# Faculty Highlights 2021

# December 2021

### **Publications**

Fierke, K. K., Maxwell, W. D. & Welch, L. H. (2021). Effective Communication Practices and Barriers Affecting Member Engagement among Association Special Interest Groups. *Journal of Management and Marketing Research*, *25*(213450).

### Presentations

**Fierke, K. K.** Navigating the wilderness: Tales of leadership. M Health Fairview Resident Leadership Seminar. Virtual, November 2021.

Kekic A., Gregornik D., **Stenehjem D.D.**, "Accelerating Implementation of Pharmacogenomics to Improve Patient Health" <u>ASHP Virtual Webinar</u>. November 30, 2021.

Brxiner, D.I., Oderda, G., **Stenehjem, D. D** (Panelists). "A Deeper Dive into Data Sources and Quality of Life in Real World Evidence Studies" Presentation for World Wide Medical Science Oncology Liaisons, Bristol Meyer Squibb. Webinar. December 6, 2021

**Van Hooser, J. C.** Pain Management. The College of St. Scholastica. Nurse Practitioner program. Virtual. December 8, 2021.

Anderson GW, Mary Jo Katras, Anthony Grand, Lauren Lundstrom, Jessica Marquardt, Raymond Jobe, Julie Anderson. Hibbing Independent School District 701 Community Forum on COVID-19 Vaccines for School Aged Children. October 27, 2021

**Palombi LP.** Naloxone to Reverse Opioid Overdose. Itasca County Probation Naloxone Training. December 14, 2021.

### Grant Submissions

Merredy (PI), Stenehjem (Co-I). "Niclosamide or Pyrvinium and BAY-876 as a Combination for Triple Negative Breast Cancer Treatment." Whiteside Institute for Clinical Research. Submitted Nov 5th, 2021. Total amount: \$15,000.

# November 2021

Grant Submissions

Addressing Vaccine Hesitancy in Rural America Using a Community-Engaged Approach. NIH R01. Laura Palombi PI, Cathy McCarty PI, Mary Jo Katras Co-I, Milton Eder Co-I, Raymond Christensen Co-I, Ryan Harden Co-I, Grant Anderson Co-I, Meg Little Co-I

#### **Publications**

Bhuiyan\*, J., & **Palombi\***, L. (2021). Book Chapter: A Stigma that Undermines Care: Opioid Use Disorder and Treatment Considerations. Public Health Casebook - 2nd Edition.

**Palombi, L**., Medina, S., *Melgaard*, *K., Dahley, A., & Blue, H.* (2021). Interdisciplinary Health Care Professionals' Perceptions of the Causes and Consequences of the Opioid Crisis: Developing Rural Community Partnerships to Increase Access to Naloxone. Journal of Community Education and Scholarship, 14(1 (19)). <u>https://digitalcommons.northgeorgia.edu/jces/vol14/iss1/19/</u>

#### Presentations

**Fierke, K. K.** & Maxwell, W. D. Leveraging the leadership resources of today to create a leadership legacy for tomorrow. American Association of Colleges of Pharmacy Academic Leadership Fellows Program. Herndon, VA, November 2021.

*Kosobuski, L., Hawn, A., Erola, K.,* Chen, N., *LaPlante, C,* **Palombi, LC (presenter)** American Public Health Association Annual Meeting (virtual), "The evolving role of pharmacy in substance use disorder practice: Using qualitative, community-based input to steer post-COVID 19 practice innovation," American Public Health Association. (Poster, October 25, 2021).

**Palombi, LC** (presenter), *Kosobuski, L*, Chen, N, VanDeelen, A. American Public Health Association Annual Meeting (virtual), "Leveraging data from community-engaged partnerships to create a model for substance use and mental health stigma," American Public Health Association. (Poster, October 22, 2021).

**Palombi, L. C.** (Panelist), University of Minnesota Mini Medical School: Health and Wellness During a Pandemic (virtual), "The Impact of the Pandemic on Opioid Use Disorder," Office of Academic Clinical Affairs. (November 1, 2021).

**Palombi, L. C.**, Gurno, M., Bilden, B., Minnesota Student Nurses Association Training (virtual), "Naloxone to Reverse Opioid Overdose," Minnesota Student Nurses - University of Minnesota. (October 2021).

**Palombi, L. C.**, Gurno, M., CHUM Warming Center Naloxone Training (virtual), "Naloxone to Reverse Opioid Overdose," Warming Center. (October 29, 2021).

**Palombi, L.** C. (Author & Presenter), Bilden, B. (Author & Presenter), St. Louis County Housing Training (zoom), "Naloxone to Reverse Opioid Overdose," St. Louis County Housing. (November 10, 2021).

**Palombi, L. C.** (Author & Presenter), Bilden, B. (Author & Presenter), UMD Medical School and Pharmacy School Training (in person and zoom), "Naloxone to Reverse Opioid Overdose," UMD medical school. (November 9, 2021).

Little, M. (Author & Presenter), Okoro, O. (Author), Palombi, L. C. (Author), *Rummley, J.* (Author) (Resident), American Public Health Association Annual Meeting (virtual), "A Scoping Review of Cultural Competence, Cultural Safety and Anti-Racism in Pharmacy Education," APHA. (October 26, 2021).

**Okoro, O.** (Author), Amifar, V. (Author), Gaither, C. (Author), Tarfa, A. (Author & Presenter). The inclusion of race/ethnicity in patient cases used in pharmacy education: *To do or not to do?* American Public Health Association Annual Meeting | October 26, 2021.(Virtual - *Oral presentation*)

**Okoro, O.** (Author & Presenter), Roberts, R. (Author). Understanding the scope and dimensions of vaccine hesitancy to enhance COVID-19 vaccination rates in black/African American communities. American Public Health Association Annual Meeting | October 24, 2021.(Virtual - *Oral presentation*)

**Okoro O.** (Author & Presenter), Kennedy, J., Simmons, G., Carter-Vosen, E., Allen, K., Singer, D., Scott, D. Community-responsive COVID-19 health promotion and education: *The Mask-up, Back-up, Vax up Campaign*. American Public Health Association Annual Meeting | October 26, 2021.(Virtual - *Roundtable: recorded + live*)

**Okoro O.** (Author & Presenter), Kennedy, J., Simmons, G., Carter-Vosen, E., Allen, K., Singer, D., Scott, D. A COVID-19 Impact and Needs Assessment of the African Heritage Community. American Public Health Association Annual Meeting | October 22, 2021.(Virtual - *Poster presentation: recorded + live*)

Al-Kofahi M, Cheng S, Leeder JS, **Brown JT**. Population Pharmacokinetics of Atomoxetine and its Metabolites in Children and Adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). Abstract accepted for 2022 ASCPT Annual Meeting.

