

Erica D. Pratt, Ph.D.

Assistant Professor of Biomedical Engineering
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EDUCATION

PhD in Biomedical Engineering, Cornell University, Ithaca NY Prof. Brian J. Kirby, PhD	08/2015
MS in Biomedical Engineering, Cornell University, Ithaca NY Prof. Brian J. Kirby, PhD	09/2012
BS in Mechanical, Biomedical Engineering, Carnegie Mellon University, Pittsburgh PA Prof. Philip R. LeDuc, PhD	05/2008

POSTDOCTORAL TRAINING

Postdoctoral Associate Prof. Laurie L. Parker	University of Minnesota Department of Biochemistry, Molecular Biology & Biophysics	07/18 – 11/21
Postdoctoral Fellow Dr. Andrew D. Rhim	The University of Texas at MD Anderson Cancer Center Department of Internal Medicine	06/16 – 06/18
	University of Michigan Medical School Department of Internal Medicine	05/15 – 05/16

ACADEMIC POSITIONS

Assistant Professor	Boston University Department of Biomedical Engineering	01/22 –
Research Assistant Professor	Boston University Department of Biomedical Engineering	12/21 – 01/22
Visiting Researcher	Boston University Department of Biomedical Engineering	06/21 – 12/21

GRANTS AND FELLOWSHIPS

University of Minnesota President's Postdoctoral Fellowship Program (<i>declined</i>)	2021
University of Minnesota Targets of Cancer Training Program (T32 CA009138)	2020
Momental Foundation Unfettered Research Grant (PI)	2019
NIH R33 Diversity Supplement (CA217780)	2018
University of Michigan Cancer Biology Training Grant (T32 CA967622)	2015
Cornell Physical Sciences in Oncology Center (PS-OC) Young Investigator's Award (PI)	2012
NSF Graduate Research Fellowship	2009
Alfred P. Sloan Foundation Graduate Fellowship	2008

AWARDS

Cancer Disparities Research Network Early Career Scholarship, Travel Grant	2019
Gordon Conference on Liquid Biopsy in Cancer, Travel Grant	2018
Edward A. Bouchet Graduate Honor Society, Fellow	2014
International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), Travel Grant	2011
Gordon Research Conference (GRC) on Bioanalytical Sensors, Travel Grant	2010
Cornell Nanofabrication Facility (CNF) Annual Meeting, Poster Award	2010
Sibley Graduate Research Conference, Poster Award	2010
Cornell Biomedical Engineering Society, Poster Award	2008

