

CURRICULUM VITAE

The Johns Hopkins University School of Medicine

DEMOGRAPHIC AND PERSONAL INFORMATION

Current Appointment:

Tenure-track Assistant Professor, Division of Head and Neck Cancer research,
Department of Otolaryngology – Head and Neck Surgery, Johns Hopkins Medical
Institutions

Contact Information:

Department of Otolaryngology – Head and Neck Surgery,
Johns Hopkins Medical Institutions,
1550 Orleans Street, 5M06
Baltimore, MD 21042
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Education and Training:

2004 B.A. Molecular Biology, Moscow State University, Moscow, Russia
2005 M.S. Molecular Biology, Moscow State University, Moscow, Russia
2009 Ph.D. Cellular and Molecular Pharmacology, University of Medicine and
Dentistry of New Jersey, Robert Wood Johnson Medical School, Piscataway, NJ
2009-2014 Postdoctoral Fellow, Department of Otolaryngology – Head and Neck Surgery,
Johns Hopkins Medical Institutions, Baltimore, MD

Professional Experience:

2003-2004 Research Assistant, Moscow State University, School of Biology, Department of
Molecular Biology, Moscow, Russia
2004-2009 Research Assistant, Laboratory of Molecular Mechanisms of Transcription,
UMDNJ-Robert Wood Johnson Medical School, Department of Pharmacology,
Piscataway, NJ
2009-2014 Postdoctoral Fellow, Department of Otolaryngology – Head and Neck Surgery,
Johns Hopkins Medical Institutions, Baltimore, MD
2014-2016 Instructor in Otolaryngology - Head and Neck Surgery, Head and Neck Cancer
Research Division, Johns Hopkins Medical Institutions, Baltimore, MD
2016-Present Tenure-track Assistant Professor in Otolaryngology - Head and Neck Surgery,
Head and Neck Cancer Research Division, Johns Hopkins Medical Institutions,
Baltimore, MD

RESEARCH ACTIVITIES

Publications: Peer-reviewed. Original Science Research

With PubMed IDs

1. Bondarenko VA, Steele LM, Ujvári A, **Gaykalova DA**, Kulaeva OI, Polikanov YS, Luse DS, Studitsky VM. *Nucleosomes can form a polar barrier to transcript elongation by RNA polymerase II*. Mol Cell. 2006; 24(3):469-479. PMID: 17081995
2. Kulaeva OI, **Gaykalova DA**, Studitsky VM. *Transcription through chromatin by RNA polymerase II: histone displacement and exchange*. Mutat Res. 2007; 618(1-2):116-129. PMID: 17313961
3. Morozov AV, Fortney K, **Gaykalova DA**, Studitsky VM, Widom J, Siggia ED. *Using DNA mechanics to predict in vitro nucleosome positions and formation energies*. Nucleic Acids Res. 2009; 37(14):4707-4722. PMID: 19509309
4. Kulaeva OI*, **Gaykalova DA***, Pestov NA, Golovastov VV, Vassilyev DG, Artsimovitch I, Studitsky VM. *Mechanism of chromatin remodeling and recovery during passage of RNA polymerase II*. Nat Struct Mol Biol. 2009; 16(12):1272-1278. PMID: 19935686. *-equal contribution
5. **Gaykalova DA**, Nagarajavel V, Bondarenko VA, Bartholomew B, Clark DJ, Studitsky VM. *A polar barrier to transcription can be circumvented by remodeler-induced nucleosome translocation*. Nucleic Acids Res. 2011; 39(9):3520-3528. PMID: 21245049
6. Bhan S, Negi SS, Shao C, Glazer CA, Chuang A, **Gaykalova DA**, Sun W, Sidransky D, Ha PK, Califano JA. *BORIS binding to the promoters of cancer testis antigens, MAGEA2, MAGEA3, and MAGEA4, is associated with their transcriptional activation in lung cancer*. Clin Cancer Res. 2011; 17(13):4267-4276. PMID: 21558405
7. Shao C, Tan M, Bishop JA, Liu J, Bai W, **Gaykalova DA**, Ogawa T, Vikani AR, Agrawal Y, Li RJ, Kim MS, Westra WH, Sidransky D, Califano JA, Ha PK. *Suprabasin is hypomethylated and associated with metastasis in salivary adenoid cystic carcinoma*. PLoS One. 2012; 7(11):e48582. PMID: 23144906
8. **Gaykalova D**, Vatapalli R, Glazer CA, Bhan S, Shao C, Sidransky D, Ha PK, Califano JA. *Dose-dependent activation of putative oncogene SBSN by BORIS*. PLoS One. 2012; 7(7):e40389. PMID: 22792300
9. Fertig EJ, Markovic A, Danilova LV, **Gaykalova DA**, Cope L, Chung CH, Ochs MF, Califano JA. *Preferential activation of the hedgehog pathway by epigenetic modulations in HPV negative HNSCC identified with meta-pathway analysis*. PLoS One. 2013; 8(11):e78127. PMID: 24223768
10. Li R, Ochs MF, Ahn SM, Hennessey P, Tan M, Soudry E, **Gaykalova DA**, Uemura M, Brait M, Shao C, Westra W, Bishop J, Fertig EJ, Califano JA. *Expression microarray analysis reveals alternative splicing of LAMA3 and DST genes in head and neck squamous cell carcinoma*. PLoS One. 2014; 9(3):e91263. PMID: 24675808
11. **Gaykalova DA**, Mambo E, Choudhary A, Houghton J, Buddavarapu K, Sanford T, Darden W, Adai A, Hadd A, Latham G, Danilova LV, Bishop J, Li RJ, Westra WH, Hennessey P, Koch WM, Ochs MF, Califano JA, Sun W. *Novel insight into mutational landscape of head and neck squamous cell carcinoma*. PLoS One. 2014; 9(3):e93102. PMID: 24667986