**Brown JT**. Pharmacogenomics and Therapeutic Drug Monitoring. ASCPT Network and Community Presentation. Pharmacogenomics and Pharmacogenetics. November 30th, 2021.

**Hager KD**. Stop Harming our Patients: Busting Common Myths and Misconceptions about Medications for Opioid Use Disorder. Minnesota Pharmacists Association Annual Learning and Networking Event. November 18, 2021. [Zoom]

**Hager, KD, Blue H, Palombi LC**. Rising to meet the need: strategies to better support patients with mental health and substance use disorders across Minnesota. Minnesota Pharmacists Association Annual Learning and Networking Event. Nov 18, 2021. [Zoom]

**Hager, KD.** Medications for Opioid Use Disorder (MOUD): Talking with clients, families, & colleagues about fact vs. fiction. St. Louis County Housing. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. Nov 10, 2021. (via live Zoom)

Hager, KD. Medications for Opioid Use Disorder (MOUD): Talking with clients, families, &

colleagues about fact vs. fiction. St Louis County Health & Human Services. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. Sep 14, 2021. (via live Zoom)

**Klein, A. H.**, Doucette, A., Johnson, K., Edwards, A., Verdi, A., McFarland, R., Watts, V. "Adenylyl cyclase 1 involvement in chronic pain and morphine tolerance in mice," Society for Neuroscience. Chicago, IL, United States and Online. (November 11, 2021). Poster Presentation.

Stenehjem, D.D. "Statistics" MSHP Research Basics Virtual Series. November 16, 2021. [Zoom]

Shawla, S.P., Chua-Alcala, V.T., Sachdev, J., Wages, D., **Stenehjem, D.D**., Santiesteban, D., Mirza, N., Sekhon, S., Gordon, E.M., Gordon, M. "Preliminary Efficacy From An Ongoing Phase 1 Dose Escalation Study Of Seclidemstat (SP-2577) In Advanced Sarcomas And Other Solid Tumors" CTOS (Connective Tissue Oncology Society) 2021 Virtual Annual Meeting, November 10-13, 2021. (Abstract and Poster)

Ribeiro NR, Hanson B, Lewis C, Anderson GW. Fetal and neonatal iron deficiency disrupts inner retinal vasculature development. Society for Neuroscience Annual Meeting, November 8-11, 2021.

Hanson B, Ribeiro NR, **Anderson GW**. Comparative RNA-seq Analysis of Fetal/Neonatal Iron Deficient and Thyroid Hormone Deficient Neonatal Rat Brain and Liver. American Thyroid Association Annual Meeting, September 29-October 3.

# October 2021

### **Publications**

**Okoro O**, Kennedy J, Simmons G Jr, et al. Exploring the Scope and Dimensions of Vaccine Hesitancy and Resistance to Enhance COVID-19 Vaccination in Black Communities [published online ahead of print, 2021 Sep 22]. *J Racial Ethn Health Disparities*. 2021;1-14. doi:10.1007/s40615-021-01150-0

Schweiss, SK, Hager, KD, Moon, JY, Lounsbery, JL, Pestka, DL. Evaluating the evolution of philosophy of practice over postgraduate year 1 residency training. *J Am Coll Clin Pharm*. 2021; 1-8. doi:10.1002/jac5.1520

Bhuiyan\*, J., & **Palombi\***, L. (2021).Book Chapter: A Stigma that Undermines Care: Opioid Use Disorder and Treatment Considerations. Public Health Casebook - 2nd Edition. September, 2021.

### Presentations

**Amanda Klein.** " $K_{ATP}$  channels as targets for neuropathic pain in a mouse model of type 2 diabetes." International Association for the Study of Pain NeuPSIG Data Blitz. October 4th, 2021. Podium presentation. [Via Zoom]

**Stenehjem, DD**. "Real world evidence generation in oncology drug development" SAPH Seminar, University of Minnesota, College of Pharmacy., Sept 23rd [Zoom].

Willis, C., Tan, M.S., Bauer, H., Au, T.H., Tantravahi, S.K., Gilreath, J., Kovacsovics, T., Cao, X., Sadek, I. and **Stenehjem, D.D**. (2021) "MDS-370: Treatments and Outcomes for Patients with Myelodysplastic Syndromes (MDS) by Revised International Prognostic Scoring System (IPSS-R) Scores at the Huntsman Cancer Institute (HCI)," Clinical Lymphoma Myeloma and Leukemia, 21, p. S349. doi:10.1016/s2152-2650(21)01809-7. Abstract, virtual poster and virtual presentation at the annual meeting of the Society of Hematologic Oncology (SOHO 2021), September 8-11, 2021.

Stenehjem DD, Pashtoon K, and Kekic A; moderated by Ceno-England J. The Importance of Germline Pharmacogenomic Testing for Oncology Patients. Invited Panelist for Precision Medicine Leadership Summit Virtual Series -- Pharmacogenomics. https://www.precisionmedicineleaderssummit.com/pharmacogenomics-agenda/ Oct 19, 2021 [Virtual]

**Hager KD**, Latimore M, Villa J, LaTulip J, Hoder B, Ashcroft E. Medications for Opioid Use Disorder (MOUD/MAT): Talking with clients, families, and colleagues about facts versus fiction. St Louis County Health and Human Services Conference. Duluth, MN. October 14, 2021.

**Blue H**, Van Deelen A, Elstad B, **Hager KD**. Cross-organizational, Interprofessional Effort to Increase Access to Medication Assisted Treatment and Other Support for Opioid Use Disorder from the Emergency Department Setting. Nexus Summit. October 5, 2021. [Zoom]

Pereira C, **Hager KD**, Friedrich C, Lafky V, Thompson Buum H. An Interprofessional Pivot: Converting a Team-based Ambulatory Care Workshop from In-person to Virtual and Lessons Learned. Nexus Summit. September 27, 2021. [Zoom]

**Okoro O,** Kennedy J, Trok C, Singer D, Witherspoon S, Cook R. Community-Engaged, Culturally Responsive Efforts to Address the Covid-19 Pandemic in the African Heritage Community: *Moving From Data to Action*. St Louis County Health and Human Services Conference. Duluth, MN. October 14, 2021.