PUBLICATIONS

* co-equal contribution; # corresponding author; † highlighted

Pubmed: <https://www.ncbi.nlm.nih.gov/myncbi/erica.pratt.1/bibliography/public/>

Google Scholar: <https://scholar.google.com/citations?user=kfs1KL4AAAAJ&hl=en>

ORCID: <https://orcid.org/0000-0002-5868-6020>

- [11] RW Cowan, **ED Pratt**, JM Kang, J Zhao, JJ Wilhelm, M Abdulla, EM Qiao, LP Brennan, PJ Ulintz, MD Belling, AD Rhim. "Clinical severity does not increase pancreatic cancer-related mutational burden in patients with chronic pancreatitis" *Clinical and Translational Gastroenterology*, 12 (11) e00431 2021
- [10] S Jena*, NP Damayanti*, J Tan, **ED Pratt**, JMK Irudayaraj and LL Parker, "Multiplexable fluorescence lifetime imaging (FLIM) probes for Abl and Src-family kinases" *Chemical Communications*, 56 (87) 13409-13412 2020.
- [9] **ED Pratt** #, RW Cowan, SL Manning, E Qiao, H Cameron, K Schradle, DM Simeone and DB Zhen, "Multiplex Enrichment and Detection of Rare KRAS Mutations in Liquid Biopsy Samples using Digital Droplet Pre-Amplification," *Analytical Chemistry*, 91(12) 7516-7523 2019.
- [8] AS Farrell, MM Joly, BL Allen-Petersen, PJ Worth, C Lanciault, D Sauer, J Link, C Pelz, LM Heiser, JP Morton, N Muthalagu, MT Hoffman, SL Manning, **ED Pratt**, ND Kendersky, N Egbukichi, TS Amery, MC Thoma, ZP Jenny, AD Rhim, DJ Murphy, OJ Sansom, HC Crawford, BC Sheppard, RC Sears, "MYC regulates ductal-neuroendocrine lineage plasticity in pancreatic ductal adenocarcinoma associated with poor outcome and chemoresistance", *Nature Communications*, 8(1) 1728 2017
- [7] ES Antonarakis, ST Tagawa, G Galletti, D Worroll, K Ballman, M Vanhuyse, G Sonpavde, S North, C Albany, CK Tsao, J Stewart, A Zaher, T Szatrowski, W Zhou, A Gjyrezi, S Tasaki, L Portella, Y Bai, TB Lannin, S Suri, CN Gruber, **ED Pratt**, BJ Kirby, MA Eisenberger, DM Nanus, F Saad and P Giannakakou, "A Randomized Non-Comparative Phase II Trial of Early Switch from Docetaxel to Cabazitaxel or Vice Versa, with Integrated Biomarker Analysis, in Men with Chemotherapy-Naïve Metastatic Castration-Resistant Prostate Cancer," *Journal of Clinical Oncology*, 35(28) 3181 2017.
- [6] **ED Pratt**, A Stepanyk, J Hicks and BJ Kirby, "Single-Cell Copy Number Analysis of Prostate Cancer Cells using GEDI Microdevices," *Analytical Chemistry*, 88(22) 11013-11017 2014. †[Featured in Chemical & Engineering News \(C&EN\)](#).
- [5] WC Ruder, **ED Pratt**, NZD Brandy, DA LaVan, PR LeDuc and JF Antaki, "Calcium signaling is gated by a mechanical threshold in three dimensional environments," *Scientific Reports*, 2 2012.
- [4] WC Ruder, **ED Pratt**, S Bakhru, M Sitti, S Zappe, CM Cheng, JF Antaki and PR LeDuc, "Three-Dimensional Microfiber Devices that Mimic Physiological Environments to Probe Cell Mechanics and Signaling," *Lab on a Chip*, 12(10) 1775-1779 2012. †[Lab on a Chip Top 10% article](#).
- [3] BJ Kirby, M Jodari, MS Loftus, **ED Pratt**, G Gakhar, JP Gleghorn, SM Santana, H Liu, JP Smith, VN Navarro, ST Tagawa, NH Bander, DM Nanus and P Giannakakou, "Functional characterization of circulating tumor cells with a prostate-cancer-specific microfluidic device," *PLoS ONE*, 7(4) e35976 2012.
- [2] **ED Pratt** *, C Huang*, BG Hawkins, JP Gleghorn and BJ Kirby, "Rare cell capture in microfluidic devices," *Chemical Engineering Science*, 66(7) 1508-1522 2011. †[Top Cited Paper for 2011 & 2012](#).
- [1] JP Gleghorn, **ED Pratt**, D Denning, H Liu, NH Bander, ST Tagawa, DM Nanus, PA Giannakakou and BJ Kirby, "Capture of circulating tumor cells from whole blood of prostate cancer patients using geometrically enhanced differential immunocapture GEDI and a prostate-specific antibody," *Lab on a Chip*, 10(1) 27-29 2010. †[Top Cited Paper for 2012](#).

