Stephanie A. Wankowicz (Mullane)

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https://stephaniewankowicz.github.io/

EDUCATION

PhD **University of California San Francisco** **2023**
Biophysics
Thesis: The relationship between conformational heterogeneity and ligand binding

BS **University of Massachusetts Amherst** **2023**
Biochemistry and Molecular Biology

RESEARCH EXPERIENCE

University of California San Francisco

Assistant Professional Researcher March 2023 - Present
Graduate Student Researcher June 2019 - March 2023

- Developed software to detect alternative protein conformers in high-resolution protein structures
- Developed analysis to determine entropy from high-resolution structures
- Conducted structural biology studies on mutant and ligand-bound
- Mentored one research assistant, six rotation students, and four undergraduate summer interns
- Took elective project-based justice, diversity, equity, and inclusion leadership course (capstone project: UCSF Biophysics Peer Mentorship Program), Inclusive Research Mentor/Manager Course (TRAIN-UP), and Evidence-Based Teaching Course

Dana-Farber Cancer Institute/Broad Institute of MIT & Harvard

Computational Biologist, Eliezer Van Allen Lab April 2017 - June 2018
Associate Computational Biologist, Eliezer Van Allen Lab April 2016 - April 2017

- Performed genomic analyses on whole exome, whole genome, and RNA sequencing data
- Managed a large multi-institution research project
- Mentored one rotation student

Dana-Farber Cancer Institute

Senior Research Data Specialist, Medical Oncology Department June 2013 - April 2016

- Designed and implemented a database for retrospective bladder cancer research
- Mentored two interns and three Research Data Specialist
- Lead multiple research operational improvement projects
- Managed all regulatory paperwork and wrote clinical research trial proposals, protocols, and consent forms

FUNDING/FELLOWSHIPS

NIH AViDD Research Award *2023-2025*
Role: Principal Investigator

2023 Intersection Science Fellow 2023-2024

National Science Foundation Graduate Research Fellowship *2020-2023*
Role: Graduate Fellow

University of California San Francisco, Discovery Fellowship *2020-2023*
Role: Graduate Fellow

D.E. Shaw Research Women in Computational Chemistry Fellowship *2021-2021*
Role: Graduate Fellow

AWARDS

UCSF Clements Award (Best Thesis Award)	2023
Keystone Symposium Travel Award	2023
UCSF Quantitive Biology Consortium Mentorship Award	*2022*
Scientific Leader, White House Open Science Policy Round Table	*2016*
George N. Parks Music Leadership Scholarship, University of Massachusetts Amherst	*2013*
Distinguished Teaching Award, Biochemistry Department, University of Massachusetts Amherst	*2013*

PUBLISHED RESEARCH

Wankowicz SA, Fraser JS. (2023) *Making sense of chaos: uncovering the mechanisms of conformational entropy.* ChemRxiv.

Wankowicz SA, Ravikumar A, Sharma S, Riley BT, Raju A, van den Beden H, Keedy DA, Fraser JS. (2023). *Uncovering Protein Ensembles: Automated Multiconformer Building in X-ray Crystallography and CryoEM.* eLife.

Wankowicz SA, Fraser JS. (2023) *Comprehensive Encoding of Conformational and Compositional Protein Structural Ensembles through mmCIF Data Structure.* Arxiv.

Du S, **Wankowicz SA**, Yabukarski F, Doukov T, Hershlag, Fraser JS. (2023). *Refinement of Multiconformer Ensemble Models from Multi-temperature X-ray Diffraction Data.* Methods in Enzymology.

Wankowicz SA, de Oliveira SHP, Hogan DW, van den Bedem H, Fraser JS. (2022). *Ligand binding remodels protein side chain conformational heterogeneity.* eLife.

Riley BT, **Wankowicz SA**, de Oliveira SHP, van Zundert GCP, Hogan DW, Fraser JS, Keedy DA, van den Bedem H. *(*2021). *qFit 3: Protein and ligand multiconformer modeling for X-ray crystallographic and single particle cryo-EM density maps.* Protein Science.

