021	"Novel Insights into the Tumor Extracellular Matrix from Spatial Profiling", Nanostring Presentation, Providence, RI.

National

6/1998	"The Solution Structure of the HIV-2 TAR-Arginine Complex" HIV Structural Biology Meeting, NIH, Bethesda, MD.
6/2000	"Analysis of mRNA Nuclear Export in Living Cells Reveals Distinct Pathways" RNA 2000, (RNA society) Madison, WI.
02/2003	"High Throughput Measurement of RNA-Protein Interactions" University of Pennsylvania Biochemistry seminar series, Philadelphia, PA.
05/2004	"Coordination between RNA Processing and Transcription" Bowdoin College Biology Seminar Series, Brunswick, ME.
7/2006	"Using ChIP-chip to Explore Co-Transcriptional pre-mRNA Processing". ENCODE meeting, Bethesda, MD.
08/2007	"Hormones, Cancer, and RNA Genomics". Wellesley College, Wellesley, MA.
9/2007	"Hormone Regulated Expression and Splicing Using Exon and Junction Arrays". RECOMB Computational Cancer Biology meeting, San Diego, CA.
05/2010	"Post-Transcriptional Regulation by Estrogen", University of California San Francisco Medical School. San Francisco, CA.
03/2011	"Translating Translation: Regulation of Protein Synthesis by Hormones and Metastasis", Roswell Park Cancer Institute, Buffalo, N.Y.
02/2011	"Translating Translation: Regulation of Protein Synthesis by Hormones and Metastasis", Dartmouth College, Hanover, NH.

06/2011	"Translating Translation: Regulation of Protein Synthesis by Hormones and Metastasis", SUNY Albany, Albany, N.Y.
7/2019	"Somatic Mutations in Collagens Impact Patient Outcomes in Cancer." Collagens Gordon Conference. New London, NH.

International

6/2001	"Regulation of mRNA Export by Protein Methylation of Hrp1" RNA Society, Banff, Canada.
05/2010	"Genomic Remodeling in Ovarian Cancer Metastasis", Vancouver General Hospital, Vancouver, Canada.

PATENTS

Brodsky A.S., Resnick, M.R., and Wang, Y. "Collagens as Markers of Neoadjuvant Therapy in Breast Cancer", Issued July 2017, Application No. 15/187,279.

Brodsky, A. S. and Guo, Kevin. "Classifying Tumors Using Both Genetics and Collagen Expression to Improve Drug Targeting", File July 2022, U.S. Patent Application No. 17/814,400.

GRANTS

1. Title: Genome Wide Protein-RNA Interactions
   Grant Number: K22HG002488
   Source of Funding: National Human Genome Research Institute Home / Genome Scholar Award
   Amounts: $1,050,500
   Term of Funding: 5 years
   Dates of Grant: 9/2003–8/2008
   Role: Principal Investigator

2. Title: Exploring Nucleocytoplasmic Shuttling of Metabolic Enzymes
   Source of Funding: Pilot/Feasibility Study Grants 2006, Center for Molecular Toxicology RI-INBRE Program
   Amounts: $15,000
   Term of Funding: 2 years
   Dates of Grant: 5/2006-4/2007
   Role: Principal Investigator

3. Title: Developing an integrated genomic approach to explore the antitumor activity of vitamin D and derivatives to treat ovarian cancer

Source of Funding: OVPR Research Seed Funding Award, Brown University
Amounts: $90,000
Term of Funding: 1 year
Dates of Grant: 3/2007–2/2008
Role: Principal Investigator

4. Title: Hormonal involvement in breast cancer amplification
   Source of Funding: DOD CDMRP Synergy IDEA Award
   Amounts: $500,000
   Term of Funding: 2 years
   Dates of Grant: 9/1/2007–8/31/2009
   Role: Co- Investigator

