

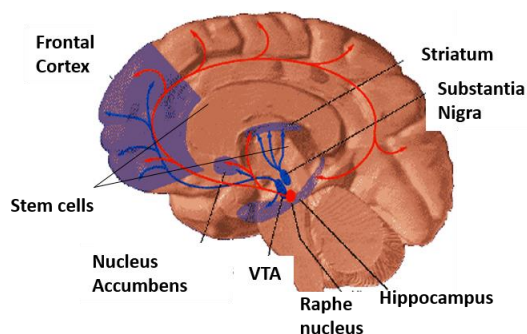
Biochemistry

Areas of Instruction

Biochemistry 1 and 2 with laboratories. (Chem. 352,352, 351L, 353L)
General, Organic and Biochemistry for Health Sciences (Chem. 105,107)
Special Topics; Chem. 370 (Neurochemistry, Medical Chemistry)
Research (Chem. 399)

Anthony Research Lab:

Our lab studies the alterations in proliferation and differentiation of neuronal stem cells in the developing brain and adult limbic system after alcohol or drug insult. Addiction is a growing concern, especially here in West Virginia, with opioid addiction. Most recent statistics suggest that West Virginia has one of the highest addiction rates in the United States. We study changes of proliferation and cell death in early embryo development, associated with neural crest stem cells, and examine similar aspects in adult neuronal stem cells in the brain. Both of



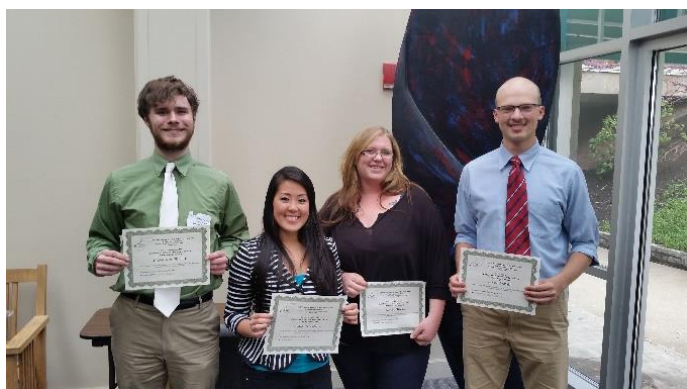
these stem cell populations contribute to Fetal Alcohol Spectrum Disorders (FASD), Drug Related Birth Defects, and Neuronal Plasticity changes associated with adult addiction recovery. We wish to understand how addiction alters the brains developmental chemistry and the natural ability of stem cells to remodel learning behavior, mood and memory. We suggest that this research will assist in better treatment programs and improved outcomes for patients with addiction problems.

Dopamine Pathway

Reward/Motivation
Pleasure
Compulsion

Serotonin Pathway

Mood
Memory
Cognition



Award winners from 2016 Academy of Science Annual Meeting. Left to Right; Honorable Mention, Dakota Burdette, Aline Yamamoto, Laurel Bragg. First place poster James Gainer.



Capitol Day at the West Virginia State House. From left to right; Kelsie Krantz, Megann Boone, James Gainer, Brooke Lancaster.

Publications

1. Anthony, B., Carter, P., and De Benedetti, A. (1996) Overexpression of the proto-oncogene/translation factor eIF-4E in breast carcinoma cell lines. *Int. J. Cancer* **65**, 858-863.
2. Vandenbark, G.R., Chen, Y., Friday, E., Pavlick, K., Anthony, B., deCastro, C., and Kaufman, R. (1996) Complex regulation of human c-kit transcription by promoter repressors, activators and specific elements. *Cell Growth & Differentiation* **7**, 1383-1392.
3. Abid, R., Anthony, B., and De Benedetti, A. (1999) Translational regulation of ribonucleotide reductase by eIF4E links protein synthesis to the control of DNA replication. *Journal of Biological Chemistry* **274**, 35991-35998.
4. Li, Y., DeFatta, R.J, Sunavala, G., Anthony, C., and De Benedetti, A. (2001). A translationally regulated Tousel kinase phosphorylates histone H3 and confers radioresistance when overexpressed. *Oncogene* **20**: 726-738.
5. Anthony, B., and De Benedetti, A. (2001) Overexpression of CDC33 in *S. cerevisiae* causes slow growth and decreased a-factor sensitivity through alterations in CLN3 expression. *J. Biol.Chem.* **276**: 43, 39645-52
6. Feng C. Zhou, Bruce Anthony. Kenneth W. Dunn, W, Brent Lindquist, Zao Xu, Ping Deng. (2007) Chronic Alcohol Drinking Alters Neuronal Dendritic Spines in the Brain Reward Center Nucleus Accumbens. *Brain Research* Feb 23. Vol. 1134(148-61)
7. Bruce Anthony, Feng C. Zhou, Tetsuo Ogawa, Charles R. Goodlett, Joseph Ruiz (2008). Alcohol exposure alters cell cycle and apoptotic events during early neurulation. *Alcohol and Alcoholism.* **43(3)**:261-273.
8. Fang S., Liu Y., Huang J., Vinci-Booher S., Anthony B., Zhou F. (2009). Facial image classification of mouse embryos for the animal model study of fetal alcohol syndrome. Symposium on Applied Computation, Proceedings of the 2009 ACM symposium on Applied Computing 852-856. NIHMS135309. NIHMSID # 167803.
9. Bruce Anthony, Sophia Vinci-Booher, Leah Wetherill, Richard. Ward, Charles Goodlett, Feng C. Zhou (2010). Alcohol Induced Facial Dysmorphology in C57BL/6 Mouse Models of Fetal Alcohol Spectrum Disorder. *Alcohol and Alcoholism*, 2010 Jun 5. [Epub ahead of print]
10. Shiaofen Fang, Ying Liu, Sophia Vinci-Booher, Bruce Anthony, Feng Zhou. (2010) Surface Analysis from Video Volumes for Fetal Alcohol Syndrome Classification. IEEE Computer Society, Aug 26.
11. Yun Lian, Huisi Ai, Bruce Anthony, Leahv Wetherill, Charles Goodlett, Feng C. Zhou.(2009) Facial Dysmorphology in Craniofacial Bone Formation in C57BL6 after Alcohol Exposure. *Alcohol and Alcoholism.*
12. Bruce Anthony, Manuel Martinez, David Olson, Charles Goodlett, Feng C. Zhou. (2010) Alcohol administration via vapor chamber in a C57BL/6 mouse model of fetal alcohol spectrum disorder, ACER.
13. Bruce Anthony, Sophia Vinci-Booher, Brooke Veene, Leah Wetherill, Charle Goodlett, Richard Ward, Feng C. Zhou. (2012) Effects of Duration and Dose of Prenatal Alcohol Exposure Via Maternal Liquid Diet on Facial Dysmorphology in C57BL/6J Mice. *Journal of Alcohol and Alcoholism.*
14. Bruce Anthony, F. C. Zhou. (2013) Alcohol induced alterations in G1 to S-phase cell cycle transition in dorsal root ganglion stem cells. In progress, alcohol and alcoholism.
15. : Li Shen Ph.D; Huisi Ai, MS; Yun Liang, PhD; Xiaowei Ren, MS; Charles B Anthony, PhD; Charles R Goodlett, PhD; Richard Ward, PhD; Feng Zhou, PhD (2013) Effect of Prenatal Alcohol Exposure on Bony Craniofacial Development: A Mouse MicroCT Study. *Journal of Alcoholism* Aug, 18.