Lawson CL, Kryshtafovych A, Adams PD, Afonine PV, Baker ML, Barad Ba, Bond P, Burnley T, Cao R, Cheng J, Chojnowski G, Cowtan K, Dill KA, DiMaio F, Farrell DP, Fraser JS, Herzik MA, Wen Hoh S, Hou J, Hung L, Igaev M, Joseph AP, Kihara D, Kumar D, Mittal D, Monastyrskyy B, Olek M, Palmer CM, Patwardhan A, Perez A, Pfab J, Pintilie GD, Richardson JS, Rosenthal PB, Sarkar D, Schäfer LU, Schmid MF, Schröder GF, Shekhar M, Dong Si, Singharoy A, Terashi G, Terwilliger TC, Vaiana A, Wang L, Wang Z, **Wankowicz SA**, Williams CJ, Winn M, Wu T, Yu X, Zhang K, Berman H, Chiu W. *(2021). Cryo-EM model validation recommendations based on outcomes of the 2019 EMDataResource challenge.* Nature Methods.

Tewari AK, Cheung ATM, Crowdis J, Conway JR, Camp SY, **Wankowicz SA**, Livitz DG, Park J, Lis RT, Boosma-Moody A, He MX, AlDubayan SH, Zhang Z, McKay RR, Leschiner I, Brown M, Balk S, Getz G, Taplin ME, Van Allen EM. *(2021). Molecular features of exceptional response to neoadjuvant anti-androgen therapy in high-risk localized prostate cancer.* Cell Reports.

Crowdis J, Balch S, Sterlin L, Thomas BS, Camp SY, Dunphy M, Anastasio E, Shah S, Damon AL, Ramos R, Sosa DM, Small IK, Tomson B, Nguyen CM, McGillicuddy M, Chastain PS, He MX, Cheung ATM, **Wankowicz SA**, Tewari AK, Kim D, AlDubayan SH, Dowdye A, Zola B, Nowak J, Manarite J, Gunn IH, Olson B, Lander ES,

Painter CA, Wagle N, Van Allen EM. (2021). *A patient-driven clinicogenomic partnership through the Metastatic Prostate Cancer Project.* Biorxiv.

Wankowicz SA, Fraser JS. (2020). *Ensemble refinement produces consistent R-free values but smaller ensemble sizes than previously reported.* Computational Crystallography Newsletter.

Gordon DE, Jang GM, Bouhaddou M, Xu J, Obernier K, White KM, O'Meara MJ, Rezelj VV, Guo JZ, Swaney DL, Tummino TA, Huettenhain R, Kaake RM, Richards AL, Tutuncuoglu B, Foussard H, Batra J, Haas K, Modak M, Kim M, Haas P, Polacco BJ, Braberg H, Fabius JM, Eckhardt M, Soucheray M, Bennett MJ, Cakir M, McGregor MJ, Li Q, Meyer B, Roesch F, Vallet T, Mac Kain A, Miorin L, Moreno E, Chi Naing ZZ, Zhou Y, Peng S, Shi Y, Zhang Z, Shen W, Kirby IT, Melnyk JE, Chorba JS, Lou K, Dai SA, Barrio-Hernandez I, Memon D, Hernandez-Armenta C, Lyu J, Mathy CJ, Perica T, Pilla KB, Ganesan SJ, Saltzberg DJ, Rakesh R, Liu X, Rosenthal SB, Calviello L, Venkataramanan S, Liboy-Lugo J, Lin Y, Huang X, Liu Y, **Wankowicz SA**, Bohn M, Safari M, Ugur FS, Koh C, Savar NS, Tran QD, Shengjuler D, Fletcher SJ,O'Neal MC, Cai Y, Chang JC, Broadhurst DJ, Klippsten S, Sharp PP, Wenzell NA, Kuzuoglu D, Wang H, Trenker R, Young JM, Cavero DA, Hiatt J, Roth TL, Rathore U, Subramanian A, Noack J, Hubert M, Stroud RM, Frankel AD, Rosenberg OS, Verba KA, Agard DA, Ott M, Emerman M, Jura N, von Zastrow M, Verdin E, Ashworth A, Schwartz O, d'Enfert C, Mukherjee S, Jacobson M, Malik HS, Fujimori DG, Ideker T, Craik CS, Floor SN, Fraser JS, Gross JD, Sali A, Roth BL, Ruggero D, Taunton J, Kortemme T, Beltrao P, Vignuzzi M, García-Sastre A, Shokat KM, Shoichet BK, Krogan NJ. (2020). *A SARS-COV-2 protein interaction map reveals targets for drug repurposing.* Nature.