12. Sun W, **Gaykalova DA**, Ochs MF, Mambo E, Arnaoutakis D, Liu Y, Loyo M, Agrawal N, Howard J, Li R, Ahn S, Fertig E, Sidransky D, Houghton J, Buddavarapu K, Sanford T, Choudhary A, Darden W, Adai A, Latham G, Bishop J, Sharma R, Westra WH, Hennessey P, Chung CH, Califano JA. *Activation of the NOTCH pathway in head and neck cancer*. *Cancer Res*. 2014; 74(4):1091-1104. PMID: 24351288
13. Rathi KS, **Gaykalova DA**, Hennessey P, Califano JA, Ochs MF. *Correcting transcription factor gene sets for copy number and promoter methylation variations*. *Drug Dev Res*. 2014; 75(6):343-347. PMID: 25195578
14. **Gaykalova DA**, Manola JB, Ozawa H, Zizkova V, Morton K, Bishop JA, Sharma R, Zhang C, Michailidi C, Considine M, Tan M, Fertig EJ, Hennessey PT, Ahn J, Koch WM, Westra WH, Khan Z, Chung CH, Ochs MF, Califano JA. *NF- κ B and stat3 transcription factor signatures differentiate HPV-positive and HPV-negative head and neck squamous cell carcinoma*. *Int J Cancer*. 2015 Oct 15; 137(8):1879-89. PMID: 25857630
15. **Gaykalova DA**, Kulaeva OI, Volokh O, Shaytan AK, Hsieh FK, Kirpichnikov MP, Sokolova OS, Studitsky VM. *Structural analysis of nucleosomal barrier to transcription*. *Proc Natl Acad Sci U S A*. 2015 Oct 27; 112(43):E5787-95. PMID: 26460019
16. **Gaykalova DA**, Vatapalli R, Wei Y, Tsai HL, Wang H, Zhang C, Hennessey PT, Guo T, Tan M, Li R, Ahn J, Khan Z, Westra WH, Bishop JA, Zaboli D, Koch WM, Khan T, Ochs MF, Califano JA. *Outlier Analysis Defines Zinc Finger Gene Family DNA Methylation in Tumors and Saliva of Head and Neck Cancer Patients*. *PLoS One*. 2015 Nov 6; 10(11):e0142148. PMID: 26544568
17. Stansfield JC, Rusay M, Shan R, Kelton C, **Gaykalova DA**, Fertig EJ, Califano JA, Ochs MF. *Toward Signaling-Driven Biomarkers Immune to Normal Tissue Contamination*. *Cancer Inform*. 2016 Feb 10;15:15-21. PMID: 26884679
18. Fakhry C, Qualliotine JR, Zhang Z, Agrawal N, **Gaykalova DA**, Bishop JA, Subramaniam RM, Koch WM, Chung CH, Eisele DW, Califano J, Viscidi RP. *Serum Antibodies to HPV16 Early Proteins Warrant Investigation as Potential Biomarkers for Risk Stratification and Recurrence of HPV-Associated Oropharyngeal Cancer*. *Cancer Prev Res (Phila)*. 2016 Feb;9(2):135-41. PMID: 26701665
19. Guo T, **Gaykalova DA**, Considine M, Wheelan S, Pallavajjala A, Bishop JA, Westra WH, Ideker T, Koch WM, Khan Z, Fertig EJ, Califano JA. *Characterization of functionally active gene fusions in human papillomavirus related oropharyngeal squamous cell carcinoma*. *Int J Cancer*. 2016 Mar 7. *Int J Cancer*. 2016 Jul 15; 139 (2): 373-82. Epub 2016 Mar 30. PMID: 26949921
20. Fertig EJ, Ozawa H, Thakar M, Howard JD, Kagohara LT, Krigsfeld G, Ranaweera RS, Hughes RM, Perez J, Jones S, Favorov AV, Carey J, Stein-O'Brien G, **Gaykalova DA**, Ochs MF, Chung CH. *CoGAPS matrix factorization algorithm identifies transcriptional changes in AP-2alpha target genes in feedback from therapeutic inhibition of the EGFR network*. *Oncotarget*. 2016 Sep 16. [Epub ahead of print]. PMID: 27650546
21. Stein-O'Brien GL, Carey JL, Lee WS, Considine M, Favorov AV, Flam E, Guo T, Li S, Marchionni L, Sherman T, Sivy S, **Gaykalova DA**, McKay RD, Ochs MF, Colantuoni C, Fertig EJ. *PatternMarkers & GWCoGAPS for novel data-driven biomarkers via whole transcriptome*