Becher, E., Katras, M. J., **Palombi, L.,** "Extension: An Applied Prevention Science System & Applied Prevention Practice in Action,"Extension 2021 Program Sharing conference (Zoom), University of Minnesota Extension. (October 8, 2021).

**Okoro O.** Beyond Social Determinants of Health. Duluth Family Medicine Residency *Seminar*. October 18, 2021 [Virtual - via Microsoft Teams]

**Okoro O.** Community-engaged COVID-19 Research: Context, Challenges and Conquests. SAPH *Seminar*, University of Minnesota, College of Pharmacy. October 14, 2021 [via Zoom].

#### Honors/Awards

St. Louis County's Public Health COVID-19 Response and Recovery Funding for Community Engagement. **Okoro** *in collaboration with* Community partners (Healthy Alliances Matter for All & Wilderness Health Partners). Total: \$200,000

Grant Submissions

Targeting Tumor Metabolic Heterogeneity in Metastatic Triple Negative Breast Cancer. Department of Defense. PI: **Mereddy**, Co-I's **Rumbley** and **Stenehjem**. Direct \$750,000; Indirect \$412,500; Total \$1,162,500

# September 2021

#### Presentations

**Jared Van Hooser** presented Reducing Residual Risk: Assessing the Role of Omega-3s in Patients with Dyslipidemia at the Essentia Health Resident Noon Conference on September 20, 2021. [Microsoft Teams].

**Okoro ON**, Whitson SO. Culturally responsive sexual & reproductive health education to address HIV disparities affecting African-born immigrant women. United States Coalition on African Immigrant Health (USCAIH). September 8 -9. [via zoom]

### <u>Media</u>

**Grant Anderson**. The Checkup. Health Education blog by SingleCare. Quoted in "Why does your arm hurt after vaccination?" <u>https://www.singlecare.com/blog/arm-pain-after-vaccine/</u>

# August 2021

#### **Publications**

Bishop, J. R., Huang, R. S., Brown, J. T., Mroz, P., Johnson, S. G., Allen, J. D., Bielinski, S. J.,
England, J., Farley, J. F., Gregornik, D., Giri, J., Kroger, C., Long, S. E., Luczak, T., McGonagle,
E. J., Ma, S., Matey, E. T., Mandic, P. K., Moyer, A. M., Nicholson, W. T., Petry, N., Pawloski, P.
A., Schlichte, A., Schondelmeyer, S. W., Seifert, R. D., Speedie, M. K., Stenehjem, D., Straka, R.
J., Wachtl, J., Waring, S. C., Ness, B. V., Zierhut, H. A., Aliferis, C., Wolf, S. M., McCarty, C. A.
and Jacobson, P. A. (2021) "Pharmacogenomics education, research and clinical implementation in the state of Minnesota," *Pharmacogenomics*, 22(11), pp. 681–691. doi: 10.2217/pgs-2021-0058.

Luczak, T., Stenehjem, D. and Brown, J. (2021) "Applying an equity lens to pharmacogenetic research and translation to under-represented populations," *Clinical and Translational Science*. doi: 10.1111/cts.13110.

Sakamaki G, **Johnson K**, Mensinger M, Hmu E, **Klein AH**. "Loss of SUR1 subtype K<sub>ATP</sub> channels alters antinociception and locomotor activity after opioid administration." Behav Brain Res. 2021 Jul 15;414:113467. doi: 10.1016/j.bbr.2021.113467.PMID: 34274374.

**Okoro, O.N.**, Arya, V., Gaither, C.A. and Tarfa, A., 2021. Race in Patient Cases– What's the Point?. *American Journal of Pharmaceutical Education*. ePublished June 2021. https://www.ajpe.org/content/ajpe/early/2021/06/29/ajpe8583.full.pdf

### Presentations

Barnett S., Gallimore C., Begley K., Van Hooser J. Better Together: Supporting Pharmaceutical

Care Skills Through Interprofessional Activities. American Association of Colleges of Pharmacy (AACP) Annual Meeting. Virtual, July 21, 2021.

**Van Hooser J.**, Rupnow N., Stoa M. Working together: Assessing an interprofessional activity with pharmacy and veterinary medicine students. American Association of Colleges of Pharmacy (AACP) Annual Meeting. Virtual, July 19 - 22, 2021. Poster presentation.

**Stenehjem, DD**, Schwartz RN. (Invited Presentation) "The Role of the Pharmacist in Tailored Management of Renal Cell Carcinoma" Great Debates & Updates: Oncology Pharmacy. Virtual, July 24 and August 21, 2021.

Anderson, GW. County fair vaccine hesitancy community engagement. (South St. Louis, North St. Louis, Central St. Louis County Fairs; July 30/31, August 6 and 20)

Verdi A, Johnson K, McFarland R, Edwards A, Doucette A, **Klein AH**. "Adenylyl cyclase activity during morphine tolerance in mice" Swenson Science BURST and SURP poster presentations. August 6, 2021.

<u>Honors/Awards</u> Jacob Brown elected as the Treasurer/Secretary for the ACCP PK/PD/PG PRN.

# July 2021

### **Publications**

Hager KD, Nelson Albee J, <u>O'Donnell C, Jackson S</u>, King A, MacDonald D, Nash C, Yapel A, Schneiderhan M, Dean K. Impact of Interprofessional Care Conferences Across Primary Care and Mental Health Organizations on Family Medicine Resident Learning. *Fam Med.* 2021;53(4):289-294. doi.org/10.22454/FamMed.2021.329815.

Waterhouse, D., Lam, J., Betts, K. A., Yin, L., Gao, S., Yuan, Y., Hartman, J., Rao, S., Lubinga, S. and **Stenehjem, D**. (2021) "Real-world progression-free survival in first-line advanced non-small cell lung cancer treated with immunotherapy-based regimens using a US dataset," Data in Brief, 37, p. 107195. doi: 10.1016/j.dib.2021.107195.

\*This article is composed of supplementary data supporting the research article entitled "Real-world outcomes of immunotherapy-based regimens in first-line advanced non-small cell lung cancer" Published previously in *Lung Cancer*.

### Presentations

Maxwell, W.D., **Fierke, K. K.**, & Zumach, G. M. Outcomes of a "Virtual Think Tank" to establish collaborative leadership initiative plans ("CLIPs"). American Association of Colleges of Pharmacy Annual Meeting. Virtual, July 2021. Poster presentation.