Newberry RW, Arhar T, Costello J, Hartoularos GC, Maxwell AM, Chi Naing ZZ, Pittman M, Reddy NR, Schwarz DM, Wassarman DR, Wu TS, Barrero D, Caggiano C, Catching A, Cavazos TB, Estes L, Faust B, Fink EA, Goldman MA, Gomez YK, Gordon MG, Gunsalus LM, Hoppe N, Jaime-Garza M, Johnson MC, Jones MG, Kung AF, Lopez KE, Lumpe J, Martyn C, McCarthy EE, Miller-Vedam LE, Navarro EJ, Palar A, Pellegrino J, Saylor W, Stephens CA, Strickland J, Torosyan H, **Wankowicz SA**, Wong Dr, Wong G, Redding S, Chow ED, DeGrado WF, Kampmann M. (2020). *Robust Sequence Determinants of alpha-Synuclein Toxicity in Yeast Implicate Membrane Binding.* ACS Chemical Biology.

Bellmunt J, Kim J, Reardon B, Perera-Bel J, Orsola A, Rodriguez-Vida A, **Wankowicz SA**, Bowden M, Barletta J, Morote J, de Torres I, Lloreta-Trull J, Mouw K, Taplin ME, Cejas P, Long H, Van Allen E, Getz G, Kwiatkowski D. (2020). *Genomic predictors of good outcome, recurrence or progression in High grade T1 (HGT1) non-muscle invasive (NMI) bladder cancer***.** Cancer Research.

Hwang JH, Seo J, Beshiri ML, **Wankowicz SA**, Liu D, Cheung A, Li J, Qiu X, Hong AL, Botta G, Golumb L, Richter C, So J, Sandoval GJ, Giacomelli AO, Ly SH, Han C, Dai C, Pakula H, Sheahan A, Piccioni F, Gjoerup O, Loda M, Sowalsky AG, Ellis L, Long H, Root DE, Kelly K, Van Allen EM, Freedman ML, Choudhury AD, Hahn WC. (2019). *CREB5 promotes resistance to androgen-receptor antagonists and androgen deprivation in prostate cancer.* Cell Reports.

Liu D, Abbosh P, Keliher D, Reardon B, Miao D, Mouw K, Weiner-Taylor A, **Wankowicz SA**, Han C, Teo T, Cipolla C, Kim J, Iyer G, Al-Ahmadie H, Dulaimi E, Chen DY, Alpaugh RK, Hoffman-Censits J, Garraway LA, Getz G, Carter SL, Bellmunt J, Plimack E, Rosenberg JE, Van Allen EM. (2019). *Dissecting genomic correlates of response and resistance to chemotherapy in bladder cancer through clinical computational oncology.* Cancer Research.

Armenia J*, **Wankowicz SAM***, Liu D*, Gao J, Kundra R, Reznik E, Chatila WK, Chakravarty D, Han GC, Coleman I, Montgomery B, Pritchard C, Morrissey C, Barbieri CE, Beltran H, Sboner A, Zafeiriou Z, Miranda S, Bielski, CM, Penson, AV, Tolonen, C, Huang FW, Robinson, D, Wu YM, Lonigro, R, Garraway LA, Demichelis, F, Kantoff PW, Taplin, M., Abida W, Taylor BS, Scher HI, Nelson PS, de Bono JS, Rubin MA, Sawyers C., Chinnaiyan A, PCF/SU2C International Prostate Cancer Dream Team, Schultz, N., Van Allen, E.M. (2018). *The long tail of oncogenic drivers in prostate cancer.* Nature Genetics. *joint first authors