NMF. Bioinformatics. 2017 Feb 8. doi: 10.1093/bioinformatics/btx058. [Epub ahead of print]
No abstract available. PMID: 28174896

22. **Gaykalova DA***, Zizkova V, Guo T, Tiscareno I, Wei Y, Vatapalli R, Hennessey PT, Ahn J, Danilova L, Khan Z, Bishop JA, Gutkind JS, Koch WM, Westra WH, Fertig EJ, Ochs MF, Califano JA*. Integrative computational analysis of transcriptional and epigenetic alterations implicates DTX1 as a putative tumor suppressor gene in HNSCC. *Oncotarget*. 2017 Feb 28;8(9):15349-15363. doi: 10.18632/oncotarget.14856. PMID: 28146432. *Corresponding authors
23. Makarev E, Schubert A, Kanherkar R, London N, Teka M, Ozerov I, Lezhnina K, Bedi A, Ravi R, Mehra R, Hoque M, **Gaykalova DA**, Sloma I, Csoka A, Sidransky D, and Zhavoronkov A, Izumchenko E. *In silico* analysis of pathways activation landscape in oral squamous cell carcinoma and oral leukoplakia. *Cell Death Discov*. 2017 May 22;3:17022. doi: 10.1038/cddiscovery.2017.22. eCollection 2017. PMID: 28580171
24. Kagohara LT†, Stein-O'Brien G†, Kelley DZ, Flam EL, Wick H, Danilova LV, Easwaran H, Favorov AV, Qian J, **Gaykalova DA***, and Fertig EJ*. Epigenetic Regulation of Gene Expression in Cancer: Techniques, Resources, and Analysis. *Brief Funct Genomics*. 2017 Aug 11. doi: 10.1093/bfpgp/elx018. [Epub ahead of print]. PMID: 28968850. †*Equal Contribution.
25. Faraji F, Zaidi M, Fakhry C, **Gaykalova DA**. Molecular Mechanisms of Human Papillomavirus-Related Carcinogenesis in Head and Neck Cancer. *Microbes Infect*. 2017 Sep - Oct;19(9-10):464-475. doi: 10.1016/j.micinf.2017.06.001. Epub 2017 Jun 12. PMID: 28619685
26. Guo T, Sakai A, Afsari B, Considine M, Danilova L, Favorov AV, Kelley DZ, Flam EL, Khan Z, Wheelan S, Gutkind S, Fertig EJ*, **Gaykalova DA***, Califano JA*. Definition of Alternative Splice Expression in HPV-related oropharyngeal cancer includes a novel functional splice variant of AKT3. *Cancer Res*. 2017 Oct 1;77(19):5248-5258. doi: 10.1158/0008-5472.CAN-16-3106. Epub 2017 Jul 21. PMID: 28733453. *Equal contribution
27. Kelley DZ, Flam EL, Izumchenko E, Danilova LV, Wulf HA, Guo T, Singman DA, Bahman A, Skaist A, Considine M, Welch JA, Stavrovskaya E, Bishop JA, Westra WH, Khan Z, Koch WM, Sidransky D, Wheelan S, Favorov AV, Califano JA, Fertig EJ*, **Gaykalova DA***. Integrated analysis of whole-genome ChIP-Seq and RNA-Sequencing data of primary head and neck tumor samples associates HPV integration sites with open chromatin marks. *Cancer Res*. 2017 Sep 25. pii: canres.0833.2017. doi: 10.1158/0008-5472.CAN-17-0833. [Epub ahead of print]. PMID: 28947419.*Equal Contribution.
28. Finegersh A, Kulich S, Guo T, Favorov AV, Fertig EJ, Danilova L, **Gaykalova DA**, Califano JA, Duvvuri U. DNA methylation regulates TMEM16A/ANO1 expression through multiple CpG islands. *Sci Rep*. 2017 Nov 9;7(1):15173. doi: 10.1038/s41598-017-15634-9. PMID: 29123240

Under review:

29. Afsari B†, Guo T†, Considine M, Florea L, Kelley DZ, Flam EL, Ha P, Geman D, Ochs M, Califano JA, **Gaykalova DA***, Favorov AV*, Fertig EJ*. Splice Expression Variation Analysis (SEVA) for Differential Gene Isoform Usage in Cancer. Under review at Bioinformatics. †*Equal Contribution. <http://biorxiv.org/content/early/2016/12/05/091637>

