

# **Britt D.K. Gratreak**

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I am an MD/PhD student at the University of Arizona College of Medicine – Tucson. I am passionate about science communication and mentoring nontraditional students entering medical and research fields. I have teaching experience as a science museum educator and have guest lectured a college-level course. My goal as a future physician-scientist is to improve the quality of life for patients seeking neurological care through basic science research and patient advocacy.

## **EDUCATION**

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| 2019 – present | <b>Combined MD-PhD (Neuroscience)</b><br>University of Arizona College of Medicine – Tucson in Tucson, Arizona<br>GPA 4.0 <ul style="list-style-type: none"><li>• Medical Scientist Training Program (MSTP)</li><li>• Neuroscience Graduate Interdisciplinary Program</li><li>• Rural Health Professionals Program (RHPP)</li><li>• Leadership and Innovation in Healthcare Distinction Track (LIHDT)</li></ul> |
| 2013 – 2016    | <b>Bachelor of Science (Biology)</b><br>Portland State University in Portland, Oregon<br><i>Magna cum laude</i> <ul style="list-style-type: none"><li>• Honors Research Thesis in Dr. Stedman's Virology Laboratory <i>Gone Sour: Exploring Host Range and Virus/Host Interactions using SSV1 Mutants</i></li></ul>   |
| 2011 – 2013    | <b>Associate of Science (Transfer Program)</b><br>Portland Community College in Portland, Oregon  |

## **RESEARCH EXPERIENCE**

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|----------------|---|
| 2022 – present | <b>Graduate Research Associate</b><br>Dr. John Streicher's Pharmacology Laboratory<br>University of Arizona in Tucson, Arizona <ul style="list-style-type: none"><li>•</li></ul>  |
| 2021 – present | <b>Alzheimer's Translational Innovation Fellow (Predoctoral)</b><br>University of Arizona in Tucson, Arizona<br>Translational Research in Alzheimer's Disease and Related Dementias (AZ-TRAD) Training Grant T32-AG061897 <ul style="list-style-type: none"><li>•</li></ul> |

2021 – 2022	<p><b>Graduate Associate</b>  Dr. Kristian Doyle's Stroke Immunobiology Laboratory  University of Arizona In Tucson, Arizona</p> <ul style="list-style-type: none"> <li>•</li> </ul>
2017 – 2019	<p><b>Lab Manager / Research Assistant II</b>  Dr. David Ellison's Nephrology and Hypertension Laboratory  Oregon Health and Science University in Portland, Oregon</p> <ul style="list-style-type: none"> <li>• Highly skilled in cell culture, transfection, RNAi, preparation of frozen tissue, immunofluorescence microscopy, Western blot, and small rodent surgery</li> <li>• Managed transgenic mouse colony</li> <li>• Trained in shipping of hazardous goods and biological materials</li> <li>• Established and standardized protocols, overseen requisitions and lab safety</li> </ul>
2016 – 2017	<p><b>Undergraduate Honors Researcher</b>  Dr. Kenneth Stedman's Extreme Virology Laboratory  Portland State University Center for Life in Extreme Environments in Portland, Oregon</p> <ul style="list-style-type: none"> <li>• Conducted thesis project of host-range expansion by mutations of <i>sulfolobus spindle-shaped virus 1</i> while learning virological techniques such as plaque assays, halo assays, and extremophile archaea culture</li> <li>• Field sampled for viruses and hosts in Lassen, CA in hot spring environment</li> </ul>
2015 – 2016	<p><b>Notable Undergraduate Projects</b></p> <ul style="list-style-type: none"> <li>• <b>Gratreack, B.D.K.</b>, Lind, A., &amp; Sutton, L. (2016) Redefining drugs using common dietary compounds: exploring possible neuroprotective effects of caffeinated coffee &amp; tea. Poster presentation at <i>Portland Community College Chemistry Fair</i> as part of the Organic Chemistry (CH 332) course taught by Dr. Gabriele Backes.</li> <li>• <b>Gratreack, B.D.K.</b>, Hinsch, T., Roth, B. (2015). Antagonistic pleiotropy and cognition: early benefits of apolipoprotein E4. Poster and oral presentation at <i>Portland State University</i> as part of the Evolutionary Medicine (BI 410) course taught by Dr. Susan Masta.</li> <li>• <b>Gratreack, B.D.K.</b> (2015). Zebrafish: group dynamics on individual behavior. Independent animal behavior field project at <i>Portland State University</i> as part of the Animal Behavior. (BI 412) course taught by Dr. Randy Zelick.</li> </ul>