Miao D, Margolis C, Gao W, Voss MH, Li W, Martini D, Norton C, Bossé D, **Wankowicz SA**, Cullen D, Horak C, Wind-Rotolo M, Tracy A, Giannakis M, Hodi FS, Drake CG, Ball MW, Allaf ME, Snyder Charen A, Hellmann M, Ho T, Motzer RJ, Signoretti S, Kaelin Jr WG, Choueiri TK, Van Allen EM. (2018). *Genomic correlates of response to anti-PD-1/PD-L1 therapy in metastatic clear cell renal cell carcinoma.* Science.

Viswanathan SR, Ha G, Hoff AM, Wala JA, Carrot-Zhang J, Whelan, CW, Haradhvala NJ, Freeman SS, Reed, SC, Rhoades J, Polak P, Cipicchio M, **Wankowicz SA**, Wong A, Kamath T, Zhang Z, Gydush GJ, Rotem D, PCF/SU2C International Prostate Cancer Dream Team, Love JC, Getz G, Gabriel S, Zhang CZ, Dehm SM, Nelson PS, Van Allen EM, Choudhury AD, Adalsteinsson VA, Beroukhim R, Taplin ME, Meyerson M. (2018). *Structural alterations driving castration-resistant prostate cancer revealed by linked-read genome sequencing.* Cell.

Miao D, Margolis CA, Vokes NI, Liu D, Taylor-Weiner A, **Wankowicz SM**, Adeegbe D, Keliher D, Schilling B, Tracy A, Manos M, Chau N, Hanna G, Polak P, Rodig SJ, Signoretti S, Sholl L, Engelman J, Getz G, Janne PA, Haddad RI, Choueiri TK, Barbie DA, Haq R, Awad MM, Schadendorf D, Hodi FS, Bellmunt J, Wong KK, Hammerman P, Van Allen, EM. (2018). *Genomic correlates of response to immune checkpoint blockade in microsatellite-stable solid tumors.* Nature genetics.

Wankowicz SA, Maile B, Deutsch K, Hayden A, Brown E, Marsilje T, Caldwell B, Simoncell T, Van Allen EM. (2018). *Patient-driven efforts to liberate clinical cancer genomic data.* OSF Preprints.

Velasco G*, **Wankowicz SA***, Madison R, Ali SM, Norton C, Duquette A, Ross JS, Bossé D, Lalani AKA, Miller VA, Stephens PJ, Young L, Hakimi AA, Signoretti SS, Pal SK, Choueiri TK. (2018). *Targeted genomic landscape of metastases compared to primary tumours in clear cell metastatic renal cell carcinoma.* British journal of cancer. *joint first authors

Gild P*, **Wankowicz SA***, Sood A, von Landenberg N, Friedlander DF, Alanee S, Bellmunt, J. (2018). *Racial disparities in quality of care and overall survival among muscle-invasive bladder cancer patients treated with radical cystectomy: A national cancer database.* The Journal of Urology. *joint first authors

Rodrigues DN, Rescigno P, Liu D, Yuan W, Carreira S, Lambros MB, Seed G, Mateo J, Riisnaes R, **Mullane S**, Margolis C, Miao D, Miranda S, Dolling D, Clarke M, Bertan C, Crespo M, Boysen G, Ferreria A, Sharp A, Figueiredo I, Keliher D, Aldubayan S, Burke K, Sumanasyriya S, Fontes M, Bianchini D, Zafeiriou Z, Mendes L, Mouw K, Schweizer M, Pritchard C, Salipante S, Taplin ME, Beltran H, Rubin M, Cieslik M, Robinson D, Heath E, Schultz N, Armenia J, Abida W, Scher H, Lord C, D'Andrea A, Sawyers C, Chinnaiyan A, Alimonti A, Nelson P, Drake C, Van Allen E, de Bono, JS. (2018). *Immunogenomic analyses associate immunological alterations with mismatch repair defects in prostate cancer.* The Journal of clinical investigation.