PREPRINTS / IN PREPARATION

- [2] **ED Pratt** #, DB Zhen, SL Manning, H Cameron, K Schradle, V Gunchick, RW Cowan, V Sahai DM Simeone and AD Rhim, "Ultra-low Input Circulating Tumor DNA Detection by MED-Amp in Early-Stage Pancreatic Cancer" *bioRxiv* 2021.03.28.437388; doi: <https://doi.org/10.1101/2021.03.28.437388>
- [1] **ED Pratt**, JM Kang, D Early, V Kushnir, G Lang, D Mullady, RW Cowan, V Chandarasekhara, K Das, AK Rustigi, AD Rhim, "Digital Droplet PCR-Enabled Targeted Sequencing is Effective for Genotyping of Pancreatic Tumors Independent of EUS-Sampling Technique" (*in preparation*)

SELECTED INVITED PRESENTATIONS

The University of Minnesota Masonic Cancer Center Seminar Series	05/21
The Ohio State University Department of Biomedical Engineering Seminar Series	03/21
University of Minnesota Department of Biomedical Engineering Seminar Series	03/21
University of Texas at Dallas Department of Bioengineering Seminar Series	02/21
University of Massachusetts at Amherst Department of Biomedical Engineering Seminar Series	02/21
Boston University Department of Biomedical Engineering Seminar Series	02/21
Tufts University Department of Biomedical Engineering Seminar Series	02/21
University of Colorado Boulder Department of Chemical & Biological Engineering Seminar Series	02/21
The Ohio State University Department of Mechanical and Aerospace Engineering Seminar Series	11/20
University of Minnesota Center for Genome Engineering	09/19
Medical College of Milwaukee Pancreatic Cancer Translational Science Symposium	10/19
AACR Pancreatic Cancer: Advances in Science and Clinical Care †Plenary Session on Blood-Based Early Detection	09/18
Gordon Research Conference on Liquid Biopsy in Cancer	08/18
World Circulating Tumor Cell Summit	11/12

SELECTED CONFERENCES

(*) podium presentation

- [9] (*) **ED Pratt**, RW Cowan, SL Manning, E Qiao, H Cameron, K Schradle, DM Simeone, DB Zhen, "Ultrasensitive Detection of Circulating Tumor DNA using Digital Droplet Pre-Amplification", in Proceedings of the Biomedical Engineering Society Fall Meeting (BMES), Atlanta, GA, 2019
- [8] (*) **ED Pratt**, DB Zhen, SL Manning, H Cameron, K Schradle, V Gunchick, RW Cowan, V Sahai, DM Simeone and A. D. Rhim, "Multiplex enrichment and detection of *KRAS* mutations in liquid biopsy samples using digital droplet pre-amplification," in AACR Special Conference on Pancreatic Cancer: Advances in Science and Clinical Care, Boston, MA, 2018.
- [7] (*) **ED Pratt**, DB Zhen, SL Manning, H Cameron, K Schradle, V Gunchick, RW Cowan, V Sahai, DM Simeone and A. D. Rhim, "Quantitative High-Sensitivity Multiplex Detection of Rare *KRAS* Mutations in Liquid Biopsy Samples using Picodroplet Digital PCR," in Gordon Research Conference on Liquid Biopsy for Cancer, South Hadley, MA 2018.
- [6] **ED Pratt**, A Londoño, E Qiao, L. Brennan, DM Simeone, P Ulintz, M. Samuels and Andrew, "Prediction of histologic grade of precancerous cystic lesions using picodroplet PCR-enabled targeted sequencing," in AACR Special Conference on Pancreatic Cancer: Advances in Science and Clinical Care, Orlando, FL 2016.
- [5] **ED Pratt**, A Stepansky, J Hicks and BJ Kirby, "Single-Cell Copy Number Analysis of Prostate Cancer Cells Captured with GEDI Microdevices," in Gordon Research Conference on Rare Cells in Circulation, South Hadley, MA, 2014.
- [4] **ED Pratt**, M Blattner, A Stepansky, H Liu, N. Bander, M. Rubin, J Hicks and B. Kirby, "Microfluidic Nuclei Extraction from Circulating Tumor Cells for Genetic Analyses," in Proceedings of the Biomedical Engineering Society Fall Meeting (BMES), Atlanta, GA, 2012.
- [3] **ED Pratt**, S Santana, JP Gleghorn, H Liu, N. Bander, D Nanus, P Giannakakou and BJ Kirby, "Circulating tumor cell release by use of novel immunocapture chemistry in GEDI microdevices," in Proceedings from 2011 MicroTAS Meeting, Seattle, WA, 2011.
- [2] **ED Pratt**, JP Gleghorn, SM Santana, M Loftus, M Jodari-Karimi, N. Bander, D Nanus, P Giannakakou and BJ Kirby, "Cancer cell assays by use of immunocapture, subcellular imaging, and cell release in GEDI microdevices," in Gordon Research Conference on Bioanalytical Sensors, New London, NH, 2010.
- [1] (*) JP Gleghorn, S Santana, **ED Pratt**, M Loftus, M Jodari-Karimi, N Bander, D Nanus, P Giannakakou and BJ Kirby, "Cancer cell assays by use of immunocapture, subcellular imaging, and cell release in GEDI microdevices," in Proceedings of the Biomedical Engineering Society Fall Meeting (BMES), Austin, TX, 2010.