## RESEARCH PUBLICATIONS

- Gratreack, B.D.K.\***, Swanson, E.A.\*, Lazelle, R.A.\*, Jelen, S.K. Hoenderop, J, Bindels, R.J., Yang, C.L., & Ellison, D.H. (2020). Tacrolimus-induced hypomagnesemia and hypercalciuria requires FKBP12 suggesting a role for calcineurin. *Physiological Reports*, 8, e14316. <https://doi.org/10.14814/phy2.14316> \*co-first authorship
- Ferdaus, M.Z., **Gratreack, B.D.K.**, Miller, L., Si, J., McCormick, J.A., Yang, C.L., Ellison, D.H., & Terker, A.S. (2019). WNK4 limits distal calcium losses following acute furosemide treatment. *Physiological Reports*. <https://doi.org/10.14814/phy2.14195>
- Cornelius, R.J., Si, J., Cuevas, C.A., Nelson, J.W., **Gratreack, B.D.K.**, Pardi, R., Yang, C.L., & Ellison, D.H. (2018). Renal COP9 signalosome deficiency alters CUL3-KLHL3-WNK signaling pathway. *Journal of the American Society of Nephrology*. <https://doi.org/10.1681/ASN.2018030333>

## RESEARCH ABSTRACTS & POSTER PRESENTATIONS

- Gratreack, B.D.K.**, Mintz, G., Tran, B., Furman, H., Ohe, K., Miller, I., Turk, R., Wang, H., McIntosh, K., Gordon, P. (2022). LGBTQIA+ Healthcare: Comparing Competency, Comfortability, and Career Planning Among

Incoming LGBTQIA+ and Non-LGBTQIA+ Medical Students. Presented at Building the Next Generation of Academic Physicians (BNGAP) 2022 LGBT Health Workforce Conference on April 21-23, 2022.

Mintz, G., **Gratrek, B.D.K.**, Tran, B., Furman, H., Ohe, K., Miller, I., Turk, R., Wang, H., Gordon, P., McIntosh, K.. Curriculum Enrichment: Bridging Gaps to Prepare Future Physicians to Address the Health Needs of LGBTQIA+ Patients. Presented at the 2022 Western Group on Educational Affairs (WGEA) Regional Conference on March 31-April 3, 2022.

Tran, B., Mintz, G., **Gratrek, B.D.K.**, Furman, H., Ohe, K., Miller, I., Turk, R., Wang, H., McIntosh, K., Gordon, P. (2022). Pushing for Progress: Student Organizers Advocate for LGBTQIA+ Inclusion in the Medical Curriculum. Presented at the University of Arizona 4th Annual UAHS LGBTQ+ National Symposium & Community Fair by Brian Tran on February 11, 2022.

**Gratrek, B.D.K.**, Chapman, E.D., Johnson, K.E., Maiyo, B.K., Loppi, S., Doyle, K.P. (2022). Comorbid Ischemic Stroke and Sickle Cell Disease: Assessment of Neuroinflammation and Neurological Impairment After Stroke. Accepted for presentation at the BRAIN & BRAIN PET conference in Glasgow, Scotland on May 29-June 1, 2022, but poster not able to be presented due to leaving the Doyle lab.

**Gratrek, B.D.K.**, Bechtel, D., Espejo, L., Johnson, K.E., Maiyo, B.K. Le, E.H., Sutphin, G.L., Doyle, K.P. (2022). Synergistic effects of 2-hydroxypropyl- $\beta$ -cyclodextrin and 3-hydroxyanthranilic acid on inflammation and birefringent crystal formation in chronic ischemic stroke infarcts. Presented at the West Regional American Physician Scientist Association (APSA) Conference hosted by Oregon Health and Science University on January 22, 2022.

Mintz, G., **Gratrek, B.D.K.**, Tran, B., Furman, H., Ohe, K., Miller, I., Turk, R., Wang, H., McIntosh, K., Gordon, P. (2021). Curriculum Enrichment: Preparing Future Physicians to Address the Health Needs of LGBTQIA+ Patients. Presented at Building the Next Generation of Academic Physicians (BNGAP) 2021 LGBT Health Workforce Conference by Gabrielle Mintz on April 24, 2021.