Bellmunt J, Lalani AKA, Jacobus S, **Wankowicz SA**, Polacek L, Takeda DY, Harshman LC, Wagle N, Moreno I, Lundgren K, Bossé D, Van Allen E, Choueiri T, Rosenberg J. (2018). *Everolimus and pazopanib (E/P) benefit genomically selected patients with metastatic urothelial carcinoma.* British journal of cancer.

McKay RR, Bossé D, Xie W, **Wankowicz SA**, Flaifel A, Brandao R, Lalani AKA, Martini DJ, Wei XX, Braun DA, Van Allen EM, et al. (2018). *The Clinical Activity of PD-1/PD-L1 Inhibitors in Metastatic Non–Clear Cell Renal Cell Carcinoma.* Cancer immunology research.

Sonpavde G, Pond GR, Rosenberg JE, Choueiri TK, Bellmunt J, Regazzi AM, **Mullane SA**, Necchi A, Raggi D, Lee JL, Lee S. (2018). *Nomogram to Assess the Survival Benefit of New Salvage Agents for Metastatic Urothelial Carcinoma in the Era of Immunotherapy.* Clinical genitourinary cancer.

Liu D, Abbosh P, Keliher D, Reardon B, Miao D, Mouw K, Taylor-Weiner A, **Mullane SA**, Han C, Teo MY, Cipolla C, Kim J, Iyer G, Al-Ahmadie H, Dulaimi E, Chen DYT, Alpaugh R, Hoffman-Censits J, Garraway L, Getz G, Carter S, Bellmunt J, Plimack E, Rosenberg J, Van Allen EM. (2017). *Mutational Patterns in Chemotherapy Resistant Muscle-Invasive Bladder Cancer.* Nature Communications.

Vetterlein, MW*, **Wankowicz, SA***, Seisen, T., Lander R, Löppenberg B, Chun FK, Menon M, Sun M, Barletta JA, Choueiri TK, Bellmunt J, Trinh QD, Preston, MA (2017). *Neoadjuvant chemotherapy prior to radical cystectomy for muscle-invasive bladder cancer with variant histology.* Cancer. *joint first authors

Wankowicz SA, Werner L, Orsola A, Novak J, Bowden M, Choueiri TK, de Torres I, Morote J, Freeman GJ, Signoretti S, Bellmunt J. (2017). *Differential Expression Of PD-L1 In High Grade T1 Vs Muscle Invasive Bladder Carcinoma And Its Prognostic Implications.* The Journal of Urology.

Han GC, Hwang J, **Wankowicz SA**, Cibulskis C, Zhang Z, McKay RR, PCF-SU2C Dream Team, Carter SL, Hahn

WC, Taplin M, Van Allen EM. (2017). *Clinical and genomic resistance to second generation androgen blockade in paired biopsies of metastatic castration-resistant prostate cancer.* JCO Precision Medicine.

Huang FW, Mosquera JM, Garofalo A, Oh C, Baco M, Amin-Mansour A, Rabasha B, Bahl S, **Mullane SA**, Robinson BD, Aldubayan S, Khani F, Karir B, Kim E, Chimene-Weiss J, Hofree M, Romanel A, Osborne JR, Kim JW, Azabdaftari G, Woloszynska-Read A, Sfanos K, De Marzo AM, Demichelis F Gabriel S, Van Allen EM, Mesirov J, Tamayo P, Rubin MA, Powell IJ, Garraway LA. (2017). *Exome Sequencing of African-American Prostate Cancer Reveals Loss-of-Function ERF Mutations.* Cancer Discovery.

Teo MY, Bambury RM, Zabor EC, Jordan E, Al-Ahmadie H, Boyd ME, Bouvier N, **Mullane SA**, Cha EK, Roper N, Ostrovnaya I, Hyman DM, Bochner BH, Arcila ME, Solit DB, Berger MF, Bajorin DF, Bellmunt J, Iyer G, Rosenberg JE. (2017). *DNA damage response and repair gene alterations are associated with improved survival in patients with platinum-treated advanced urothelial carcinoma.* Clinical Cancer Research.