30. Stein-O'Brien G[†], Kagohara LT[†], Li S[†], Thakar M, Ranaweera R, Ozawa H, Cheng H, Considine M, Danilova LV, Califano JA, Izumchenko E, **Gaykalova DA**, Chung CH*, Fertig EJ*. Integrated time-course omics analysis distinguishes immediate therapeutic response from acquired resistance. Under review at Genome Medicine, [†]*Equal Contribution. <http://biorxiv.org/content/early/2017/05/10/136564>
31. Flam EL, Kelley DZ, Considine M, Guo T, Danilova L, Califano JA, Favorov AV, Fertig EJ*, **Gaykalova DA***. Differentially methylated cervical and lung super-enhancer regions in human papillomavirus-related oropharyngeal squamous cell carcinoma. Under review at Scientific Reports. *Equal Contribution.

In submission

32. Kelley DZ, Flam EL, Guo T, Bohrson C, Considine M, Danilova L, Bishop JA, Zhang C, Koch WM, Sidransky D, Westra WH, Wheelan S, Florea L, Fertig EJ, Califano JA, **Gaykalova DA**. Functional characterization of alternatively spliced GSN in human papillomavirus-related oropharyngeal squamous cell carcinoma. In submission to Translational Research.
33. Rettig EM, Zamuner F, Bishop JA, Agrawal N, Chung CH, Sharma R, Li RJ, Koch WM, Califano JA, Guo T, **Gaykalova DA**, Fakhry C. Immunohistochemical evaluation of JAG1, activated NOTCH1 and HEY1 in head and neck squamous cell carcinoma. In a submission to Oral Oncology

Inventions, Patents, Copyrights

- 08.17.2010** Patent "Methods and Agent for Modulating the RNA Polymerase II-Histone Surface". Serial No. 12/952,295. University of Medicine and Dentistry of New Jersey
- 02.28.2012** Patent "Hypermethylated Gene Markers for Head and Neck Cancer". Serial No. 14/381,489. Johns Hopkins University

Extramural Funding (current, pending, previous)

Current:

- 07/01/15-06/30/18 "Characterizing genome-wide alternative splicing in HPV related HNSCC"
R21DE025398
NIH/NIDCR
\$275,000. NCE
Role: Principal Investigator, 5% effort
- 08/01/15 – 07/31/18 "The discovery of alternative splicing in HPV-related head and neck squamous cell carcinoma"
5P50DE019032
NIH
\$97,901
Role: Career Enhancement Program Principal Investigator, 35% effort
- 09/01/17 – 08/31/18 "The role of chromatin in tumorigenesis of cervical cancers"
5P50CA098252

NIH
\$37,500
Role: Career Development Program Principal Investigator, 5% effort

04/01/13-03/31/18 “Epigenetic Biomarker Discovery in HPV related HNSCC”
R01DE023347
NIH/NCI
\$1,187,500
PI: Joseph Califano
Role: Co-Investigator, 10% effort

09/16/14 – 06/30/19 “Dynamical Models of Cetuximab Resistance Drivers in HNSCC Based with
Serial Omics Data”
R01CA177669
NIH/NCI
\$1,037,500
PI: Elana Fertig
Role: Co-Investigator, 10% effort

Pending:

07/01/18-06/30/21 “Defining the functional role of enhancer-regulation of transcription
factors in HPV+ HNSCC”
RSG533967
ACS
\$660,000
Role: Principal Investigator, 35% effort

04/01/18-03/31/23 “Defining the chromatin structure signature that drives pre-malignant
transformation”
R01
NIH
\$1,250,000
Role: Leading Principal Investigator, 20% effort

07/01/18-06/30/23 “Using integrated analysis of whole-genome ChIP-Seq and RNA-Seq data
to profile primary Esthesioneuroblastoma tumor samples and
characterize cell of origin”
R01
NIH
\$1,250,000
Role: Co-Investigator, 20% effort

04/01/18-03/31/20 “Role of NSD1 and NSD2 mediated H3K36 methylation in subset of
laryngeal tumors with favorable prognosis”
R21

NIH
\$275,000
Role: Co-Investigator, 7% effort

01/01/18-12/31/20 “Tumor-specific Regulation of Whole-genome Alterations by Enhancers with the Cancer Enhancer Atlas
U01
NIH
\$900,000
Role: Co-Investigator, 5% effort

NOTE: If pending applications result in over-commitment, Dr. Gaykalova will assess projects at that time and request approval to reduce months efforts as needed within NIH guidelines.

