

Hatice Ülkü Osmanbeyoğlu

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ACADEMIC APPOINTMENTS

Assistant Professor, Department of Biomedical Informatics, 2018 – present

Assistant Professor, Department of Bioengineering, 2019 – present

University of Pittsburgh & UPMC Hillman Cancer Center

Postdoctoral Associate, Memorial Sloan Kettering Cancer Center, 2013 – 2018

EDUCATION

University of Pittsburgh School of Medicine, Pittsburgh, PA

PhD in Biomedical Informatics, 2009 – 2012

University of Pittsburgh, Pittsburgh, PA

Master of Science in Bioengineering, 2006 – 2009

Carnegie Mellon University, Pittsburgh, PA

Master of Science in Electrical and Computer Engineering, 2005 – 2006

Northeastern University, Boston, MA

Bachelor of Science in Computer Engineering, Summa Cum Laude, 2002 – 2004

(Ranked 1st in a cohort of 88 students in ECE Department)

Bogazici University, Istanbul, Turkey

Candidate for Bachelor of Science in Chemical Engineering, 2000 – 2002

HONORS & AWARDS

- Hillman Early-Career Fellow for Innovation Cancer Research, 2019
- EMBL Corporate Partnership Fellowship for Cancer Genomics conference at EMBL, Germany, 2017
- NCI Scholarship for Experimental Models of Human Cancer Course at The Jackson Laboratory, 2017
- Memorial Sloan Kettering Postdoctoral Research Award, 2017
- NIH/NCI K99/R00 Pathway to Independence Award, 2016
- Intelligent Systems for Molecular Biology (ISMB) Conference Travel Fellowship, 2014
- Finalist, Best Performer in Phase 2 of DREAM7 Challenge, Breast Cancer Prognosis, 2012
- Travel Award to the Workshop for Women in Machine Learning, Lake Tahoe, Nevada, 2012
- Travel Award to the Machine Learning Summer School in Santa Cruz, 2012
- NSF Travel Award to the Research in Computational Molecular Biology Conference, 2012
- Finalist, Best Trainee Paper Award, University of Pittsburgh, 2012
- Doctoral Comprehensive Exam passed with High Honors, 2011
- Winner, Northeastern University Capstone Design Group Competition, 2004
- Sears B. Condit Award, Northeastern University, 2004
- Outstanding Junior Award, Northeastern University, 2003
- Dean's List, Northeastern University, 2002-2004

PUBLICATIONS

1. Moiseeva TN, Qian C, Chiba N., **Osmanbeyoglu HU**, Bakkenist CJ, WEE1 kinase inhibitor AZD1775 induces CDK1 kinase-dependent origin firing in unperturbed G1 and S phase cells (2019), *PNAS*, *In press*.
2. **Osmanbeyoglu HU**[#], Shimizu F*, Rynne-Vidal A*, Alonso-Curbelo D*, Chen HA, Wen HY, Yeung TL, Jelinic P, Ravazi P, Lowe SW, Mok SC, Chiosis G, Levine DA, Leslie CS[#], Chromatin-informed inference of transcriptional programs in gynecologic and basal breast cancers (2019), *Nature Communications*, **10**(1):4369 (**#=co-corresponding authors**)