Sevillano E, Werner L, Bossé D, Lalani AA, **Wankowicz SA**, de Velasco G, Farina M, Lundgren K, Choueiri TK, González Del Alba A, Bellmunt J. (2017). *Upper Tract Urothelial Carcinomas: Prognostic Factors and Outcomes in Patients With Non–Lymph Node Distant Metastasis.* Clinical Genitourinary Cancer.

Kamran SC, Lennerz JK, Reardon B, **Mullane SA**, Wo JY, Willers H, Corcoran R, Hong TS, Van Allen EM. (2017). *Genomic Evolution and Acquired Resistance to Pre-Operative Chemoradiation Therapy in Locally Advanced Rectal Cancer.* International Journal of Radiation Oncology.

Sonpavde G, Pond GR, **Mullane S**, Ramirez AA, Vogelzang NJ, Necchi A, Powles T, Bellmunt J. (2017). *Outcomes in patients with advanced urothelial carcinoma after discontinuation of programmed death (PD)-1 or PD ligand 1 inhibitor therapy.* BJU International.

Martini, D., Brandao, R., Hamieh, L., Norton C, **Mullane SA**, Walsh M, Van Allen EM, McKay R, Harshman LC, Choueiri, TK. (2017). *Outcomes in PD-1/PD-L1 responders who discontinued therapy for immune-related adverse events (irAEs): analysis of nine patients with metastatic renal cell carcinoma (mRCC).* BJU International.

Orsola A, **Mullane SA**, Bellmunt J. (2016). Letter to the Editor, Re: van der Heijden AG, Mengual L, Lozano JJ, Ingelmo-Torres M, Ribal MJ, Fernández PL, Oosterwijk E, Schalken JA, Alcaraz A, Witjes JA. *A five-gene expression signature to predict progression in T1G3 bladder cancer.* European Journal of Cancer.

Mullane SA, Werner L, Rosenberg J, Signoretti S, Callea M, Choueiri TK, Freeman GJ, Bellmunt J. (2016). Correlation of *Apobec Mrna Expression with overall Survival and PD-L1 Expression in Urothelial Carcinoma.* Scientific Reports.

Mullane SA, & Van Allen EM. (2016). *Precision medicine for advanced prostate cancer.* Current Opinion in Urology.

Mullane SA, & Bellmunt J. (2016). *Cancer immunotherapy: new applications in urologic oncology.* Current Opinion in Urology.

Cejas P, Li L, O'Neill NK, Duarte M, Rao P, Bowden M, Zhou CW, Mendiola M, Burgos E, Feliu J, Moreno-Rubio J, Guadalajara H, Moreno V, García-Olmo D, Bellmunt J, **Mullane SA**, Hirsch M, Sweeney CJ, Richardson A, Liu XS,
Brown M, Shivdasani RA, Long HW. (2016). *Chromatin immunoprecipitation from fixed clinical tissues reveals tumor-specific enhancer profiles.* Nature Medicine.

Sonpavde G, Pond GR, Di Lorenzo G, Buonerba C, Rozzi A, Lanzetta G, Necchi A, Giannatempo P, Raggi D6, Matsumoto K, Choueiri TK, **Mullane SA**, Niegisch G, Albers P, Lee JL, Kitamura H, Kume H, Bellmunt J. (2016). *Impact of Prior Platinum-Based Therapy on Patients Receiving Salvage Systemic Treatment for Advanced Urothelial Carcinoma.* Clinical Genitourinary Cancer.

Bellmunt J, Zhou CW, **Mullane SA**, Werner L, Taplin ME, Fay AP, Choueiri TK, Orsola A, Takeda DY, Hahn WC, Kim J, Sonpavde G, Bowden M. (2016). *Association of tumour microRNA profiling with outcomes in patients with advanced urothelial carcinoma receiving first-line platinum-based chemotherapy.* British Journal of Cancer.