Previous:

08/01/15 – 07/31/17 “The discovery of differentially methylated super-enhancer elements in HPV-related OPSCC”
5P50DE019032
NIH
\$25,000
Role: Pilot Project Principal Investigator, 10% effort

08/01/14 – 07/31/15 “The discovery of alternative splicing in HPV-related head and neck squamous cell carcinoma”
5P50DE019032
NIH
\$25,000
Role: Pilot Project Principal Investigator, 15% effort

07/31/12-06/31/13 “Transcription Factor Signature of Head and Neck Squamous Cell Carcinoma”
241446
American Head and Neck Society
\$10,000
Role: Principal Investigator, 60% effort

EDUCATIONAL ACTIVITIES

Educational Publications: Book Chapters and Original Scientific Protocols

1. **Gaykalova DA**, Kulaeva OI, Bondarenko VA, Studitsky VM. *Preparation and analysis of uniquely positioned mononucleosomes*. *Methods Mol Biol*. 2009;523:109-123. PMID: 19381918
2. **Gaykalova DA**, Kulaeva OI, Pestov NA, Hsieh FK, Studitsky VM. *Experimental analysis of the mechanism of chromatin remodeling by RNA polymerase II*. *Methods Enzymol*. 2012; 512:293-314. PMID: 22910212

Educational Publications: Book Chapters and Original Scientific Protocols under review

1. Farhoud Faraji, Adrian D. Schubert, Luciane T. Kagohara, Marietta Tan, Yanxun Xu, Munfarid Zaidi, Jean-Philippe Fortin, Carole Fakhry, Evgeny Izumchenko, **Daria A. Gaykalova***, Elana J. Fertig*. Genome-wide molecular landscapes of HPV-positive and HPV-negative head and neck squamous cell carcinoma. Book chapter is under review at Molecular Determinants of Head and Neck Cancer Series: Current Cancer Research by Springer (editors: Burtneess B and Golemis EA). *Equal Contribution.
2. Adrian D. Schubert†, Fernando T. Zamuner†, Nyall R. London Jr., Raneer Mehra, Mohammad O Hoque, Elana J. Fertig, David Sidransky, **Daria A. Gaykalova***, Evgeny Izumchenko*. Role of NOTCH signaling pathway in Head and Neck Cancer. Book chapter is under review at Molecular Determinants of Head and Neck Cancer Series: Current Cancer Research by Springer (editors: Burtneess B and Golemis EA). †*Equal Contribution.

Teaching:**Classroom instructions:**

- 12/03/15 “BioTech 39: Epigenetics”, Lecturer, NIH, Bethesda, MD
“DNA isolation using DNeasy Blood & Tissue Kit”
“Bisulfite DNA conversion using EpiTect Bisulfite Kit”
“Conducting a quantitative methylation specific PCR assay”
- 04/12/16 “BioTech 39: Epigenetics”, Lecturer, NIH, Bethesda, MD
“ChIP - Chromatin Immunoprecipitation”
- 12/12/16 “BioTech 39: Epigenetics”, Lecturer, NIH, Bethesda, MD
“DNA isolation using DNeasy Blood & Tissue Kit”

Workshops /seminars:

- 12/03/15 “BioTech 39: Epigenetics”, Biochemical Lab Instructor, NIH, Bethesda, MD:
“Epigenetics in Cancer Diagnosis: DNA Methylation and Cancer”
“How to Design a Quantitative Methylation Specific PCR (QMSP) Experiment”
- 04/12/16 “BioTech 39: Epigenetics”, Biochemical Lab Instructor, NIH, Bethesda, MD:
“Epigenetics. Histone Code. ChIP”
- 06/17/16 Medical School of DVFU, Russia: “Cancer epigenetics. DNA Methylation. Cancer Diagnostics”
- 06/21/16 Medical School of DVFU, Russia: “Epigenetics. Histone Code. Chromatin Immunoprecipitation”
- 12/12/16 “BioTech 39: Epigenetics”, Biochemical Lab Instructor, NIH, Bethesda, MD:
“Histones. Role and Analysis. ChIP”.
- 01/10/17 The Cancer Prevention and Control - Viral Oncology Interest Group Seminar, JHU, Baltimore, MD: “Integrated analysis of whole-genome ChIP-Seq and RNA-Sequencing data of primary tumor samples associates HPV integration sites with open chromatin marks”

Mentoring:

- 2009-2011 Rajita Vatapalli, MS. Ms Vatapalli was a MS candidate in the field of Biotechnology at Johns Hopkins University .I served as her MS thesis supervisor.