5. Title: An Integrated Genomic Approach to Probe Aging Gene Expression Programs
   Source of Funding: Ellison Medical Foundation
   Amounts: $200,000
   Term of Funding: 4 years
   Dates of Grant: 8/1/2007–7/31/2011
   Role: Principal Investigator

6. Title: Exploring Cisplatin Sensitivity of Primary and Metastatic Ovarian Tumors
   Source of Funding: Women's Center of Excellence Seed Award
   Amounts: $20,000
   Term of Funding: 1 year
   Dates of Grant: 11/1/2008–10/31/2009
   Role: Principal Investigator

7. Title: Role of estrogen in breast cancer gene amplification
   Source of Funding: Susan G. Komen Breast Cancer Foundation
   Amounts: $480,000
   Term of Funding: 3 years
   Dates of Grant: 10/1/2008–9/30/2011
   Role: Subcontract Principal Investigator

8. Title: Mechanisms of cisplatin resistance in ovarian tumors
   Source of Funding: NIH/NCRR ARRA Supplement
   Amounts: $244,000
   Term of Funding: 2 years
   Dates of Grant: 11/1/2009–10/31/2011
   Role: Subcontract Principal Investigator

9. Title: Origins of DNA Replication and Amplification in the Breast Cancer Genome
   Source of Funding: DOD CDMRP Idea Expansion Award

Amounts: $500,000
Term of Funding: 2 years
Dates of Grant: 9/1/2010–8/31/2012
Role: Co-Investigator

10. Title: Mitochondrial Genomics of Cancer
    Source of Funding: Brown University COBRE Center for Cancer Signaling Networks Pilot Funds
    Amounts: $39,375
    Term of Funding: 1.5 years
    Dates of Grant: 8/1/2011–2/28/2012
    Role: Co-Investigator

11. Title: Dynamic Translational Profiling
    Source of Funding: Brown University COBRE Center for Cancer Signaling Networks Pilot Funds
    Amounts: $5,000
    Term of Funding: 1 years
    Dates of Grant: 4/1/2012–3/31/2013
    Role: Principal Investigator

12. Title: New Approaches to Target Mevalonate Synthesis for Ovarian Cancer
    Source of Funding: The Mary Kay Foundation
    Amounts: $100,000
    Term of Funding: 2 years
    Dates of Grant: 7/1/2013–8/31/2015
    Role: Principal Investigator

13. Title: COBRE Center for Cancer Research Development – Molecular Pathology Core
    Grant Number: P30GM110759
    Source of Funding: National Institute of General Medical Sciences
    Amounts: $1,151,472
    Term of Funding: 5 years (on for 3 years)
    Dates of Grant: 9/30/2015–4/30/2020
    Role: Research Scientist

14. Title: The Mevalonate Pathway Regulates Drug Resistance in Colorectal Cancer
    Grant Number: P30GM110759
    Source of Funding: COBRE Center for Cancer Research Development Pilot Award (NIH)
    Amounts: $50,000
    Term of Funding: 1 years and 7 months
    Dates of Grant: 10/1/2015–4/30/2017
    Role: Principal Investigator

15. Title: Targeting Tumor Invasion and Drug Resistance using 3D Human Organoids
    Source of Funding: Brown University Deans Award
    Amounts: $40,000
    Term of Funding: 1 year
    Dates of Grant: 7/1/2015–6/30/2016
    Role: Co-Investigator

16. Title: Describing Genomic Heterogeneity in Cancer
    Source of Funding: Rhode Island Commerce Corporation
    Amounts: $50,000
    Term of Funding: 2 years
    Dates of Grant: 5/1/2017–5/31/2019
    Role: Co-Investigator

17. Title: Stem Cells and Aging
    Grant Number: P20GM119943
    Source of Funding: National Institute of General Medical Sciences
    Amounts: $1,500,000
    Term of Funding: 5 years
    Dates of Grant: 7/1/2017–7/30/2022
    Role: Research Associate / Bioinformaticist

