

Tiffany Ann Wills, PhD

CURRICULUM VITA 2015

OFFICE ADDRESS

Dept of Cell Biology & Anatomy
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EDUCATION/TRAINING:

1999-2003	B.S., Psychology, Indiana University Purdue University at Indianapolis (IUPUI)
2001-2003	Undergraduate research assistant for Dr. Neal-Beliveau & Dr. Goodlett
2003-2004	Lab technician at Indiana University Purdue University at Indianapolis
2004-2009	Ph.D., Neurobiology Curriculum, University of North Carolina at Chapel Hill
2009-2014	Post-doctoral Fellow, Dept. of Molecular Physiology & Biophysics, Vanderbilt University
2014-2015	Research Instructor, Dept. of Molecular Physiology & Biophysics, Vanderbilt University
2015-current	Assistant Professor, Department of Cell Biology and Anatomy, Louisiana State University Health Sciences Center

AWARDS:

2001	Supporting Undergraduate Research Program (SPUR)
2002	UROP Travel Award
2007	RSA Begleiter Memorial Award
2008	RSA Travel Award
2008	"Alcoholism and Stress Meeting in Volterra, Italy" Travel Award
2010	RSA Travel Award
2011	RSA Travel Award
2014	"Alcoholism and Stress Meeting in Volterra, Italy" Travel Award
2015	NIDA/NIAAA Early Career Investigator Showcase Award

GRANTS:

2006-2009	F31 NRSA "Repeated Alcohol Withdrawals during Adolescence Sensitize Anxiety-like Behavior"
2010-2013	F32 NRSA "Role of NR2B Subunit in Glutamate Signaling and Anxiety during Ethanol Withdrawal"
2014-current	K99/R00 "Alcohol Regulation of Synaptic and Extrasynaptic GluN2B-NMDA Receptors in BNST"

PUBLICATIONS

1. Parnell SE, Dehart DB, **Wills TA**, Chen S-Y, Hodge CW, Besheer J, Waage-Baudet HG, Charness ME, Sulik KK (2006). Maternal Oral Intake Mouse Model for Fetal Alcohol Spectrum Disorders: Ocular Defects as a Measure of Effect. *Alcoholism: Clinical and Experimental Research*, 30: 1791-1798.
2. Breese GR, Knapp DJ, Overstreet DH, Navarro M, **Wills TA**, Angel RA (2008). Repeated lipopolysaccharide (LPS) or cytokine treatments sensitize ethanol withdrawal-induced anxiety-like behavior. *Neuropsychopharmacology*, 33: 867-876, PMCID: PMC2268634.
3. **Wills TA**, Knapp DJ, Overstreet DH, Breese, GR (2008). Differential dietary ethanol intake and blood ethanol levels in adolescent and adult rats: Effects on anxiety-like behavior and seizure thresholds. *Alcoholism: Clinical and Experimental Research*, 32: 1350-1360, PMCID: PMC2855489.
4. **Wills TA**, Knapp DJ, Overstreet DH, Breese, GR (2009). Sensitization, duration, and pharmacological blockade of anxiety-like behavior following repeated withdrawals in adolescent and adult rats. *Alcoholism: Clinical and Experimental Research*, 33: 455-63, PMCID: PMC2847263.
5. Huang MM, Overstreet DH, Knapp DJ, Angel R, **Wills TA**, Navarro M, Rivier J, Vale W, Breese GR (2009). Corticotropin releasing factor (CRF) sensitization of ethanol withdrawal-induced anxiety-like behavior is brain site specific and mediated by CRF-1 receptors: relation to stress-induced sensitization. *Journal of Pharmacology and Experimental Therapeutics*, 332: 298-307, PMCID: PMC2802475.
6. **Wills TA**, Knapp DJ, Overstreet DH, Breese, GR (2010). Interactions of stress and CRF in ethanol-withdrawal induced anxiety in adolescent and adult rats. *Alcoholism: Clinical and Experimental Research*, 34: 1603-12, PMCID: PMC2948468.
7. Knapp DJ, Whitman BA, **Wills TA**, Angel RA, Overstreet DH, Criswell HE, Ming Z, Breese GR (2011). Cytokine involvement in stress may depend on corticotrophin releasing factor to sensitize ethanol withdrawal anxiety. *Brain, Behavior, and Immunity*, 25: S146-S154, PMID: 21377524.
8. Knapp DJ, Overstreet DH, Huang MM, **Wills TA**, Whitman BA, Angel RA, Sinnott SE, Breese GR (2011). Effects of a Stressor and Corticotrophin Releasing Factor on Ethanol Deprivation-Induced Ethanol Intake and Anxiety-Like Behavior in Alcohol-Preferring P Rats. *Psychopharmacology*, 218: 179-89. PMID: 21643675
9. **Wills TA**, Klug JR, Silberman Y, Baucum AJ, Weitlauf C, Colbran RJ, Delpire E, Winder DG (2012). GluN2B subunit deletion reveals key role in acute and chronic ethanol sensitivity of glutamate synapses in bed nucleus of the stria terminalis. *Proc Natl Acad Sci U S A*, 109: E278-87. PMID: 22219357