- Ms. Vatapalli is currently a PhD candidate at Northwestern University, Chicago, IL.
 - She received her MS degree in Biotechnology in 2011.
 - She is a co-author of 3 publications.
- 2010-2011 David Zaboli, MD. Dr. Zaboli was a MD Student at Johns Hopkins Medical School. I served as his project supervisor.
- Dr. Zaboli is currently an otolaryngology resident at Albert Einstein Hospital, NY.
 - He is a co-author of 1 publication.
- 2011 Kathryn Morton, MD. Dr. Morton was a MD Student at Johns Hopkins Medical School. I served as her project supervisor.
- Dr. Morton is currently an otolaryngology resident at Mount Sinai Hospital, NY.
 - She is a co-author of 1 publication.
- 2012-2013 Chi Zhang, BS. Ms. Zhang was a summer researcher at Johns Hopkins University during the summers of 2012 and 2013. I served as her project supervisor.
- Ms. Zhang is currently a MD candidate in Geisel School of Medicine at Dartmouth, VA.
 - She is a co-author of 2 publications.
- 2013-2015 Ilse Tiscareno, BS candidate. Ms. Tiscareno was a BS candidate in Neuroscience. I served as her project supervisor.
- Ms. Tiscareno continues her education at Johns Hopkins University, MD.
 - She is a co-author of 1 publication.
- 2014 Jeremy Layseca, BA candidate. Mr. Layseca was a summer researcher at Johns Hopkins University. I served as his project supervisor.
- He is currently a BA candidate at De Anza College, Cupertino, CA
- 2014 Veronika Zizkova, PhD candidate. Ms. Zizkova performed an internship at Johns Hopkins University. I served as her project supervisor.
- She is currently a PhD candidate in Olomouc Faculty Hospital, Czech Republic.
 - She is a co-author of 2 publications.
- 2014-2015 Jennifer Wang, MD. Dr. Wang was a MS candidate at Johns Hopkins Bloomberg School of Public Health. I served as her side project supervisor.
- Dr. Wang received an AHNS Ballantyne Resident Research Grant in 2014.
 - Dr. Wang received her MS degree Johns Hopkins Bloomberg School of Public Health in 2015.
 - She is a co-author of 1 publication that is currently in preparation.

- 2014-2016 Theresa Guo, MD. Dr. Guo is an Otolaryngology resident at Johns Hopkins Hospital, Department of Otolaryngology – Head and Neck surgery. I serve as her project advisor.
- Dr. Guo received an AHNS Resident award in 2015.
 - She is a co-author of 6 publications that were recently published, and more publications that are currently under review
- 2015 Dzov Singman, BS. Ms. Singman is a summer researcher in the Otolaryngology Department of Johns Hopkins Hospital. I serve as her summer project supervisor.
- Ms. Singman is currently a MD/PhD BS candidate at the SUNY Downstate College of Medicine in Brooklyn
 - She is a co-author of 1 publication
- 2015-present Dylan Kelley, MS. Mr. Kelley is a current researcher in my laboratory. I serve as his scientific mentor.
- He received his MS degree in Biotechnology in 2016 with his thesis completed in my group.
 - He is a co-author of 3 publications, including first author paper in *Cancer Research*
 - He is also a co-author of 3 more publications that are currently under review or in submission
- 2015-present Emily Flam, BS. Ms. Flam is a current researcher in my laboratory. I serve as her project mentor.
- Ms. Flam received her BS degree from the College of William and Mary in 2015
 - Ms. Flam is currently a PhD candidate Systems Biology program at University of Pennsylvania.
 - She is a co-author of 4 publications
 - She is also a co-author of 3 publications that are currently under review or in submission
- 2017 Hadeel Alwani, BS. Ms. Alwani was a summer medical student in my laboratory I served as her project mentor.
- Ms. Alwani is currently a MD candidate in the Northeast Ohio Medical University
- 2017 Josh Halpryn, BS candidate. Mr. Halpryn was a summer undergraduate student in my laboratory I served as his project co-mentor.
- Mr. Halpryn is currently a BS candidate in the University of Maryland
- 2017 Esther Bernstein, BA candidate. Dr. Zamuner was a summer medical student in my laboratory I served as her project mentor.
- Ms. Bernstein is currently a BA candidate in the Gratz College

- 2015-present Kristina Zambo, BS. Ms. Zambo is a researcher in my laboratory. I serve as her project mentor.
- Ms. Zambo is currently working on two projects regarding alternative splicing in HPV+ HNSCC
 - She is a co-author of 2 publications that are currently in preparation
- 2017-present Fernando Zamuner, PhD. Dr. Zamuner is a postdoctoral researcher my laboratory I serve as his project mentor.
- Dr. Zamuner is a co-author of 1 publication that is currently in preparation
 - He is also a co-author of 2 publications that are currently under review or in submission
- 2017-present Tingting Ou, BS candidate. Ms. Ou is a current undergraduate student I my laboratory I serve as her project co-mentor.
- Ms. Ou is currently a BS candidate in the computational sciences program at Johns Hopkins University

ORGANIZATIONAL ACTIVITIES

Advisory Committees

- 2008-2009 The North Jersey Regional Science Fair, Judge
- 2015-present Toby Eagle Foundation, Award Committee member

Institutional Administrative Appointments

- 2009-present Cell Line Bank Leader, Head and Neck Cancer research Division, Otolaryngology Department, Johns Hopkins Medical Institutions
- 2014 Tissue Bank Advisor, Head and Neck Cancer research Division, Otolaryngology Department, Johns Hopkins Medical Institutions

Journal peer review activities

- 2013-present PloS One Journal, Reviewer
- 2014-present Head and Neck Journal, Reviewer
- 2015-present International Journal of Cancer, Reviewer
- 2016-present Oral Oncology, Reviewer
- 2016-present Scientific Reports, Reviewer
- 2017-present Clinical Epigenetics, Reviewer
- 2017-present Cancer Letters, Reviewer