**Gratrek, B.D.K.**, Sandoval, A.R., Pickard, K.D., Atluri, S. & Hall, C.M. (2020). The 1974 stadium law: How an Arizona stadium renovation bill has impeded medical education on reproductive health for nearly 50 years. Presented virtually at the 105th American Medical Women's Association Annual Meeting on March 26-29, 2020 by Brittany D.K. Gratrek and Alicia R. Sandoval. <http://doi.org/10.5281/zenodo.3731669>

**Gratrek, B.D.K.**, Swanson, E.A., Lazelle, R.A., Jelen, S.K., Yang, C.L., Hoenderop, J., Bindels, R.J., & Ellison, D.H. (2019). Calcineurin in the distal convoluted tubule plays a key role in tacrolimus-induced hypomagnesemia and hypercalciuria. Presented at Oregon Health and Science University (OHSU) Research Week on May 13, 2019. <http://doi.org/10.5281/zenodo.2726959>

Palmer, A.V., **Gratrek, B.D.K.**, Mukherjee, A., Ellison, D.H. (2019). Inhibition of CTDSP1 with rabeprazole poses potential effects in the kidney. Presented at Oregon Health and Science University (OHSU) Research Week on May 13, 2019 by Ashley V. Palmer.

**Gratrek, B.D.K.**, Martindale, R.G. (2019). Mind the microbiome: Dietary intervention and mental health outcomes of homeless adults. Presented at NW Microbiome Mixer in Portland, Oregon on March 16, 2019. <https://doi.org/10.5281/zenodo.2653311>

**Gratrek, B.D.K.**, Stippich, K., Madison, T., Kunz, A., Alexander, R., Acott, J., Clark, A., Hill, R., Parker, G., Whittaker, A., Schoen, J., Howard, A., Voigt, A., Hootan, K. (2016). Neuroscience Club at Portland State University: Creating a multidisciplinary neuroscience community for students, teachers, and local community members. Presented at Society for Neuroscience Oregon Chapter Meeting on May 13, 2016.

## FUNDING

T32-AG061897 | Arizona Translational Research on Alzheimer's Disease and Related Dementias (AZ-TRADD)

## WORKSHOPS & CERTIFICATES

### University of Arizona Graduate Center Office of Fellowships

2022 Summer Fellowship Application Development Program

### University of Arizona Center for Transformative Interprofessional Healthcare

2022 Overdose Recognition and Naloxone Administration Interprofessional Education Certificate

2020 Pandemic Interprofessional Education Certificate

2020 Pandemic Interprofessional Education Certificate

2020 Disabilities Interprofessional Event Certificate

## SERVICE & OUTREACH

### American Medical Women's Association

- 2022-present National Region 8 Director
- 2021 Recipient of Regional Event Grant
- 2021-2022 National Region 8 Director
- 2020-2021 Conference Planning Committee Member for Region 8

### University of Arizona College of Medicine – Tucson

- 2022-2023 Medical Scientist Training Program (MSTP) Recruitment Committee Member
- 2021-2022 MD Admissions Multiple Mini Interviewer
- 2021-2022 MD Admissions Secondary Application Screener
- 2021-2022 Joint Biosphere Conference Planning Committee (Immunobiology Department Representative)
- 2021-2022 Medical Scientist Training Program (MSTP) Wellness Committee Member
- 2020-2021 UACOM-T Anti-Racism in Medicine Initiative: Transparency & Accountability Committee Member
- 2020-2021 Founder and Senior Mentorship Co-Chair of First-generation Low Income MedCats (FLI MedCats)
- 2020-2021 Medical Scientist Training Program (MSTP) MD/PhD Admissions Committee Member
- 2020 SAFEZONE Facilitator for Class of 2024 Pathways Class LGBTQ Health Disparities
- 2019-2020 President of the American Medical Women's Association (AMWA) UACOMT Branch
- 2019-2020 Co-Director of MedPride
- 2019-2020 Vice President of the Medical Ethics Reality Forum (MERF)

### Alliance of Disabilities and Chronic Illnesses in Medicine

- 2020-2021 Advocacy Chair of Alliance of Disabilities and Chronic Illnesses in Medicine (ADACIM)

### Portland State University

- 2015-2016 President of the Neuroscience Club
- 2013-2015 Science Officer of the Neuroscience Club

## TEACHING, MENTORSHIP, & HIGHER EDUCATION

2021 – 2022 | **Research Mentor for STEM Undergraduate** – volunteer

Undergraduate Ready for Burgeoning Research for American Indian Neuroscientists (URBrain)

- Partnership between Diné College, the University of Arizona Health Sciences Center for Innovation in Brain Science, the Biomedical Learning and Student Training program at the University of Alaska Fairbanks, & the National Institutes of Health (R25-NS107185).
- Detail responsibilities here