Jones, K. M., **Fierke, K. K. & Lepp, G.L.** Teaching conflict management: Customizing content to increase value, confidence, and ability during a pandemic. American Association of Colleges of Pharmacy Annual Meeting. Virtual, July 2021. Poster presentation.

**Okoro O.,** Edwards L., Baker A., Appiah-Num A. Examining social determinants of health in patient cases – *An insufficiency or missed opportunity?* American Association of Colleges of Pharmacy (AACP) Annual Meeting. Virtual, July 19 – 22, 2021. Poster presentation.

**Okoro O.** Examining social determinants of pharmacy students: *The case for structural experiential education in pharmacy education*. American Association of Colleges of Pharmacy (AACP) Annual Meeting. Virtual, July 19 – 22, 2021. Poster presentation.

Nelson Albee J, **MacDonald D**, Wall J, **Yapel A**, **Hager KD**. Bridging Communication Between Primary Care and Community Mental Health: Optimizing Patient Care and Resident Learning. Society of Teachers of Family Medicine Annual Meeting. May 2021 [via recorded Zoom]

**Hager, KD**, Latimore M, Villa J. Medications for Opioid Use Disorder (MOUD): Talking with clients, families, & colleagues about fact vs. fiction. Center for Alcohol and Drug Treatment Annual Staff Training. Duluth, MN. July 13, 2021

**Hager, KD.** Medications for Opioid Use Disorder (MOUD/MAT): Part 2 - Talking with clients, families, & colleagues about fact vs. fiction. Bois Forte Tribal Nation. Funded by HRSA Award GA1RH39590. July 7, 2021. (via live Zoom)

**Hager, KD.** Medications for Opioid Use Disorder (MOUD/MAT): Part 1 - Talking with clients, families, & colleagues about fact vs. fiction. Bois Forte Tribal Nation. Funded by HRSA Award GA1RH39590. June 9, 2021. (via live Zoom)

**Blue, H.** Opioid Prescribing; MN Board of Nursing Approved Opioid 2-hour CE. (Live Zoom) APRN Coalition. (July 15th).

Grant Submissions Awarded:

**Stenehjem, D** (PI). University of Utah (Prime: AstraZeneca), "Patient Reported Outcomes in Acute Myeloid Leukemia." Funded Amount for Entire Grant Period: \$286,809.00. Subcontract amount is \$44,000 (\$15,521 indirects)

**Stenehjem, D** (PI). University of Utah (Prime: Bayer), "Clinical outcomes and treatment patterns of patients with NTRK fusion-positive solid tumors: a multi-site cohort study". (January 2021 - December 2022). Funded Amount for Entire Grant Period: \$513,352.00. Subcontract amount \$35,139 (\$12,649 indirects)

**Stenehjem, D** (PI). University of Utah (Prime BMS), "Evaluation of HER2-Low Metastatic Breast Cancer at an NCI- Designated Cancer Center: a Descriptive Study". Funded. Funding Dates: May 2021 - December 2021.Funded Amount for Entire Grant Period: \$384,682.00. Subcontract amount \$63,904 (\$22,542 indirects)

Stenehjem, D (PI). University of Utah (Prime: Novartis), "Analysis of clinical and economic

outcomes in intermediate to high- risk myelodysplastic syndrome, a cohort study". Funded. Funding Dates: January 2021 - December 2021. \$324,452.00. Subcontract amount \$45,000 (\$15,852 indirects)

**Nam Chul Kim** (PI). American Heart Association, Project Title: Liquid-liquid phase separation in mitochondria, Funded, Award Number: 19IPLOI34760154-COVID Relief Supplement Funding, July 2021 - June 2022. Amount \$45,455 (direct, no indirects)

**Olihe Okoro** (PI). University of Minnesota, Center for Global Health and Social Responsibility (CGHSR) Seed Grant. "A Cell phone-based treatment Adherence and **RE**tention (CARE) intervention to optimize HIV care in Ugandan fishing communities". Funding: July, 2021 - December, 2022 | Amount: \$25,000 (no indirects)

# June 2021

### **Publications**

**Olson AW**, Isetts BJ, **Stratton TP**, Vaidyanathan R, **Hager KD**, Schommer JC. (June 2021). Addressing Hidden Curricula that Subvert the Patient-Centeredness "Hub" of the Pharmacists' Patient Care Process "Wheel." *American Journal of Pharmaceutical Education*, in press.

Nolan M, Maes M, Tran D, Driscoll T, Knockel L, **Van Hooser J**, Dula C, Cook K, Stoa M, Ives A, Volino L, Rupnow N, Paruoni K, Woodyard JL. Changes to summative skills-based assessments within the Big Ten Academic Alliance Performance-Based Assessment Collaborative (BTAA-PBAC) due to COVID-19. *J Am Coll Clin Pharm*. 2021. DOI: 10.1002/jac5.1445. In press.

Waterhouse, D., Lam, J., Betts, K. A., Yin, L., Gao, S., Yuan, Y., Hartman, J., Rao, S., Lubinga, S. and **Stenehjem, D**. (2021) "Real-world progression-free survival in first-line advanced non-small cell lung cancer treated with immunotherapy-based regimens using a US dataset," Data in Brief, 37, p. 107195. doi: 10.1016/j.dib.2021.107195.

### Abstract/Conference Presentations

Chawla, S. P., Chua-Alcala, V. S., Sachdev, J. C., Wages, D. S., **Stenehjem, D. D**., Santiesteban, D. Y., Mirza, N. Q. and Gordon, M. S. (2021) "Preliminary efficacy from an ongoing phase 1 dose escalation study of seclidemstat (SP-2577) in patients (pts) with advanced solid tumors (AST).," Journal of Clinical Oncology, 39(15\_suppl), pp. 3073–3073. doi:

10.1200/jco.2021.39.15\_suppl.3073. (*Abstract, Poster Presentation and Selected for Oral Discussion Section at the 2021 ASCO Virtual Annual Conference*).

Reed, D. R., Chawla, S. P., Setty, B., Mascarenhas, L., Meyers, P. A., Metts, J., Harrison, D. J., Lessnick, S. L., Crompton, B. D., Loeb, D., **Stenehjem, D. D.**, Wages, D. S., Santiesteban, D. Y., Mirza, N. Q. and DuBois, S. G. (2021) "Phase 1 expansion trial of the LSD1 inhibitor seclidemstat (SP-2577) with and without topotecan and cyclophosphamide (TC) in patients (pts) with relapsed or refractory Ewing sarcoma (ES) and select sarcomas.," Journal of Clinical Oncology, 39(15\_suppl), pp. TPS11577–TPS11577. doi: 10.1200/jco.2021.39.15\_suppl.tps11577. (*Abstract* 

and Poster Presentation at the 2021 ASCO Virtual Annual Conference).