Grant Review/Study Section

- 2015 The Voelcker Fund Grant, Reviewer
- 2016 Oral, Dental and Craniofacial Sciences Study Section, NIH, R01/R21 Reviewer

Professional Societies

2010-present American Association for Cancer Research, member since 2010

2012-present American Head and Neck Society, member since 2012

RECOGNITION

Honors

- 2005 Magna Cum Laude Diploma of Honors Degree “Analysis of the Mechanism of Transcription Elongation Through Chromatin by Pol II”, Moscow State University, Russia
- 2006 Conference Travel Award “Factors Determining the Height and Structure of the Nucleosomal Barrier to Transcription by RNA Polymerase II”, University of Medicine and Dentistry of New Jersey
- 2006 Young Investigator Award, University of Medicine and Dentistry of New Jersey
- 2007 Young Investigator Award, University of Medicine and Dentistry of New Jersey
- 2008 Conference Travel Award, University of Medicine and Dentistry of New Jersey
- 2008 Financial Aid Award “A Zero-Size Intranucleosomal DNA Loop Allows Nucleosome Survival at the Original Position during Transcription”, Genetics Society of America
- 2008 Young Investigator Award, University of Medicine and Dentistry of New Jersey
- 2009 Young Investigator Award, University of Medicine and Dentistry of New Jersey
- 2009 Best Publication by a Graduate Student “Mechanism of Chromatin Remodeling and Recovery during Passage of RNA Polymerase II”, University of Medicine and Dentistry of New Jersey
- 2012 Pilot Research Grant Award “Transcription Factor Signature of Head and Neck Squamous Cell Carcinoma”, American Head and Neck Society
- 2014 Head and Neck Cancer Specialized Program of Research Excellence (HNC-SPORE) Pilot Grant Award: “The discovery of alternative splicing in HPV-related head and neck squamous cell carcinoma”, NIH
- 2015 Head and Neck Cancer Specialized Program of Research Excellence (HNC-SPORE) Career Enhancement Award, NIH
- 2015 NIH Exploratory/Developmental Research Grant Award (R21) “Characterizing genome-wide alternative splicing in HPV related HNSCC”, NIH
- 2015 Head and Neck Cancer Specialized Program of Research Excellence (HNC-SPORE) Pilot Grant Award: “The discovery of differentially methylated super-enhancer elements in HPV-related oropharyngeal squamous cell carcinoma”, NIH
- 2017 Cervical Cancer Specialized Program of Research Excellence (HNC-SPORE) Career Development Program, NIH

Invited Talks, Panels

- 2009 *"Nucleosomal Barrier Formation/Histone Survival during Pol II Transcription"*. National Postdoc Appreciation Day Symposium, Rutgers University, Piscataway, NJ
- 2014 *"The discovery of prospective HNSCC drivers via integrative analysis of epigenetic and transcriptional alterations in primary tissues"*. 5th IFHNOS World Congress and AHNS Annual Meeting, New York, NY
- 2015 *"Epigenetics in Cancer Diagnosis: DNA Methylation and Cancer"*. BioTech 39: Epigenetics Workshop, NIH, Bethesda, MD
- 2015 *"How to Design a Quantitative Methylation Specific PCR (QMSP) Experiment"*. BioTech 39: Epigenetics Workshop, NIH, Bethesda, MD
- 2016 *"Cancer-related transcriptional regulation and alternative splicing events in HPV+ HNSCC"*. UCSD, San-Diego, CA
- 2016 *"Epigenetics. Histone Code. CHIP"*. NIH, Bethesda, MD
- 2016 *"Cancer epigenetics. DNA Methylation. Cancer Diagnostics"*. FEFU, Vladivostok, Russia
- 2016 *"Epigenetics. Histone Code. Chromatin Immunoprecipitation"*. FEFU, Vladivostok, Russia
- 2016 *"The Discovery Of Differentially Methylated Super-enhancer Elements In HPV-related Oropharyngeal Squamous Cell Carcinoma"*. AHNS 9th International Conference on Head and Neck Cancer, Seattle, WA
- 2016 *"Histones. Role and Analysis. CHIP"*. BioTech 39: Epigenetics Workshop, NIH, Bethesda, MD
- 2017 *"Integrated analysis of whole-genome ChIP-Seq and RNA-Sequencing data of primary tumor samples associates HPV integration sites with open chromatin marks"*. The Cancer Prevention and Control - Viral Oncology Interest Group Seminar, JHU, Baltimore, MD
- 2017 *"Integrated analysis of whole-genome ChIP-Seq and RNA-Sequencing data of primary tumor samples associates HPV integration sites with open chromatin marks"*. International Conference: The Future of Biomedicine, FEFU, Vladivostok, Russia
- 2017 *"Analysis of alternative splice expression in human papillomavirus-related oropharyngeal cancers"*. The International workshop on cancer neoantigen science, Gdansk, Poland