TEACHING & MENTORSHIP

COURSEWORK

Microfluidics in Biology and Medicine (BMEN 5321), University of Minnesota, Guest Lecturer	2020
Introductory Fluid Mechanics (MAE 3230), Cornell, Teaching Assistant	2014
Cancer for Engineers and Physicists (MAE/BME 6840), Cornell, Teaching Assistant	2013
Physics of Micro- and Nanoscale Fluid Mechanics (MAE 5240/6240), Cornell, Guest Lecturer	2009
Physics of Micro- and Nanoscale Fluid Mechanics (MAE 5240/6240), Cornell, Teaching Assistant	2009

MENTEES

Julia Sexton, Directed undergraduate research at University of Minnesota. Daily mentorship and weekly one-on-one meetings. <u>Funded by Undergraduate Research Opportunities Program Grant.</u>	Sept 2019 – Dec 2021
Akaash Kannan, Directed graduate student rotation at University of Minnesota. Daily mentorship and training.	Oct 2019 – Dec 2019
Blanche Cizubu, Directed undergraduate research at University of Minnesota. Daily mentorship and training. Research Technician at Duke University.	Jan 2019 – June 2019
Huda Adam, Directed undergraduate research at University of Minnesota. Daily mentorship and training. Currently in medical school.	Sept 2018 – June 2019
Julia Wang, Directed undergraduate research <u>funded through Cornell Engineering Learning Initiatives Grant.</u> 1 technical white paper. Senior scientist at Pfizer.	June 2011 – May 2012

PROFESSIONAL MEMBERSHIPS

Member, US Human Proteome Organization [2019 –], **Associate Member**, American Association for Cancer Research [2016 –], **Member**, Biomedical Engineering Society [2009 –]

SERVICE

FIELD

Co-Chair , Gordon Research Seminar on Liquid Biopsy for Cancer	2018
Co-Organizer , Power Hour, Gordon Research Conference on Liquid Biopsy for Cancer	2018
Session Chair , Gordon Research Conference on Rare Cells in Circulation	2016
Ad Hoc Reviewer , <i>Analytical Chemistry</i> <i>Communications Biology</i> <i>ACS Sensors</i> <i>Translational Research</i>	

UNIVERSITY/DEPARTMENTAL

Member , Biomedical Engineering Admissions Committee	2022
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COMMUNITY

(*) <i>Justice, Equity, Diversity, and Inclusion (JEDI) initiative</i>	
(*) Mentor , Black in Cancer Mentorship Program	2021
Reviewer , University of Minnesota Undergraduate Research Opportunities Program	2021
Focus Scientist , University of Minnesota BIOL 1806: Nature of Life	2020 & 2021
Focus Scientist , University of Colorado Boulder MCEN:4228 Mechanics of Cancer	2020
(*) Mentor , #Black2Class outreach in support of rising black and STEM scholars	2020
(*) Volunteer , Expand Your Horizons (EYH) workshop for 7 th -9 th grade girls, Cornell	2011
Service Vice President , Alpha Phi Omega National Service Fraternity, Kappa Chapter	2007
Editor , <i>Thought</i> collegiate research journal, Carnegie Mellon University	2005