2020 – present	<p><b>Mentor for Premedical Students with Disabilities</b> – volunteer Future Docs with Disabilities (online)</p> <ul style="list-style-type: none"> <li>• Guide premedical students with disabilities in overcoming unique barriers to entering medical school through weekly mentorship and advice</li> </ul> <p><b>Mentor for Premedical Students</b> – volunteer Prescribe it Forward (online)</p> <ul style="list-style-type: none"> <li>• Provide direct mentorship to premedical students by helping them identify career goals, navigate interviews, and maintain wellness as they apply to medical school</li> </ul>
2019 – present	<p><b>Mentor for Aspiring Physician-Scientist College Students</b> – volunteer American Physician Scientist Association (APSA) (online)</p> <ul style="list-style-type: none"> <li>• Advise aspiring physician-scientists who are pursuing MD or MD-PhD degrees about the process of seeking research opportunities and medical school</li> </ul>
2020 – 2021	<p><b>Mentor for K-12 with Learning Differences</b> – volunteer Eye to Eye University of Arizona Chapter in Tucson, Arizona (paused due to pandemic)</p> <ul style="list-style-type: none"> <li>• Helped students with learning differences strategize ways to fulfill academic challenges, increase self-esteem, and build resilience through art room activities</li> </ul>
JULY 3, 2019	<p><b>Guest Lecturer on Gut/Brain Axis</b> for Microbes for Social Equity (HC 441H) – invited Oregon State University in Corvallis, Oregon</p> <ul style="list-style-type: none"> <li>• Presented introductory virology concepts and gut/brain axis research to students enrolled in Biology and the Built Environment taught by Dr. Sue Ishaq</li> <li>• Acknowledged in the publication 'Framing the discussion of microorganisms as a facet of social equity in human health' by Ishaq et al. 2019 in PLOS Biology <a href="https://doi.org/10.1371/journal.pbio.3000536">https://doi.org/10.1371/journal.pbio.3000536</a></li> </ul>
2015 – 2017	<p><b>OMSI: After Dark Science Educator &amp; OMSI Chemistry Lab Volunteer</b> – intern Oregon Museum of Science and Industry (OMSI) in Portland, Oregon</p> <ul style="list-style-type: none"> <li>• Wrote, constructed, and performed scientific demonstrations at OMSI: After Dark events for adults 21+ following monthly science themes</li> <li>• Assisted with prototype design, set-up, and troubleshooting</li> <li>• Facilitated learning experiences with informal interactions, stage demonstrations, and lab activities</li> <li>• Designed trivia games and other interactive creations</li> </ul>
2014 – 2017	<p><b>Library Technician</b> – employee Portland Community College Library in Hillsboro, Oregon and Portland, Oregon</p> <ul style="list-style-type: none"> <li>• Designed themed book displays for historical events and awareness months</li> <li>• Directly supervised student workers and upheld library stack maintenance</li> <li>• Facilitated access to library materials and assisted community college students in navigating databases and research</li> <li>• Responsible for full operation of the library on weekends</li> </ul>

## CLINICAL EXPERIENCE

2017	<p><b>Donor Monitor &amp; Blood Drive Promotions</b> – volunteer Bloodworks NW in Portland, Oregon and Vancouver, Washington</p> <ul style="list-style-type: none"> <li>• Observed donors for adverse reactions after donation and alerted medical staff immediately if adverse reactions occurred</li> <li>• Ensured that donors hydrated and replenished themselves after blood donation</li> <li>• Helped plan local blood drives with community connections</li> </ul>
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2017 | **Medical Scribe:** Dermatology – employee

Scribe America in Portland, Oregon

- Presented patient history to attending physician before appointments
- Collected medical data and entered data into electronic health record
- Recorded daily surgical notes

## PROFESSIONAL SPEAKING ENGAGEMENTS

**Dine-Student Perspectives Panelist** for *Undergraduate Ready for Burgeoning Research for American Indian Neuroscientists (URBrain) Scholars* on January 6, 2022.

**Invited Alumni Speaker** for *UA-COMT Bridge Program* on July 14, 2021.

**Invited Speaker** for *UA-COMT Honors Early Assurance Program (HEAP) Lunch Panel* on July 26 and July 29, 2021.

**Invited Speaker** for *UA-COMT Research Day at the Diversity Equity and Inclusion in Research Special Session*. Presented Curriculum Enrichment: Preparing Future Physicians to Address the Health Needs of LGBTQIA+ Patients on May 4, 2021. (virtual)

**Community College Panelist** for *Alliance for Diversity in Science & Engineering* at the [Young Researchers Conference](#) on January 30, 2021. (virtual)

**Student Facilitator** for *UA-COMT Inclusive Excellence Speaker Series Student Q&A Discussion with Dr. Arghavan Salles* on September 14, 2020. (virtual)

**SAFEZONE Facilitator** for *UA-COMT Class of 2024 Pathways Class: LGBTQ Health Disparities* on September 3, 2020 (virtual).