Conference Presentations

- 2006 *"Factors Determining the Height and Structure of the Nucleosomal Barrier to Transcription by RNA Polymerase II"*
FASEB Summer Research Conference
Saxtons River, VT, USA
- 2007 *"Structural Analysis of the Intermediates Formed During Transcription through a Nucleosome"*
26th Summer Symposium in Molecular Biology

- State College, PA, USA
- 2008 *"A 'Zero-Size' Intranucleosomal DNA Loop Allows Nucleosome Survival at the Original Position during Transcription"*
2008 Yeast Genetics and Molecular Biology Meeting
Ontario, Canada
- 2009 *"Nucleosomal Barrier Formation/Histone Survival during Pol II Transcription"*
National Postdoc Appreciation Day Symposium
Piscataway, NJ, USA
- 2010 *"BORIS Binding to the Promoters of Cancer Testes Antigens, MageA2 and MageA3, Causes Transcriptional Activation of These Genes in Lung Cancer"*
2010 AACR 101st Annual Meeting
Washington, DC, USA
- 2010 *"Transcription Factor BORIS Induces Specific Activation of the Normally Repressed SBSN Gene during Tumorigenesis"*
2010 AHNS Research Workshop,
Arlington, VA, USA
- 2011 *"Cancer-specific Transcription Factor BORIS Has Different Effects on Expression of Its Target Genes via Chromatin Structure Alterations"*
2011 AACR 102nd Annual Meeting
Orlando, FL, USA
- 2012 *"Integrative Analysis of Epigenetic and Transcriptional Alterations in Head and Neck Squamous Cell Carcinomas"*
2012 AACR 103rd Annual Meeting
Chicago, IL, USA
- 2013 *"Transcription Factor Signature of Head and Neck Squamous Cell Carcinoma"*
8th International Conference on Head and Neck Cancer
Ontario, Canada
- 2013 *"An integrated matrix factorization algorithm for DNA methylation and gene expression identifies"*
"HNSCC clinical subtypes and GLI1 signaling specific to HPV-negative HNSCC"
"Promoter hypermethylation of zinc finger proteins is the novel epigenetic biomarkers of head and neck squamous cell carcinomas"
2013 AACR 104th Annual Meeting
Washington, DC, USA
- 2013 *"Role of HPV DNA detection in plasma and saliva in the early detection and prediction of recurrence in HPV positive oropharyngeal carcinoma"*
Combined Otolaryngological Spring Meeting
Orlando, FL, USA
- 2013 *"Bimodal NOTCH pathway alteration in head and neck cancer"*
Global Biotechnology Congress
Boston, MA, USA
- 2014 *"Transcription factor signature of head and neck squamous cell carcinoma"*
2014 AACR 105th Annual Meeting

San Diego, CA, USA

- 2014 *"The discovery of prospective HNSCC drivers via integrative analysis of epigenetic and transcriptional alterations in primary tissues"*
"Genome-wide integrative analysis of DNA methylation alterations in HNSCC"
5th IFHNOS World Congress and AHNS Annual Meeting
New York, NY, USA
- 2015 *"DTX1 is an epigenetically regulated tumor suppressor gene discovered by integrative analysis of epigenetic and transcriptional alterations in HNSCC"*
"Discovery of novel alternative splicing events in human papillomavirus-related oropharyngeal squamous cell carcinoma"
2015 AACR 106th Annual Meeting
Philadelphia, PA, USA
- 2015 *"The Discovery of Novel GSN Alternative Splicing in Head and Neck Squamous Cell Carcinoma"*
AHNS 2015 Translational Research Meeting
Boston, MA, USA
- 2016 *"The discovery of novel GSN alternative splicing in HNSCC"*
"The CoGAPS matrix factorization algorithm infers feedback mechanisms from therapeutic inhibition of EGFR that increases expression of growth factor receptors"
2016 AACR 107th Annual Meeting
New Orleans, LA, USA
- 2016 *"The Discovery Of Differentially Methylated Super-enhancer Elements In HPV-related Oropharyngeal Squamous Cell Carcinoma"*
"Correlating Alternative Splicing Events With Methylation Changes In HPV-related Oropharyngeal Cancer"
2016 AHNS 9th International Conference on HNC
Seattle, WA, USA
- 2017 *"The in-parallel whole-genome ChIP-Seq analysis of primary tissues, patient derived xenografts, and cancer cell lines from HPV-relative HNSCC samples"*
"Functional characterization of alternatively spliced GSN in head and neck cancer"
"An epigenetic biomarker panel in HPV related oropharyngeal squamous cell carcinoma"
"Time course analysis of gene expression and epigenetic interactions in acquired cetuximab resistance in head and neck squamous cell carcinoma"
"Splice expression variation analysis (SEVA) for differential gene isoform usage in cancer"
2017 AACR 108th Annual Meeting
Washington, DC, USA