Sonpavde G, Pond GR, Choueiri TK, **Mullane SA**, Niegisch G, Albers, P, Necchi A5, Di Lorenzo G, Buonerba C, RozziA, Matsumoto K, Lee JL, Kitamura H, Kume H, Bellmunt J. (2016). *Single-agent taxane versus taxane-containing combination chemotherapy as salvage therapy for advanced urothelial carcinoma.* European Urology.

Mullane SA, & Bellmunt J. (2015). Re: John P. Sfakianos, Eugene K. Cha, Gopa Iyer, et al. *Genomic Characterization of Upper Tract Urothelial Carcinoma.* European Urology.

Mullane SA, Werner L, Guancial EA, Lis RT, Stack EC, Loda, M, Kantoff PW, Choueiri TK, Rosenberg J, Bellmunt, J. (2015). *Expression Levels of DNA Damage Repair Proteins Are Associated With Overall Survival in Platinum-Treated Advanced Urothelial Carcinoma.* Clinical Genitourinary Cancer.

Cole AP, Dalela D, Hanske J, **Mullane SA**, Choueiri TK, Meyer, CP, Nguyen PL, Menon M, Kibel AS, Preston MA, Bellmunt J, Trinh QD. (2015). *Temporal trends in receipt of adequate lymphadenectomy in bladder cancer 1988 to 2010.* In Urologic Oncology: Seminars and Original Investigations.

Bellmunt J, Werner L, Leow JJ, **Mullane SA**, Fay AP, Riester M, Van Hummelen P, Taplin ME, Choueiri TK, Van Allen E, Rosenberg, J. (2015). *Somatic copy number abnormalities and mutations in PI3K/AKT/mTOR pathway have prognostic significance for overall survival in platinum treated locally advanced or metastatic urothelial tumors.* PloS one.

Bellmunt J, **Mullane SA**, Werner L, Fay AP, Callea M, Leow J, Choueiri TK, Hodi FS, Freeman GJ, Signoretti S. (2015). *Association of PD-L1 Expression on Tumor Infiltrating Mononuclear Cells and Overall Survival in Patients with Urothelial Carcinoma.* Annals of Oncology.

Bellmunt J, Werner L, Bamias A, Fay AP, Park RS, Riester M, Selvarajah S, Barletta J, Berman D, de Muga S, Salido M, Gallardo E, Rojo F, Guancial E, Bambury R, **Mullane SA**, Choueiri TK, Loda M, Stack E, Rosenberg, J. (2015). *HER2 as a target in invasive urothelial carcinoma.* Cancer Medicine.

Bellmunt J, Selvarajah S, Rodig S, Salido M, de Muga S, Costa I, Bellosillo B, Werner L, **Mullane SA**, Fay AP, O'Brien R, Barretina J, Minoche AE, Signoretti S, Montagut C, Himmelbauer H, Berman D, Kantoff P, Choueiri TK, Rosenberg, J. E. (2014). *Identification of ALK Gene Alterations in Urothelial Carcinoma.* PloS one.

Sonpavde G, Pond GR, **Mullane SA**, Qu AQ, Di Lorenzo G, Federico P, Choueiri TK (2014). *Incomplete cross-resistance between taxanes for advanced urothelial carcinoma: implications for clinical practice and trial design.* Clinical Genitourinary Cancer.

Orsola A, L. Werner, de Torres I, Martin-Doyle W, Raventos CX, Lozano F, **Mullane SA**, Leow JJ, Barletta JA, Bellmunt J, Morote J. (2014). *Reexamining treatment of high-grade T1 bladder cancer according to depth of lamina propria invasion: a prospective trial of 200 patients.* British Journal of Cancer.

Leow J, Fay AP, **Mullane SA**, Bellmunt, J.(2015). *Perioperative Therapy for Invasive Bladder Cancer.* Hematology/Oncology Clinics of North America.

