**Hanna N. Wetzel (Dasenbrock), Ph.D**

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**Employment**

Assistant Professor of Biology, Xavier University (2020-present)

Xavier University Adjunct Faculty, Department of Chemistry (2017-2020), Taught:

 Foundations of Pharmacology

 Human Biology Lab (non-majors biology)

General Chemistry Lab I and II

 Physiological Chemistry Lab (Nursing Chemistry)

Visiting assistant professor at Xavier University. Taught General Chemistry Lab I and II (2017-2018)

Visiting Scholar at University of Cincinnati Department of Pharmacology and Systems Physiology (2018-present)

Expert pharmacology witness for prosecution of DUI cases (Campbell, Floyd and Benton County Kentucky) (2018-present)

**Education**

**University of Cincinnati,** Ph.D from Department of Pharmacology & Cell Biophysics, 2017.

 Advisor: Andrew B. Norman

*Preclinical development of the anti-cocaine monoclonal antibody h2E2 for treatment of cocaine addiction*

**Northern Kentucky University,** Bachelor of Science in Biology (genetic, molecular, and cellular biology) Graduated 2013, Magna Cum Laude and University Honors Scholar, minor in chemistry, GPA: 3.781

**Skills**

Data science: Proficient in Python, Mathematica, MatLab, some experience with C#, some experience with Phoenix WinNonlin. Experienced in storage, analysis, visualization and databasing of regulated data. Competent in pharmacokinetic, pharmacodynamic, and physiologically based mathematical modeling of biological data

Quality control: Validation of assays (accuracy, precision, matrix effects), familiar with FDA bioanalytical guidelines, application of Levy-Jennings quality control protocols

Animals: Basic animal handing (rats and mice), post-operative care, drug self-administration studies, injections (s.c, i.p), maintenance of indwelling vein catheters, urine collection

Bench skills: ELISA, cell culture, rt-PCR, sample preparation for LC-MS and GC-MS, immunohistochemistry, immunocytochemistry, cell counting by stereology

**Publications**

1. Kirley TL, Norman AB, **Wetzel HN.** A novel differential scanning fluorimetry analysis of a humanized anti-cocaine mAb and its ligand binding characteristics. (2019). J. Immunological Methods.
2. Marckel JA, **Wetzel HN**, Amlal S, Amlal A, Norman AB. A recombinant humanized anti-cocaine monoclonal antibody alters the urinary clearance of cocaine and its metabolites in rats. (2019). Drug metabolism and Disposition. 47(3): 184-188.
3. Webster RP, Cohen CF, Saeed FO, **Wetzel HN**, Ball WJ, Kirley TL, Norman AB. Evaluation of methods to reduce background using the Python-based Elisa\_QC program (2018). J. Immunological methods.
4. **Wetzel HN,** Tongli Zhang, Andrew B. Norman. A mathematical model of a recominant humanized anti-cocaine monoclonal antibody’s effects on cocaine pharmacokinetics in mice (2017). Life Sciences; 07.006.
5. **Wetzel HN,** Cinder Cohen, Rose P. Webster, Andrew B. Norman (2017). A novel Python program for implementation of quality control in ELISA. J. Immunoligcal methods ; 05.012.
6. **Wetzel HN**, Webster RO, Saeed FO, Kirley TL, Ball WJ, Norman AB (2017). Characterization of a recombinant humanized anti-cocaine monoclonal antibody produced from multiple clones for the selection of a master cell bank candidate. Biochem Biophys Res Commun ; 3:690-694.
7. **Wetzel HN**, Tsibulsky VL, Norman AB (2016). The effects of a repeated dose of a recombinant humanized anti-cocaine monoclonal antibody on cocaine self-administration in rats. Drug Alcohol Dependence;168:287-292
8. **Wetzel HN**, Ball WJ, Norman AB (2016). Anti-cocaine monoclonal antibodies. In: Montoya ID. *Biologics to Treat Substance Disorders*, Springer International Publishing. 109-117.
9. Hall AM, Hemmer R, Spaulding R, **Wetzel HN**, Curcio J, Sabel BA, Henrich-Noack P, Pixley S, Hopkins T, Boyce RL and others (2016). Cytotoxicity and apoptotic gene expression in an in vitro model of the blood-brain barrier following exposure to poly(butylcyanoacrylate) nanoparticles. J Drug Target 24(7):635-44.
10. **Wetzel HN**, Tabet MR, Ball WJ, Norman AB (2014). The effects of a humanized recombinant anti-cocaine monoclonal antibody on the disposition of cocaethylene in mice. International Immunopharmacology 23**:** 387-390.