Reed, D. R., Chawla, S. P., Setty, B., Mascarenhas, L., Meyers, P. A., Metts, J., Harrison, D. J., Loeb, D., Crompton, B. D., Wages, D. S., **Stenehjem, D. D.**, Santiesteban, D. Y., Mirza, N. Q. and DuBois, S. G. (2021) "Phase 1 trial of seclidemstat (SP-2577) in patients with relapsed/refractory Ewing sarcoma.," Journal of Clinical Oncology, 39(15\_suppl), pp. 11514–11514. doi: 10.1200/jco.2021.39.15\_suppl.11514. (*Abstract and Poster Presentation at the 2021 ASCO Virtual Annual Conference*).

### Presentations

**Fierke, K. K., Lepp, G. A.**, & Jones, K. M. Take a "Byte" out of conflict: How implementing a small change in a conflict management session had a significant impact during the COVID-19 pandemic. AACP Leadership Development Special Interest Group Virtual Symposium. June 2021.

**Fierke, K. K. & Lepp, G. A.** A small Intention/Reflection practice makes a big impact on engagement. AACP Leadership Development Special Interest Group Virtual Symposium. June 2021.

**Palombi, L. C.**, Kosobuski, L., VanDeelen, A., University of Minnesota Opioid Advisory Task Force (zoom), "The Impact of the Opioid Crisis on Rural and Tribal Minnesota Communities," Office of Academic Clinical Affairs. (June 17, 2021).

**Palombi, L. C.**, Dooley, K., Project ECHO (zoom), "The Impact of Stigma on Individuals with Substance Use Disorder & Mental Health Conditions: Perspectives from Community-Engaged Action Research in Minnesota," MEND/ECHO, Little Falls. (June 16, 2021).

**Okoro, O.N.** (Keynote Speaker). *Racism as a Public Health Problem*. Dakota Conference on Rural and Public Health (via zoom). (June 4, 2021)

Alvar, M. (PAVSA), **Palombi, L. C.**, Wayside Recovery ECHO (zoom), "Substance Use and Human Trafficking," Wayside Recovery, Minnesota. (June 3, 2021).

**Blue, H.** Opioid Prescribing; MN Board of Nursing Approved Opioid CE. (Zoom) APRN Coalition. (June 12th).

**Stenehjem D.D.** (Panelist). "Impact of Real World Evidence on Clinical Practice" (Virtual) Presentation for World Wide Medical Science Oncology Liaisons, Bristol Meyer Squibb (June 21st, 2021)

Anderson GW, Hanhan T, Karstens G, Lane G, Katras MJ, Lund S, Peck K. Lake County COVID-19 Community Forum. (May 25, 2021)

Anderson GW, Antilla K, Graves A, William Durie, Robert Rutka. COVID-19 vaccine educational forum North St. Louis County. Eveleth, MN (May, 2021)

### <u>Media</u>

Olihe Okoro featured in the Duluth News Tribune. Inside a grassroots effort to vaccinate Black

#### people in Duluth. Published June 18

#### Honors/Awards

**Olihe Okoro** selected to join the 2021-2022 cohort of Engaged Scholars as part of its Engaged Scholars Initiative. The <u>Engaged Scholars Initiative</u>, now in its second year, aims to develop a diverse group of early-career faculty and staff who can lead equity-focused change at their institutions and in communities.

**Olihe Okoro** selected as a 2021 Health Disparities Research Institute Scholar. The <u>Health</u> <u>Disparities Research Institute</u> is scheduled to take place August 9-13, 2021.

Grant Submissions Awarded

(Selected for funding/Pending administrative review)

1R01DA051876-01A1
PI: Amanda Klein
NIH/NIDA *K*<sub>ATP</sub> Channels as Downstream targets of adenylyl cyclases during opioid tolerance and withdrawal
Budget: \$3,261,264

Health Professional Clinical Training Expansion Grant Program

PI: Pam Jacobson; Co-I: Jacob Brown Budget: \$300,000 Minnesota Department of Health Office of Rural Health and Primary Care

#### Faculty Mentor Award Program

Mentor: Olihe Okoro | Mentee: Akua Appiah-Num Budget: \$5,000 University of Minnesota Center for Global Health & Social Responsibility **Project:** *Pharmacists' involvement in the chronic management of hypertension in Low-Income Developing Countries (LIDCs): A Case Study of Ghana* 

#### 2021 Research Infrastructure Investment Program

Co-Is: Ruifeng Cao, Amanda Klein University of Minnesota Office of the Vice President for Research #511766 "Duluth Imaging Center Upgrade" Budget: \$277,000

# May 2021

**Publications** 

Waterhouse, D., Lam, J., Betts, K. A., Yin, L., Gao, S., Yuan, Y., Hartman, J., Rao, S., Lubinga, S., & **Stenehjem, D. D.**(2021). Real-world outcomes of immunotherapy-based regimens in first-line advanced non-small cell lung cancer. *Lung cancer*, *156*, 41-49. <u>doi:</u> 10.1016/j.lungcan.2021.04.007

<u>Biltaji, E.</u>, Walker, B., <u>Au, T</u>. H., <u>Rivers, Z</u>., Ose, J., Li, C. I., Brixner, D., **Stenehjem, D. D.** (Corresponding Author), & Ulrich, C. M. (2021). Can Cost-effectiveness Analysis Inform Genotype-Guided Aspirin Use for Primary Colorectal Cancer Prevention? *Cancer epidemiology, biomarkers & prevention*. <u>doi: 10.1158/1055-9965.EPI-19-1580</u> \*Co-senior author and corresponding author \*Featured in the journal Highlights section (only four articles per issue are chosen)

Schommer JC, **Olson AW**, Lee S et al. (2021). <u>A 15-Year Ecological Comparison for the Hiring</u> <u>Dynamics of Minnesota Pharmacies between 2006 and 2020</u>. *Journal of Pharmacy Education and Practice*, (9)100. doi: 10.3390/pharmacy9020100

**Olson AW, Stratton TP**, Isetts BJ, Vaidyanathan R, **Van Hooser JC**, Schommer JC. Seeing the Elephant: A Systematic Scoping Review and Comparison of Patient-Centeredness Conceptualizations from Three Seminal Perspectives. *J Multidisciplinary Healthcare*. 2021;14:973-86. <u>https://www.dovepress.com/articles.php?article\_id=64347</u>

**Palombi, L.**, <u>Medina, S., Melgaard, K., Dahley, A.</u>, & **Blue, H**. Interdisciplinary Healthcare Professionals' Perceptions on the Causes and Consequences of the Opioid Crisis: Developing Rural Community Partnerships to Increase Access to Naloxone. Journal of Community Education and Scholarship. [In press]

### Presentations

Drs. **Blue** and **Palombi** presented Opioid Use Disorder: Public Health Perspectives and Clinical Treatment Applications at the Minnesota Society of Health Systems Pharmacy Annual Meeting on April 22, 2021. [Zoom].