3. Moiseeva TN, Yin Y, Calderon MJ, Qian C, Schamus-Haynes S, Sugitani N, **Osmanbeyoglu HU**, Rothenberg E, Watkins SC, Bakkenist CJ, An ATR and CHK1 kinase signaling mechanism that limits origin firing during unperturbed DNA replication (2019), *PNAS*, **116**(27):13374-13383.
4. Hmeljak J, Sanchez-Vega F, Hoadley KA, Shig J, Stewart C, Heiman D, Tarpey P, Danilova L, Drill E, Gibb E, Bowlby R, Kanchi R, **Osmanbeyoglu HU**,..., The Cancer Genome Atlas Network,..., Robinson B*, Campbell P*, Ladanyi M* (2018) Integrative molecular characterization of malignant pleural mesothelioma. *Cancer Discovery*, **8**(12): 1548-1565.
5. Korkut A,..., **Osmanbeyoglu HU**,..., The Cancer Genome Atlas Network, Weinstein JN*, Mishra L*, Akbani R* (2018) A Pan-Cancer Analysis Reveals High-Frequency Genetic Alterations in Mediators of Signaling by the TGF-beta Superfamily. *Cell Systems*. **7**(4): 422-437 e427.
6. Luo C, **Osmanbeyoglu HU**, Do MH, Bivona MR, Toure A, Kang D, Xie Y, Leslie CS, Li M (2017) Ets transcription factor GABP controls T cell homeostasis and immunity. *Nature Communications* **8**,1062.
7. Nargund AM, **Osmanbeyoglu HU**, Cheng EH, Hsieh JJ (2017) SWI/SNF tumor suppressor gene PBRM1/BAF180 in human clear cell kidney cancer. *Molecular & Cellular Oncology*, Vol 4, Iss 4.
8. Iyer A, **Osmanbeyoglu HU**, Leslie CS (2017) Computational methods to dissect gene regulatory networks in cancer. *Current Opinion in Systems Biology*, **2**:115-122.
9. Nargund AM, Pham CG, Dong Y, Wang PI, **Osmanbeyoglu HU**, Xie Y, Aras O, Han S, Oyama T, Takeda S, Ray CE, Dong Z, Berge M, Hakimi AA, Monetta S, Lekaye CL, Koutcher JA, Leslie CS, Creighton CJ, Weinhold N, Lee W, Tickoo SK, Wang Z, Cheng EH, Hsieh JJ (2017) The SWI/SNF Protein PBMR1 Restrains VHL Loss-Driven Clear Cell Kidney Cancer, *Cell Reports* **18**, 2893-2906.
10. Watters RJ, Hartmaier RJ, **Osmanbeyoglu HU**, Gillihan RM, Rae J, Liao L, Chen K, Li W, Lu X, Oesterreich S (2017) Steroid receptor coactivator-1 can regulate osteoblastogenesis independently of estrogen, *Molecular and Cellular Endocrinology*, **448**:21-27.
11. Toska E, **Osmanbeyoglu HU***, Castel P*, Chan C, Dickler M, Hendrickson RC, Scaltriti M, Leslie CS, Armstrong SA, Baselga J (2017) PI3K pathway regulates ER-dependent transcription in breast cancer through the epigenetic regulator KMT2D, *Science*, **355** (6331), 1324-1330.
12. **Osmanbeyoglu HU**, Toska E, Chan C, Baselga J, Leslie CS (2017) Pan-cancer modeling predicts the context-specific impact of somatic mutations on transcriptional programs. *Nature Communications* **8**, 14249.
13. Feng Y, Veeken J, Shugay M, Putintseva EV, **Osmanbeyoglu HU**, Dikiy S, Hoyos BE, Moltedo B, Hemmers S, Treuting P, Leslie CS, Chudakov M, Rudensky AY (2015) A mechanism for expansion of regulatory T-cell repertoire and its role in self-tolerance. *Nature*, **528**(7580):132-136.
14. **Osmanbeyoglu HU**, Pelossof R, Bromberg JF, Leslie CS (2014) Linking signaling pathways to transcriptional response in breast cancer. *Genome Research*, **24**(11):1869-80.
15. **Osmanbeyoglu HU**, Lu KN, Oesterreich S, Day RS, Benos PV, Coronello C, Lu X (2013) Estrogen represses gene expression through reconfiguring chromatin structures. *Nucleic acids research* **41**(17):8061-71.
16. **Osmanbeyoglu HU**, Hartmaier RJ, Oesterreich S, Lu X (2012) Improving ChIP-seq peak-calling for functional co-regulator binding by integrating multiple sources of biological information. *BMC Genomics* **13** Suppl 1: S1.
17. Kohle-Ersher A, Chatterjee P, **Osmanbeyoglu HU**, Hochheiser H, Bartos C (2012) Evaluating the Barriers to Point-of-Care Documentation for Nursing Staff. *Comput Inform Nurs* **30**: 126-133.
18. **Osmanbeyoglu HU**, Ganapathiraju MK (2011) N-gram analysis of 970 microbial organisms reveals presence of biological language models. *BMC Bioinformatics* **12**: 12. (Highly accessed)
19. **Osmanbeyoglu HU**, Ganapathiraju MK (2011) Rapid deployment of viral-human interactome prediction for new viruses. Proc of the American Medical Informatics Association Summit on Translational Bioinformatics.
20. Chalancon G, Kosloff M, **Osmanbeyoglu HU**, Saraswathi S (2010) PLoS Computational Biology conference postcards from ISMB 2010. *PLoS Comput Biol* **6**: e1002000.
21. **Osmanbeyoglu HU**, Wehner JA, Carbonell JG, Ganapathiraju MK (2010) Active machine learning for transmembrane helix prediction. *BMC Bioinformatics* **11** Suppl 1: S58.
22. **Osmanbeyoglu HU**, Hur TB, Kim HK. (2009) Thin alumina nanoporous membranes for similar size biomolecule separation. *Journal of Membrane Science*, **343**, 1-6.