**Non-Scientific Publications**

**Wetzel HN,** Working and Breastfeeding: My Experience with Hand Expression. La Leche League USA Blog, New Beginnings. Nov 13 2018. https://www.lllusa.org/working-and-breastfeeding-my-experience-with-hand-expression/

**Presentation Experience**

**National /International Meetings (Oral Presentations)**

1. **Hanna N. Wetzel,** Andrew B. Norman. An Overview of Maintained Dopamine Agonist Self-Administration Behaviour in Rats as a Pharmacological Assay System. *British Pharmacological Society, Pharmacology* 2014 London, England
2. **Hanna Dasenbrock,** Felicia Gooden, Mike R. Tabet, William J. Ball, Andrew B. Norman. The effects of a humanized anti-cocaine antibody on cocaethylene pharmacokinetics in mice. *Society for Neuroscience Annual Meeting*, 2013 Nanosymposium, Addiction Treatment and Genetics: Translational Studies, San Diego, CA

**National/International Meetings (Posters)**

1. Mackenzie Turner, Chris Crutchfield, Tiffany Bell, **Hanna N. Wetzel,** Andrew Norman. The Effect of a Humanized Anti-Cocaine Monoclonal Antibody on the In Vitro Metabolism of Cocaine. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2020, Orlando Fl.
2. Jordan Marckel, **Hanna N. Wetzel,** Tiffany Bell-Horwath1, Mackenzie E. Turner1, Rose Webster1, Terence L. Kirley1, Christopher A. Crutchfield, Andrew B. Norman The pharmacokinetics of the Fab fragment of a humanized anti-cocaine monoclonal antibody and its effects on cocaine’s distribution in mice. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2020, Orlando Fl.
3. Dakota Zinani, **Hanna N. Wetzel,** Vladimir Tsibulsky, Andrew B. Norman. Compulsion zone theory of the self-administration paradigm explains different drug durations of extinction responding with different cocaine analogues. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2020, Orlando Fl.
4. **Hanna N. Wetzel,** Andrew B. Norman. A streamlined approach to the acquisition and analysis from drug self-administration data. *College on problems of drug dependence* 2019 San Antonio TX.
5. Jordan Marckel, **Hanna N. Wetzel,** Hasanne Amlal, Andrew B. Norman. The effects of a recombinant humanized anti-cocaine monoclonal antibody and its Fab fragment on the urinary clearance of cocaine and metabolites in rats. *College on problems of drug dependence* 2019 San Antonio TX.
6. Dakota Zannoni, **Hanna N. Wetzel,** Vladimir Tsibulsky, Andrew Norman. Compulsion Zone Theory Explains Different Duration's of Extinction Responding with Different Cocaine Analogues. *College on problems of drug dependence* 2019 San Antonio TX.
7. Jordan Marckel, **Hanna N. Wetzel,** Andrew B. Norman. The pharmacokinetics of a recombinant humanized anti-cocaine monoclonal antibody in both male and female rats. *College on problems of drug dependence* 2019 San Antonio TX.
8. **Hanna N. Wetzel,** Tongli Zhang, Andrew B. Norman. A mathematical model of a humanized anti-cocaine monoclonal antibody’s effects on cocaine distribution to the brain in mice. *British Pharmacological Society, Pharmacology* 2016 London, England
9. Brianna L. Bauer, **Hanna N. Wetzel,** Andrew B. Norman. Simulating maintained cocaine self-administration behavior using a receptor-based pharmacokinetic/pharmacodynamic model. *British Pharmacological Society, Pharmacology* 2015 London, England
10. Randy E. Verduguez, **Hanna N. Wetzel**, Andrew B. Norman. Characterizing the role of D2-like dopamine receptors in the self-administration of cocaine in rats. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2016, San Diego CA
11. **Hanna N.** **Wetzel,** Vladimir L. Tsibulsky, Andrew B. Norman. Protracted acceleration of cocaine self-administration behaviour in rats following irreversible antagonism of dopamine receptors. *British Pharmacological Society, Pharmacology* 2015 London, England
12. **Hanna N. Wetzel,** Michael R. Tabet, Andrew. B Norman. The Effects of a Humanized Anti-Cocaine Monoclonal Antibody on Cocaine Metabolism and Urinary Excretion in Mice. *American Society of Pharmacology and Experimental Therapeutic at Experimental Biology* 2015, Boston MA.
13. **Hanna N. Wetzel,** Vladimir L. Tsibulsky, Andrew B. Norman. Measuring the Potencies of RTI-55 and Bupropion Using Self-Administration in Rats as a Bioassay. *American Society of Pharmacology and Experimental Therapeutic at Experimental Biology* 2015, Boston MA.
14. Emily B. Sparks, **Hanna N. Wetzel**, Andrew B. Norman. Effect of an anti-cocaine monoclonal antibody on body weights in self-administering rats. *American Society of Pharmacology and Experimental Therapeutic at Experimental Biology* 2015, Boston MA.
15. **Hanna N.** **Wetzel,** Andrew B. Norman. The Effects of Repeated Treatments with a Humanized Recombinant Anti-Cocaine Monoclonal Antibody on Cocaine Self-Administration in Rats. *British Pharmacological Society, Pharmacology* 2014 London, England
16. **Hanna Dasenbrock**, Danielle Zajac, Vladimir L. Tsibulsky, Andrew B. Norman. Irreversible antagonism of receptors accelerates rat cocaine self-administration behavior. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2014, San Diego CA
17. Kelli Edwards, Felicia C.T Gooden, **Hanna Dasenbrock**, Michael R. Tabet, William J. Ball, Andrew B. Norman. A humanized anti-cocaine monoclonal antibody alters cocaine metabolism in vivo and in vitro. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology* 2014, San Diego, CA
18. **Hanna Dasenbrock,** Mike Tabet, Erin Bartley, William J. Ball, Andrew B. Norman. A humanized anti-cocaine antibody antagonized cocaethylene entry into the brain in mice. *American Society of Pharmacology and Experimental Therapeutics at Experimental Biology*, 2013, Boston, MA
19. **Hanna Dasenbrock,** Ruth Hemmer, Robert Spaulding, Emily Esham, Bernhard Sabel, P. Henrich-Noack, Patrick Schulthies, Heather Bullen, Kristi Haik . Evaluation of apoptosis related gene expression to measure poly(butylcyanoacrylate) nanoparticle toxicity in a cell culture model of the blood brain barrier. *Society for Neuroscience Annual Meeting*, 2012, New Orleans, LA