Dr. **Brown** presented "Is it time to pay attention to genetic testing results when prescribing stimulants?" at the Pediatric Academic Society Annual Meeting on May 2nd, 2021.

**Lepp, G.A, Fierke, KK,** Jones, KM. Engage the enemy: find common ground by managing conflict. Best Practices in Health Sciences Education conference. Minneapolis, MN (virtual). May 2021.

**Palombi, L. C.,** Bois Forte Band Naloxone Training (zoom), "Naloxone to Reverse Opioid Overdose," Bois Forte Band of Lake Superior Chippewa. (May 13, 2021).

**Palombi, L. C.,** Dooley (Graduate), University of Minnesota Center for Bioethics Grand Rounds (zoom), "The Impact of Stigma on Individuals with Substance Use Disorder & Mental Health Conditions: Perspectives from Community-engaged Action Research in Minnesota," University

of Minnesota. (May 7, 2021).

Lee, J, Le, S., Westberg, S. M., <u>Kosobuski, L.</u>, <u>Van Loon, A.</u>, **Palombi, L.** C., Best Practices in Health Science Education (virtual), "Assessment of a Human Trafficking Curricular Intervention in Pharmacy Education: A Mixed-Methods Approach," University of Minnesota - Medical School, Minnesota. (poster, May 5, 2021).

**Palombi, L. C.**, Bilden, B., Hernandez, D., Gurno, M., St. Louis County ACT Team Training, "Naloxone to Reverse Opioid Overdose: A Community-Engaged Training (zoom)," St. Louis County Public Health and Human Services. (May 4, 2021).

**Palombi, L. C., Schneiderhan, M. E., Hager, K. D.** were panelists at the University at Buffalo College of Pharmacy CPNP Speaker's Panel, "University at Buffalo CPNP Speaker's Panel," University at Buffalo, Buffalo, New York, United States. (April 21, 2021).

Anderson GW, Blue H, Katras MJ, Xiong M, Lane G. Vaccine 101: Webinar for Aging Network Providers & Volunteers. Webinar #2. (March, 2021)

Anderson GW, Katras MJ, Melz E, Doucett M, Taylor D. Aitkin County COVID-19 Community Forum. (April 2021)

Anderson GW, Hanhan T, Karstens G, Lane G, Katras MJ, Lund S, Peck K. Lake County COVID-19 Community Forum. (May 18, 2021)

Anderson GW, Antilla K, Graves A. COVID-19 Vaccine Educational Forum. Altec Industries. Duluth, MN (May 2021)

**Little, MM**. Teach Together MN Conference (Virtual). Cultural Fluency and Culturally Relevant Pedagogies. Discipline Lead: Health Science. (May 18, 2021)

Honors/Awards

Sarah Schweiss promoted to Associate Professor.

Olihe Okoro promoted to Associate Professor with Tenure.

Laura Palombi received the 2021 University of Minnesota Duluth Outstanding Academic Advisor Award.

A team of scholars including Laura Palombi, Keri Hager and Lucas Kosobuski won the 2021 National Health Outreach Priester Culture of Health Award. The Culture of Health Award recognizes an Extension-community partnership that is taking a transformative approach to improving community health, fostering a culture of health through community-based strategies, and/or co-creating with communities to ensure relevance and reduce barriers for positive change.

#### Grant Submissions

Source: DoD; Title: Metabolomic analysis of diabetic rodents and non-human primates to

improve the understanding of the basic

mechanisms of neuropathic pain; PI Name: Amanda Klein; Total Application: \$310,000; COP Direct: \$200,000; COP Indirect: \$110,000

# April 2021

### **Publications**

<u>Minwoo Baek</u>\*, <u>Yun-Jeong Choe</u>\*, Sylvie Bannwarth, JiHye Kim, Swati Maitra, Gerald W. Dorn II, J. Paul Taylor, Veronique Paquis-Flucklinger, **Nam Chul Kim**. (2021) Nature Communications, TDP-43 and PINK1 mediate CHCHD10S59L mutation–induced defects in Drosophila and in vitro (<u>https://www.nature.com/articles/s41467-021-22145-9</u>)

Chen JS, Matthews D, **Van Hooser J**, et al. Performance 2.0: Remediation in Skills-based Laboratory Courses. Am J Pharm Educ. March 2021:8447. DOI: 10.5688/ajpe8447

<u>Luczak T</u>, Schillo P, Renier C, Waring S, Friday B. (2021) Feasibility of preemptive pharmacogenetic testing in colorectal cancer patients within a community oncology setting. Journal of Oncology Pharmacy Practice, online ahead of print.

<u>Luczak, T</u>., Brown, S. J., Armbruster, D\*., Hundertmark, M\*., **Brown, J**. and <u>Stenehjem, D</u>. (2021) "Strategies and settings of clinical pharmacogenetic implementation: a scoping review of pharmacogenetics programs," *Pharmacogenomics*, 0(0). <u>doi: 10.2217/pgs-2020-0181</u>.

**Stenehjem, D**., Lubinga, S., Betts, K. A., Tang, W., Jenkins, M., Yuan, Y., Hartman, J., Rao, S., Lam, J. and Waterhouse, D. (2021) "Treatment patterns in patients with metastatic non-small-cell lung cancer in the era of immunotherapy," Future Oncology, 0(0). <u>doi: 10.2217/fon-2021-0230</u>.