18. Title: Collagen Variants as Novel Biomarkers and Therapeutics in Gastric Cancer
    Source of Funding: AGA Research Foundation
    Amounts: $100,000
    Term of Funding: 2 years
    Dates of Grant: 12/1/2018–12/1/2020
    Role: Principal Investigator

19. Title: Collagen Variants Sensitize Stomach Tumors to Therapeutics
    Grant Number: CA190737
    Source of Funding: Department of Defense CDMRP—PRCRP IDEA Award with Special Focus
    Amounts: $400,000
    Term of Funding: 2 years
    Dates of Grant: 5/1/2020–4/30/2022
    Role: Principal Investigator

20. Title: Spatial Profiling for Cell Specific Gene Expression in Pulmonary Hypertension.
    Grant Number: P20GM103652.
    Source of Funding: CardioPulmonary Vascular Biology COBRE Pilot award
    Amounts: $75,000.

Term of Funding: 1 year.
Dates of Grant: 10/1/2021-9/30/2022
Role: Principal Investigator

21. Title: MicroRNAs as Diagnostic and Prognostic Biomarker of Alzheimer's Disease
NIH: 1RF1AG078299
Amounts: $2,019,271
Term of Funding: 3 years (with admin review for 5 years)
Dates of Grant: 9/1/2022-8/31/2027
Role: Co-Investigator

22. Title: Cell Senescence Regulating Osteoarthritis Progression: Sex-dependent Mechanisms
NIH scored: 6% and approved funding
Term of Funding: 5 years
Role: Co-Investigator

TEACHING ROLES

Graduate Training & Teaching Activities

1) Advisor for Ph.D. Thesis Research/Graduate Student Trainees

Michael Bronson June 2006 – August 2010

Position:	Graduate Student, Molecular Biology, Cell Biology and Biochemistry, Brown University, 2005 – present (B.S., Southern Connecticut State University)
Thesis Project:	Identification of Post-Transcriptional Regulation by Estrogen in Breast Cancer

2) Rotating Graduate Student Trainees

Michael Bronson

Position:	Graduate Student, Molecular Pharmacology and Physiology, Brown University, 2005 (B.S., Southern Connecticut State University) Spring 2006
Research Project:	Estrogen Regulation of Alternative Splicing

Anupriya Dutta

Position:	Graduate Student, Molecular Biology, Cell Biology and Biochemistry, Brown University, 2007 (B.S., Rutgers University) Winter 2007
Research Project:	Determine Co-Transcriptionally Bound RNAs using RNA-ChIP

Yuko Hasegawa
Position: Molecular Biology, Cell Biology and Biochemistry, Brown University, 2006, (BS, Univ. of Wyoming)
Spring 2007
Research Project: Determine Co-Transcriptionally Bound RNAs using RNA-ChIP

Selena Gell
Position: Graduate Student, Molecular Biology, Cell Biology and Biochemistry, Brown University, 2006 (B.A., Brandeis University)
Winter 2007
Research Project: Determine Co-Transcriptionally Bound RNAs using RNA-ChIP

Katherine Watkins
Position: Molecular Biology, Cell Biology and Biochemistry, Brown University, 2008 (BA, Skidmore College)
Winter 2008-2009
Research Project: Nuclear Receptor Signaling Mediating Tamoxifen Resistance Mechanisms

Nathan Martin
Position: Pathobiology, Brown University (BA Hobart and William Smith Colleges)
February 2017
Research Project: Isolation of cancer stem cells from tumors

3) Member of PhD Advisory & Thesis Committee

Heng Lian Brown University Applied Mathematics, 2007
Thesis Advisor: Charles Lawrence

Chui Sun Yap Brown University MCB Graduate Program, 2007-2008
Thesis Advisor: John Sedivy

Steve Rhieu Brown University Biomedical Engineering, 2007-2011
Thesis Advisor: Tayhas Palmore