**Research Experience**

Visiting Scholar in Dr. Andrew Norman’s Lab (2018-present)

Graduate Assistant in Dr. Andrew Norman’s Lab (2014-2017)

Graduate Rotation in Dr. Sander Vinks Laboratory (11/03/13 - 12/28/13) in the Clinical Pharmacology Department at the Cincinnati Children’s Hospital Medical Center

American Society of Pharmacology and Experimental Therapeutics Summer Research Fellow (2012)

Student Research Assistant for Dr. Kristi Haik (2010-2013)

**Guest Lectures**

Taught *in vivo* pharmacokinetics for the Experimental Methods Master of Science course (2015, 2016, 2017, 2019)

Guest lectured in Computational System’s Biology course (Department of Physiology) (2017)

Xavier Chemistry Departmental Seminary Lecture (2018)

**Research Supervision**

Supervised engineering co-op student, Scott Shilling (2016-2017)

Supervised Ph.D students Jordan Marckel (2015-2019) and Dakota Zannoni (2017-2019)

Supervised rotating Master of Science students Rithvik Venna (2015-2016) Farah Sagin (2015) and Emily Sparks (2014-2015) and Sean Dibert (2016-2017)

Supervised Undergraduate students doing Capstone research Sean Dibert (2015-2016) and Kartik Warikoo (2015-2016) and Mackenzie Turner (2017-2019)

Awarded certificate of appreciation in recognition of valuable contributions to the Student Achievement in Research and Scholarship (STARS) program (4-9-2014) for supervising a STARS Program Student, Thao Nguyen (2013-2014)

Supervised American Society of Pharmacology and Experimental Therapeutics, Danielle Zajac and Kelli Edwards (2013) Randy Verduguez (2015-2016), and Brianna Bauer (2016) Summer Fellows

General Chemistry Supplemental Instruction Leader and Peer Tutor at NKU (2012-2013)

**Awards and Honors**

**National/International**

British Pharmacological Society Bain Memorial Bursary Fund Recipient 2015

Nominated for ASPET Graduate Student Best Abstract Award in the Behavioral Pharmacology Division at the American Society of Pharmacology and Experimental Therapeutics at Experimental Biology 2015, Boston MA

Nominated for ASPET Graduate Student Best Abstract Award in the Behavioral Pharmacology Division at the American Society of Pharmacology and Experimental Therapeutics at Experimental Biology 2014, San Diego CA

ASPET Summer Undergraduate Research Fellowship Travel Award of $1,000 (2013)

**Local**

Certificate of completion of Introduction to Python course presented by Cardinal Solutions

University of Cincinnati Graduate Assistant Scholarship and Fellowship (2012-2017)

Best Communicator Award ASPET of $100 (2012)

Outstanding freshman award at Northern Kentucky University (2010)

Recipient of the Excellence Scholarship at Northern Kentucky University (2010-2013)

Recipient of the Susan B. Rothaas Scholarship (2010-2012)

**Service**

University of Cincinnati Undergraduate Research Showcase Judge (2019)

Cincinnati Babywearing Society Chapter Volunteer (2017-2018)

Rodger Bacon High School Science Fair Judge (2018)

Recruitment representative for the Department of Pharmacology at the Biomedical Research Day Grad Fair (Presented poster, talked with potential students) (2015, 2016, 2017)

Kenton County Academy of Innovation and Technology Advisory Board member (critiqued and advised high school science students on research proposal presentations) (2014)

Student representative to the University of Cincinnati Pharmacology Graduate Education Committee (2013-2015)

Recruitment representative for the graduate program for the Department of Pharmacology and Cell Biophysics (Helped welcome students, presented a poster, conducted a lab tour) (2014, 2015, 2016, 2017)