<u>Amanda H Klein</u>, Hans Jürgen Solinski, Nathalie M Malewicz, Hada Fong-ha Ieong, Elizabeth Sypek, Steven G Shimada, Timothy V Hartke, Matthew Wooten, Gang Wu, Xinzhong Dong, Mark A. Hoon, Robert H LaMotte, Matthias Ringkamp. Pruriception and neuronal coding in nociceptor subtypes in human and nonhuman primates. . eLife 2021;10:e64506 doi: <u>10.7554/eLife.64506</u>

Maryann Z. Skrabal, Cynthia Koh-Knox Sharp, Laura Palombi, Amy M. Tiemeier, Paul C. Walker, Trish Devine, Sara A. Spencer, Kelli L. Coover, Tran H. Tran. A Multi-Site Qualitative Study Examining Student Perspectives of the Opioid Crisis. American Journal of Pharmaceutical Education Apr 2021, 8515; DOI: 10.5688/ajpe8515.

Medina, Stephany, Tomaszewski, Robyn, <u>Chhen, Susan</u>, <u>Hanson, Anna</u>, Mueller, Ali, <u>Palombi,</u> <u>Laura.</u> Public Health and Pharmacy Partnerships in Opioid Harm Reduction: Responding to Community Needs. Progress in Community Health Partnerships, 2021, 15(1): 37-46.

Sara N. Johnson, **Katie Vukelich**, Tamnnet Kidanu, Lauren Eldridge, Keith A. Mays, and Michael H. Kim. Health Professions Student Awareness and Use of Mental Health Resources and Barriers to Seeking Care. <u>ACPA Developments Spring 2021</u>

Presentations

**Van Hooser JC**. Pain Management. The College of St. Scholastica, Department of Graduate Nursing. April 6, 2021. [via Zoom]

**Stenehjem, D**. "Precision medicine: Passing fad or a new standard of care." Rochester Community and Technical College, Learning Is ForEver (LIFE). April 6, 2021 [via Zoom]

**Amanda H. Klein**, Alexis Doucette, Peter Dosa. " $K_{ATP}$  channel prodrugs as therapeutics for chronic pain and substance abuse disorders" (15727). Translational Science 2021, Association for Clinical and Translational Science meeting. March 30-April 1, 2021. [Online]

**Palombi, Laura,** Bilden, Beth, Gurno, Marcia.Project ECHO Naloxone to Reverse Opioid Overdose: A Community-Engaged Training. Project ECHO, Minnesota. April 7, 2021. [Zoom].

**Palombi, Laura**, Bilden, Beth, Gurno, Marcia, Hernandez, Deb. Naloxone to Reverse Opioid Overdose. Grand Portage Band of Lake Superior Chippewa Tribal Health and Human Services. March 5, 2021. [Zoom]

**Blue, Heather.** COVID: Medications to Treat and Prevent. APRN Coalition Spring Pharmacology Review. April 10, 2021. [Zoom]

**Hager, KD.** Putting Out the Welcome MAT for M.A.T. (or how to support people getting the help they need). Itasca County Health and Human Services. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. April 7, 2021. (via live Zoom)

**Hager, KD.** Medications for Opioid Use Disorder (MOUD): Talking with clients, families, & colleagues about fact vs. fiction. Partners in Recovery. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. March 23, 2021. (via live Zoom)

**Hager, KD.** Putting Out the Welcome MAT for M.A.T. (or how to support people getting the help they need). Itasca County Health and Human Services. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. February 26, 2021. (via live Zoom)

**Hager, KD.** Medications for Opioid Use Disorder (MOUD): Talking with clients, families, & colleagues about fact vs. fiction. St Louis County Health and Human Services. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. February 24, 2021. (via live Zoom)

**Hager, KD.** Putting Out the Welcome MAT for M.A.T. (or how to support people getting the help they need). Itasca County Health and Human Services. Funded by SAMHSA Technical Assistance Award 1H79T108900-01. February 18, 2021. (via live Zoom)

**Hager KD.** Medications for Opioid Use Disorder (MOUD): talking with clients, families, and colleagues about fact vs. fiction. Wayside Recovery Women's ECHO. February 4, 2021. (via live Zoom)

Stader D, **Hager KD**, Duncan R. Making the Case. Alliance for Medication Management OPPM Virtual Event Panel. January 27, 2021. (Via live Zoom)

### Honors/Awards

Van Hooser was awarded Teacher of the Class of 2021 (Duluth).

### Grant Submissions

**Heather Blue** facilitated a \$1800 St. Luke's Hospital Foundation grant awarded to the St. Luke's Emergency Department to purchase take-home Narcan kits.

# March 2021

### **Publications**

Patient-Centered Care preferences & expectations in outpatient pharmacist practice: A three archetype heuristic. **Olson AW**, Vaidyanathan R, **Stratton TP**, Isetts BJ, Hillman LA, Schommer JC. Res Social Adm Pharm. 2021 Feb 7:S1551-7411(21)00065-6. doi: 10.1016/j.sapharm.2021.02.005. Online ahead of print. PMID: 33582079

Lyman, G. H., Carrier, M., Ay, C., Nisio, M. D., Hicks, L. K., Khorana, A. A., Leavitt, A. D., Lee, A. Y. Y., Macbeth, F., Morgan, R. L., Noble, S., Sexton, E. A., **Stenehjem, D.**, Wiercioch, W., Kahale, L. A. and Alonso-Coello, P. (2021) "American Society of Hematology 2021 guidelines for management of venous thromboembolism: prevention and treatment in patients with cancer," *Blood Advances*, 5(4), pp. 927–974. doi: 10.1182/bloodadvances.2020003442.

Okerman, T., Jurgenson, T., Moore, M., **Klein, A.H.** (2021) "Inhibition of the phosphoinositide 3-kinase-AKT-cyclic GMP-c-Jun N-terminal kinase signaling pathway attenuates the development of morphine tolerance in a mouse model of neuropathic pain". *Molecular Pain*. 17. <u>https://doi.org/10.1177/17448069211003375</u>

**Okoro ON**, Hillman LA, Cernasev A. Intersectional invisibility experiences of low-income African-American women in healthcare encounters. Ethn Health. 2021 Mar 18:1-20. doi: 10.1080/13557858.2021.1899138. Epub ahead of print. PMID: 33734922.