**MD-PhD Student Panelist** for *Medvocate Panel for Premedical Students* on August 15, 2020. (virtual)

**Student Representative** for *UA Honors College MedCat Early Assurance Program* on August 5, 2020. (virtual)

**Student Representative** for *UA-COMT Student Diversity Advisory Committee (SDAC) Affinity Group Fair* on July 16, 2020. (virtual)

**MD-PhD Student Panelist** for *First-Generation Low Income (FGLI) Medical Association MD-PhD Panel for Premedical Students* on July 28, 2020. (virtual)

**Diversity Panelist** for *UA-COMT Office of Admissions for Second Look* on April 24, 2020. (virtual)

**Medical Student Panelist** for *UA-COMT American Medical Women's Association (AMWA) Medical School Panel for Premedical Students* on February 26, 2020.

**Presented 'Professionalism (or not?): The Power of Dorky Emails'** to undergraduate students at the *Neuroscience Club at Portland State University Winter Symposium* on February 28, 2019.

**Founder and Host of the Research in Review Journal Club** at the *Neuroscience Club at Portland State University*. Sessions: 1-8, 10-12, and 14-16 from 2014-2016.

## IN THE PRESS

**STAT News article** '*Large majority of doctors hold misconceptions about people with disabilities, survey finds*' on February 1, 2021. <https://www.statnews.com/2021/02/01/large-majority-of-doctors-hold-misconceptions-about-people-with-disabilities-survey-finds/>

**Portland Community College article** '*Following brain injuries, Britt Gratrek's road to recovery continues at medical school*' on November 25, 2019. <https://www.pcc.edu/news/2019/11/britt-gratrek/>

## WRITING & OTHER WORKS

- Sawyer, D.L., & **Gratrek, B.D.K.** (2022). Recognizing Barriers and Biases: We Urge Medical Schools to Acknowledge the Strengths of First-Generation and Low-Income Students Authors. Accepted, pending edits to be published in The BMJ.
- Gratrek, B.D.K.** (July 21, 2020) Navigating trauma in your personal statement for medical school. Featured opinion published by *in-Training*. {<https://in-training.org/navigating-trauma-in-your-personal-statement-for-medical-school-19973>}
- Gratrek, B.D.K.\*** & Sandoval, A.R.\* (April 30, 2020) Women's professional groups must include all women and forgo the family planning pitfall. *Medium*. \*authors contributed equally to this work
- Gratrek, B.D.K.** (April 23, 2020) Student guest column: ways to help during the pandemic if you can't be on the front lines. Published by *UA Health Sciences Connect*. {<https://healthsciences.arizona.edu/connect/features/student-guest-column-ways-help-during-pandemic-if-you-cant-be-front-lines>}
- Rashid, A.\* & **Gratrek, B.D.K.\***. (March 24, 2020) Women share visions of equality: UA medical students empower their community on International Women's Day. *Medium*. \*authors contributed equally to this work
- Gratrek, B.D.K.** (2020). Logo design and illustration for the University of Arizona College of Medicine - Tucson (UA-COMT) American Medical Women's Association (AMWA) branch. {<https://doi.org/10.5281/zenodo.3731671>}
- Gratrek, B.D.K.** (2014). Logo design and illustration for the Neuroscience Club at Portland State University.

## HONORS AND AWARDS

- ACAP Life Members Mentorship Grant for Medical Students issued by American Academy of Child and Adolescent Psychiatry (AACAP) October 2021
- LGBTQ+ Student Leadership Award (University of Arizona Health Sciences) December 2020
- ScrubCaps for a Cause Scholarship (ScrubCaps for a Cause) August 2020
- American Medical Women's Association Medical Education Scholarship (AMWA) January 2020
- Jim Heller Annual Meeting Travel Grant Recipient (AMWA) December 2020  
\* rescinded due to COVID-19 travel cancellation
- Student Poster Presentation Award (Society for Neuroscience, Oregon Chapter) May 2016
- Leadership Fellows Award: Community Engagement (Portland State University) 2015-2016
- Student Organization of the Year Award (Neuroscience Club, Portland State University) 2014
- Leadership Fellows Award: Consciousness of Self (Portland State University) 2014-2015