Eric Lim Brown University MCB Graduate Program, 2007-2011
Thesis Advisor: William Fairbrother

Yuko Hasegawa Brown University MCB Graduate Program, 2007-2012
Thesis Advisor: Mitch Sogin

Edward Peckham Brown University MCB Graduate Program, 2007-2012

Thesis Advisor: John Sedivy

John Urban	Brown University MCB Graduate Program, 2011-2012 Thesis Advisor: Susan Gerbi
Waihong Chung	Brown University Pathology Graduate Program, 2011-2013 Thesis Advisor: Jack Wands
Jennifer Wardell	Brown University Pathology Graduate Program, 2011-2014 Thesis Advisor: Richard Freiman
Hsin-Ta Wu	Brown University CCMB Graduate Program, 2011-2014 Thesis Advisor: Benjamin Raphael
Susan Leggett	Brown University Pathobiology Graduate Program, 2015-2018 Thesis Advisor: Ian Wong
Alex Hruska	Brown University Pathobiology Graduate Program, 2020-present Thesis Advisor: Ian Wong
Amanda Khoo	Brown University Biomedical Engineering, 2020-2022. Thesis Advisor: Ian Wong

4) Member of Master's Advisory & Thesis Committee

Tyler Smith	Brown University Biomedical Engineering, 2017 Thesis Advisors: Alexander Brodsky and Ian Wong
Jea Yun Sim	Brown University Biomedical Engineering, 2018 Thesis Advisor: Ian Wong

5) Advisor for Undergraduate Independent Study & Senior Honors Thesis (Bio195/196)

Dipal Shah
Position: University Undergraduate Student Research Assistant, Sophmore,
January 2006-August 2006
Research Project: Developing conditions for siRNA Screening
Awards: UTRA Fellow, Summer 2006

Jolene Draper
Position: Brown University Undergraduate Student Research Assistant,

January 2006 – May 2007
Research Project: Nuclear Localization of Metabolic Enzymes
Awards: UTRA Fellow, Summer 2006

Geoffrey D'Cruz
Position: Brown University Undergraduate Student Research Assistant,
October 2006 – May 2007
Research Project: Nuclear Localization of Metabolic Enzymes
Awards: Honors Senior Thesis completed May 2007, with a grade of 'A'

Mathew Akamatsu
Position: Brown University Undergraduate Student Research Assistant,
January 2007-August 2007
Research Project: Nuclear Localization of Metabolic Enzymes
Awards: UTRA Fellow, Summer 2007

Rashidah Green
Position: Brown University Undergraduate Student Research Assistant, Senior,
October 2006 – May 2007
Research Project: Identifying RNA Binding to LDH
Awards: UTRA Fellow, Summer 2007

Daniel Miller
Position: Brown University Undergraduate Student Research Assistant, Senior,
Jan 2008-Dec 2009
Research Project: Nuclear Receptor Signaling Mediating Chemotherapy in Ovarian Cancer Cells
Awards: UTRA Fellow, Summer 2009

Katrina Chu
Position: Brown University Undergraduate Student Research Assistant, Senior
May 2009-Dec 2009
Research Project: LXR Signaling Protects Ovarian Cancers from Chemotherapy
Awards: SRA Fellow, Summer 2009

Risa Burr
Position: Brown University Undergraduate Student Research Assistant, Junior,
Sept 2009-Dec 2010
Research Project: Estrogen Regulation of mRNA Nuclear-Cytoplasmic Transport
Awards: UTRA Fellow, Summer 2010 and Honors Senior Thesis completed May 2011.