INVITED INSTITUTE/UNIVERSITY TALKS

1. Toyota Technological Institute at Chicago, Chicago, IL, USA (Sept 2019)
2. Institute of Systems Biology (ISB), Seattle, WA, USA (July 2019)
3. Sabanci University, Istanbul, Turkey (Dec 2018)
4. University of Pittsburgh, Pittsburgh, PA, USA (July 2018)
5. Dartmouth College, Hanover, NH, USA (May 2018)
6. IRIC – University of Montreal, Montreal, Canada (Apr 2018)
7. John Hopkins University, Baltimore, MD, USA (Apr 2018)
8. Brown University, RI, USA (Mar 2018)
9. Columbia University, NY, USA (Mar 2018)
10. University of Wisconsin Madison, WI, USA (Feb 2018)
11. John Hopkins University, Baltimore, MD, USA (Feb 2018)
12. University of Oslo, Centre for Molecular Medicine Norway, Oslo, Norway (Feb 2018)
13. Cold Spring Harbor Laboratory, NY, USA (Jan 2018)
14. University of Washington, Saint Louis, MO, USA (Jan 2018)
15. New York University, NY, USA (Jan 2018)
16. Weill Cornell Medicine, New York, NY, USA (Oct 2017)
17. Rutgers Cancer Institute of New Jersey, NJ, USA (Sept 2017)
18. University of Illinois at Chicago, Chicago, IL, USA (Mar 2017)
19. University of California Riverside, Riverside, CA, USA (Mar 2017)
20. Icahn School of Medicine at Mount Sinai, NY, USA (Mar 2017)
21. Carnegie Mellon University, Pittsburgh, PA, USA, (Feb 2017)
22. North Carolina at Chapel Hill, Chapel Hill, NC, USA (Feb 2017)
23. University of Southern California, Los Angeles, LA, USA (Feb 2017)
24. EMBL-EBI, Hinxton, United Kingdom (June 2016)
25. Stony Brook University, Stony Brook, NY, USA (May 2016)
26. Harvard Medical School, Boston, MA, USA (Dec 2012)
27. Memorial Sloan Kettering Cancer Center, New York, NY, USA (Dec 2012)
28. National Center for Biotechnology Information, MD, USA (Nov 2012)

ORAL CONFERENCE PRESENTATIONS & SYMPOSIA/WORKSHOP INVITED TALKS

1. “Integrative computational framework for linking signaling and transcriptional programs in single cells”, Women in Computational Biology, Virginia, VA, USA (Nov 2019)
2. “Integrative computational framework for linking signaling and transcriptional programs in single cells”, RECOMB/ISCB Conference on Regulatory & Systems Genomics, New York, NY, USA (Nov 2019)
3. “Chromatin-informed inference of transcriptional programs in gynecologic and basal breast cancers”, RECOMB-Computational Cancer Biology (CCB), Washington, DC, USA (May 2019)
4. “Chromatin-informed inference of transcriptional programs in gynecologic and basal breast cancers”, RECOMB/ISCB Conference on Regulatory & Systems Genomics, New York, NY, USA (Dec 2018)
5. “Inferring transcriptional regulatory programs in gynecologic cancers”, ISMB, Chicago, IL, USA (July 2018)
6. “Pancancer modeling predicts the context-specific impact of somatic mutations on transcriptional programs”, ACM-BCB, Boston, MA, USA (Aug 2017)
7. “Modeling the impact of somatic alterations on signaling pathways and transcriptional programs in human cancers”, RECOMB/ISCB Conference on Regulatory & Systems Genomics, Phoenix, Arizona, USA (Nov 2016)
8. “Modeling the impact of somatic alterations on signaling pathways and transcriptional programs in human cancers”, Sloan Kettering Postdoctoral Symposium, New York, NY, USA (Nov 2016)
9. “Integrative computational modeling across tumors reveals context specific impact of mutations”, ISMB, Orlando, Florida, USA (July 2016)
10. “Integrative computational modeling across tumors reveals context specific impact of mutations”, ICML Workshop on Computational Biology, New York, NY (June 2016)
11. “Modeling the impact of genomic aberrations on transcriptional programs across human cancers”, RECOMB-Computational Cancer Biology (CCB), Los Angeles, CA, USA (Flash talk) (Apr 2016)
12. “Modeling the impact of genomic aberrations on transcriptional programs across human cancers”, Computational Cancer Biology Workshop, Berkeley, CA, USA (Feb 2016)