Mullane, SA. *Comparing Dose Response Models based on the Cost Benefit Analysis of The Disinfectant/Disinfection By Product Rule*. Undergraduate Honors Senior Thesis, 2013, Advisors: Dr. Paul Kostecki, Dr. Christine Crago, Dr. Edward Calabrese

INVITED TALKS

10/2023 St. Jude Structural Biology Symposium "Making sense of the chaos: conformational entropy and ligand binding" Chattanooga, TN

10/2023 UCSF Clements Lecture "Making sense of the chaos: conformational entropy and ligand binding" San Francisco, CA

10/2023 Intersection Science Fellows Symposium "Making sense of the chaos: conformational entropy and ligand binding" Remote

03/2023 Keystone Symposia, Computational Design and Modeling of Biomolecules "*Water Molecule Likelihood Map for Protein and Ligand Structural Model*s"

11/2022 UCSF Quantitative Biology Retreat *"How does ligand binding impact protein conformational heterogeneity?"* Santa Cruz, CA

10/2022 University of Massachusetts Medical School *"How does ligand binding impact protein conformational heterogeneity?"* Worcester, Ma

10/2022 Dana-Farber Cancer Institute *"How does ligand binding impact protein conformational heterogeneity?"* Boston, Ma

10/2022 Pittsburg Diffraction Conference. *"Leveraging machine learning to detect heterogeneous features from diffraction data"* Argonne National Lab, Lemont, IL

04/2022 Phenix Developers Meeting. "*Identifying and improving the modeling of water molecules in multiconfomer models."* Lawrence Berkeley National Lab, Berkeley, CA

06/2021 Hamburg-Harvard Series of Crystallographic Curiosities. "*Assessing how side chain conformational heterogeneity changes upon ligand binding*." Remote

05/2021 D.E. Shaw Research. "*Assessing how side chain conformational heterogeneity changes upon ligand binding.*" Remote

11/2017 Center for Cancer Precision Medicine, Dana Farber Cancer Institute. "*Expanding the molecular landscape of advanced prostate cancer.*" Boston, MA

UNIVERSITY SERVICE

UCSF Biophysics Peer/Alumni Mentorship Co-Leader	*2021-2023*
UCSF Biophysics Executive Committee	*2020-2023*
Leadership Team, UCSF Science Policy Group	*2019-2020*
Co-Leader, Fundraising/Grants Committee, Women in the Enterprise of Science & Technology	*2014-2018*
Senior Member, Genitourinary Oncology Research Group	*2014-2016*
Band Manager, University of Massachusetts Amherst	*2010-2012*

TEACHING EXPERIENCE

Instructor of Record

Computing for Biophysicists	*Fall 2023*
Biophysics First Year Onboarding	*Fall 2020-2022*

Teaching Assistant

NSF Graduate Research Fellowship Course	*Fall 2020-2021*
Biostatistics	*Fall 2019*
Introduction to Programming	*Fall 2019*
AI4All Python Module	*Summer 2019*

MENTORSHIP EXPERIENCE

Jessica Flowers, Research Assistant — Fall 2023-Present

Martina Boga De Teresa, Undergraduate — Fall 2023-Present

Nhi Nhi Ly, Gladstone Institute PUMAS Scholar — Summer 2023
Current Status: Undergraduate at California State University East Bay

Yisheng Yang, UCSF rotation student — *Winter 2023*
Current Status: Rotation Student

Jonathan Browsky, UCSF rotation student — *Fall 2022*
Current Status: Rotation Student

Catherine Kuhn, UCSF rotation student — *Spring 2022*
Current Status: Graduate student in Tanja Kortemme Lab

Sophia Staggers, Undergraduate Student for BioXfel — *Summer 2021*
Current Status: Graduate student at the University of Pittsburg

Camille Moore, UCSF rotation student — *Winter 2021*
Current Status: Graduate student in Geeta Narlikar Lab

Kyle Anderson, UCSF rotation student — *Summer 2020*
Current Status: Graduate student in Charlie Craik Lab

Jake Conway, Harvard DBMI rotation student — Spring 2017
Current Status: Scientist PathAI