Lauren Comisar
Position: Brown University Undergraduate Student Research Assistant, Senior,

Sept-2011-May 2012
Research Project: miRNAs mediating ovarian cancer metastasis
Awards: UTRA Fellow, Summer 2011and Honors Senior Thesis completed May 2012, with a grade of 'A'

Wesley Durand
Position: Brown University Student Research Assistant,
January 2012-September 2012
Research Project: Identifying miRNAs associated with metastasis in colorectal cancer
Awards: UTRA fellow, Summer 2012

James Zhang
Position: Brown University Student Research Assistant,
January 2012-July 2012
Research Project: Developing metastatic biomarkers to predict patient survival
Awards: UTRA fellow, Summer 2012

Kerry Lynch
Position: Brown University Undergraduate Student Research Assistant, Senior,
Sept-2011-May 2012
Research Project: Development of New Combination Therapy for Ovarian Cancer
Awards: UTRA Fellow, Summer 2011and Honors Senior Thesis completed May 2012.

Signe Caksa
Position: Brown University Student Research Assistant,
Fall 2015-Spring 2016
Research Project: Proteomics of Drug Tolerance in Ovarian Cancer
Awards: UTRA fellow, Summer 2015

Christhy Le
Position: Brown University Student Research Assistant,
Winter 2015-Spring 2016
Research Project: The Role of Statins in Mediating Drug Tolerance in Ovarian Cancer
Awards: UTRA fellow, Summer 2015

Nicole Kim
Position: Brown University Student Research Assistant,
Fall 2016-Spring 2017
Research Project: Systems biology of cholesterol metabolism through single cell analysis

Amy Lipman
Position: Brown University Student Research Assistant,
Winter 2017-Fall 2017

Research Project: Characterization of Cancer Stem Cells in Patient Derived Glioblastoma Tumor Cultures
Awards: UTRA fellow, Summer 2017

Jay Khurana
Position: Brown University Student Research Assistant,
Winter 2016-Spring 2018
Research Project: Somatic Mutations in Collagens in Cancer
Awards: Honors thesis, 2018

Aryana Javaheri
Position: Brown University Student Research Assistant,
Fall 2019-current
Research Project: The Role of Collagen Type X in Breast Cancer
Awards: Honors thesis, 2020

Kevin Guo
Position: Brown University Student Research Assistant,
Fall 2019-current
Research Project: Classifying Tumors by Collagen Expression

Steven Liao
Position: Brown University Student Research Assistant,
Fall 2022-current
Research Project: Spatial Transcriptome Analysis of GBM Tumors

William B. Park
Brown University Student Research Assistant,
Fall 2022-current
Research Project: Spatial Transcriptome Analysis of Stomach Tumors

6) Advisor for Undergraduate Initiatives

2006-2008	International Genetically Engineered Machines (IGEM) Advisor IGEM is a group of undergraduates that works during the semester and during the summer on truly independent novel projects in synthetic biology. I advise and help coordinate their activities.

<u>Brown Course Teaching</u>

2006-2013	Biol 127	Advanced Biochemistry Co-course Leaders: Alexander Brodsky and Rebecca Page Enrollment: 18-27

2006-2009	Biol 154	Molecular Genetics Guest Lecturer Enrollment: 30-40
2006-2009	Biol 2130	Techniques in Molecular & Cellular Sciences Guest Lecturer Enrollment: 10
2007	Biol 286	Molecular Mechanisms of Human Disease Guest Lecturer Enrollment: 8
2008	Biol 2490A	Nuclear Receptors Co-course Leaders: Alexander Brodsky and Michael McKeown Enrollment: 6
2010	Biol 2290B	Mechanisms of Protein Synthesis and Impact on Human Disease Course Leader: Alexander Brodsky Enrollment: 3
2013	Biol 2200C	Current Topics in Biochemistry: Tuning the Central Dogma Course Leader: Rebecca Page Enrollment: 3
2015-2016	Biol d1870	Techniques in Pathobiology Guest Lecturer Enrollment: 3-7
2016	ENGN 2910S	Cancer Nanotechnology Enrollment: 20
2020		Cancer Metastasis and Therapy Academic advisor for GISP course Enrollment: 7