### Presentations

**Olihe Okoro,** Janet Kennedy. COVID-19 Needs Assessment of the African Heritage Community. Public presentation of findings. February 05, 2021. [via Zoom]

**Van Hooser JC**. Pharmacy Phacts. The College of St. Scholastica, Department of Physical Therapy. February 11, 2021. [via Zoom]

**Van Hooser JC**. Stroke: A Plethora of Possible Prevention. University of California, Los Angeles (UCLA), Stroke Force. February 16, 2021. [via Zoom]

**Olihe Okoro.** Faces in our Spaces: Towards increasing diversity in the Healthcare Workforce. West Virginia University, Multicultural Association of Students in Health (MASH) Black History Month Speaker Series. February 18, 2021. [via Zoom] **Grant Anderson, Laura Palombi,** Tolga Hanhan, Aaron Wilcox. COVID-19 Vaccine Hesitancy Community Forum. Ecuman Lakeshore/Zvago. February, 2021. [via Zoom]

**Grant Anderson, Heather Blue,** Mary Jo Katras, Mary Xiong, Georgia Lane. Vaccine 101: Webinar for Aging Network Providers & Volunteers. March, 2021. [via Zoom]

**Olihe Okoro.** *The Faces in our Spaces* - How racial representation is critical in addressing inequities. UMD Summit on Equity, Race, and Ethnicity. March 2 – 4, 2021. [via Zoom]

**Olihe Okoro, Grant Anderson**. Addressing Vaccine Hesitancy. Healthy Hillside Steering Committee. March, 2021. [via Zoom]

#### Honors/Awards

**Karen Bastianelli** has been selected as the 2020 Lawrence C. and Delores M. Weaver Medal recipient. The award is given annually to someone who supports the college and its students through service to education, the profession, research and the community. Through teaching, practice and service, Bastianelli has demonstrated unwavering commitment to students and patients, the profession of pharmacy, the college and the University, throughout her career. A reception honoring Bastianelli will be held later in 2021. Best Paper award (Research) at the 2021 Team Based Learning Collaborative

Kristin Janke, Roberts A. Bechtol, Stephanie James, **Gardner A. Lepp**, Rebecca Moote & Peter Clapp. <u>Determining Indicators of High-Quality Application Activities for Team-Based Learning</u>. *Am J Pharm Educ*, *83*(9):1920-1928. 2019 doi: 10.5688/ajpe7109

The latest episode of LDPEcast (the Leadership Development in Pharmacy Education podcast) Dares you to Lead. Greg Zumach and Ed Portillo are joined by Friend of the Podcast, **Dr. Kerry Fierke**, in her review of 'Dare to Lead' by Brené Brown. https://www.podomatic.com/podcasts/ldpe/episodes/2021-03-02T14\_24\_05-08\_00

Aleeya Verdi has been awarded a 2021 Biology Undergraduate Research in Science and Technology (BURST) Fellowship to work in the laboratory of **Amanda Klein**.

Grants Submissions Submitted:

Source	<u>Title</u>	PI Name	<u>Total</u>	<u>COP</u>	<u>COP</u>
			Application	<b>Direct</b>	Indirect

HRSA	A Partnership with the Grand Portage Band of Lake Superior Chippewa, Sawtooth Mountain Clinic, and Cook County Public Health in Opioid-Focused Prevention, Treatment, Recovery and Harm Reduction	Laura Palombi	\$999,999	\$805,455	\$194,544
NIH	Development of novel KATP Channel Prodrugs as Analgesics to Treat Chronic Pain	Amanda Klein	\$1,153,958	\$750,000	\$403,958

# January 2021

**Publications** 

Isetts BJ, **Olson AW**, Schommer JC. (Jan 2021). Reframing the Medication Experience in Pharmacy Using Seminal Concepts of Patient-Centered Care – Implications for Practice. *Pharmacy: A Journal of Pharmacy Education and Practice*, 9(9). doi: 10.3390/pharmacy9010009

**Brown JT**, MacDonald D, Yapel A, Luczak T, Hanson A, Stenehjem DD. Integrating pharmacogenetic testing via medication therapy management in an outpatient family medicine clinic. Pharmacogenomics. [Accepted]

**Blue, HL**, Zaheer, SF. Solving the toxicology mystery: An educational activity focused on team-based problem-solving. *J Am Coll Clin Pharm*. 2021; 4: 47–52. <u>https://doi.org/10.1002/jac5.1345</u> <u>https://accpjournals.onlinelibrary.wiley.com/doi/10.1002/jac5.1345</u>

**Blue, H.,** Dahly, A., Chhen, S., Lee, J., Shadiow, A., Van Deelen, A. G., & **Palombi, L. C**. (2021). Rural Emergency Medical Service Providers Perceptions on the Causes of and Solutions to the Opioid Crisis: A Qualitative Assessment. *Journal of Primary Care & Community Health*.

#### https://doi.org/10.1177/2150132720987715

**Stenehjem DD**, Telford C, Unni SK, et al. BRCA testing and outcomes in women with breast cancer. Breast Cancer Res Tr. 2021:1-12. doi:10.1007/s10549-020-06038-x https://pubmed.ncbi.nlm.nih.gov/33389410/

#### Honors/Awards

Alexis Doucette, UMD Chemistry master's graduate student and mentee of **Amanda Klein**, is the recipient of a Society for Neuroscience 2020 Trainee Professional Development Award, which recognizes undergraduate and graduate students and postdoctoral fellows who demonstrate scientific merit and excellence in research.

**Mark Schneiderhan** has been selected as a 2020 inductee into the Academy for Excellence in Clinical Practice--the highest recognition of excellence in the practice or provision of clinical care by a full time faculty member.

https://www.pharmacy.umn.edu/news-and-events/barbara-brandt-and-mark-schneiderhan-inducted \_academies-excellence

Туре	Submitt ed/ Awarde d?	<u>Sourc</u> <u>e</u>	<u>Title</u> 	<u>PI</u>	<u>Total</u> <u>Applicati</u> <u>on</u>	<u>CoP</u> <u>Direct</u>	<u>CoP</u> <u>Indirect</u>	<u>Project</u> <u>Start/E</u> <u>nd</u>
<u>Sponsor</u> <u>ed</u>	<u>Submitt</u> <u>ed</u>	NIH	KATP Channels as Downstrea m Targets of Adenylyl Cyclases During Opioid Tolerance and Withdrawal	<u>Amand</u> <u>a Klein</u>	<u>\$3,261,26</u> <u>4</u>	<u>\$2,512,0</u> <u>21</u>	<u>\$749,24</u> <u>3</u>	7/1/2021 = <u>6/30/202</u> <u>6</u>

Grant Submissions