13. "Linking signaling pathways to transcriptional response in breast cancer", RECOMB-Computational Cancer Biology (CCB), Warsaw, Poland (Apr 2015)
14. "Inferring the impact of genetic aberrations on transcriptional programs in prostate cancer", ENCODE Consortium Meeting, Cold Spring Harbor, USA (Mar 2015)
15. "Linking signaling pathways to transcriptional response in breast cancer", ISMB, Boston, MA, USA (July 2014)
16. "Linking signaling pathways to transcriptional response in breast cancer", RECOMB/ISCB Conference on Regulatory & Systems Genomics, Toronto, Canada (Nov 2013)
17. "Thin Nanoporous Membranes for Biomolecule Separation", 16th International Conference on Mechanics in Medicine and Biology, Pittsburgh, PA, USA (July 2008)

GRANTS

NIH/NCI K99/R00 CA207871— PI: Osmanbeyoglu

Algorithms to link signaling pathways with transcriptional programs for precision medicine

The ICI Fund (Innovation in Cancer Informatics) — PI: Osmanbeyoglu

Integrative computational framework for linking cell surface proteins to downstream transcriptional programs in cells

TEACHING EXPERIENCE

Quantitative and Computational Biology, Co-instructor (2016 – 2017)

Introduction to R and Bioconductor, Teaching Assistant (2015)

BIOINF 2051 Foundations of Bioinformatics, Teaching Assistant (2011)

BIOENG1330 Biomedical Imaging, Teaching Assistant (2008)

BIOENG2520 Molecular Biology and Biophysics 1, Teaching Assistant (2007)

Peer Tutor at Northeastern University (2002 – 2004)

STUDENT MENTORING

Chen'ao Qian, University of Pittsburgh, MS candidate Biostatistics, Apr 2019 - Aug 2019

Louis Gil, University of Puerto Rico Rio Piedras, iBRIC summer program, May 2019 - June 2019

Hanzhong Zheng, University of Pittsburgh, MS candidate in Computer Science, July 2019 – Nov 2019

Melanie Chin, University of Pittsburgh, BS candidate Computer Biology, June 2019 – present

Drake Palmer, University of Pittsburgh, BS candidate Computer Biology, Sept 2019 - present

Boyan Zhang, University of Pittsburgh, BS candidate Bioengineering, Sept 2019 – present

Ibrahim Alibaba, University of Pittsburgh, BS candidate Information Science, Sept 2019 - present

RELEVANT TRAINING

Leadership for Scientists (2016)

Optimizing the Practice of Mentoring: how to be an effective research mentor (2015)

PROFESSIONAL WORK EXPERIENCE

Test Engineer, Ambient Corporation, Newton, MA (2004 – 2005)

Electrical and Systems Engineering Co-op, Ambient Corporation, Newton, MA (2003)

PROFESSIONAL AFFILIATIONS & SERVICES

Referee of the IEEE/ACM Transactions on Computational Biology and Bioinformatics, Bioinformatics, BMC Supplements, Clinical Colorectal Cancer, PLOS Computational Biology, PLOS ONE, Oncology Research, Nature Communications

Referee, Women in Machine Learning Workshop, 2017

Member, Women's Task Force, Pittsburgh, PA, USA, 2019

Member, American Association for Cancer Research

Member, International Society for Computational Biology

Member, Program Committee, ISMB/ECCB, Basel, Switzerland, 2019

Member, Program Committee, Workshop on Computation Biology, Long Beach, LA, 2019

Member, Program Committee, Workshop on Computation Biology, Sydney, Australia, 2017

Representative, NCI's Integrative Cancer Biology Program's Early Stage Investigators
Steering Committee Meeting (2013 – 2014)
Judge, Pittsburgh Regional Science Fair (PSEF), Pittsburgh, PA, USA, 2012
Judge, Intel's International Science & Engineering Fair, Pittsburgh, PA, USA, 2012