10. Wieczorek L, Majumdar D, **Wills TA**, Hu L, Winder DG, Webb DJ, Muglia LJ (2012). Absence of Ca²⁺-stimulated adenylyl cyclases leads to reduced synaptic plasticity and impaired experience-dependent fear memory. *Transl Psychiatry*, 2: e126.
11. **Wills TA**, Kash TL, and Winder DG (2013). Developmental changes in the acute ethanol sensitivity of glutamatergic and GABAergic transmission in the BNST. *Alcohol*, 47: 531-7. PMID: 24103431.
12. Louderback KM, **Wills TA**, Muglia LJ, and Winder DG (2013). Knockdown of BNST GluN2B-containing NMDA receptors mimics the actions of ketamine on novelty-induced hypophagia. *Transl Psychiatry*, 3: e331. PMID: 24301649.
13. Risher ML, Fleming RL, Risher WC, Miller KM, Klein RC, **Wills TA**, Acheson SK, Moore SD, Eroglu C, Swartzwelder (2015). Adolescent intermittent alcohol exposure: persistence of structural and functional hippocampal abnormalities into adulthood. *Alcoholism: Clinical and Experimental Research*, 39: 989-97.
14. **Wills TA**, Baucum AJ, Louderback KM, Chen Y, Tabb DL, Colbran RJ, Winder DG (submitted). GluN2B-targeted proteomic approach reveals alcohol-induced regulation of hippocampal plasticity.

REVIEWS/BOOK CHAPTER:

Wills TA, Winder DG (2012). Ethanol effects on NMDA Receptors in the Bed Nucleus of the Stria Terminalis. *Addiction: Cold Spring Harbor Laboratory Press*.

ORAL PRESENTATIONS:

Are adolescent rats more sensitive to the effects of multiple withdrawals from ethanol? Research Society of Alcoholism-Chicago. (2007)

Effects of CRF and stress on the alcohol deprivation effect in P rats. *Alcoholism and Stress: A Framework for Future Treatment Strategies-Volterra, Italy*. (2008)

Conditional GluN2B knockout mice reveal NMDAR subtype-dependent EtOH sensitivity of excitatory transmission in the bed nucleus of the stria terminalis. *Research Society of Alcoholism-Atlanta*. (2011)

Novel signaling through extrasynaptic GluN2B-NMDA receptors in the bed nucleus of the stria terminalis (bnst) following chronic ethanol. *Research Society of Alcoholism-Orlando*. (2013)

ABSTRACTS (selected):

D. Garzon, **T.A. Wills**, B. Neal-Beliveau, and C.R. Goodlett (2002). Effects of Neonatal Isolation Stress and Alcohol Exposure on Spatial Learning in Juvenile Rats. *Developmental Psychobiology* 41:3 [Abstract #34]

Wills TA, Goodlett CR, Neal-Beliveau BS (2003). Effects of Neonatal Alcohol Exposure on an Amphetamine Challenge in Adult Rats. *Developmental Psychobiology* 43:3 [Abstract # 137].

Wills TA, Garzon D, Goodlett CR, Neal-Beliveau B (2003). Consequences of Exposure to Alcohol and Isolation Stress During the “3rd Trimester Equivalent” Period of Brain Development in the Neonatal Rat. *Alcohol Clin Exp Research* 27:5 [Abstract #223]

Wills TA, Knapp DJ, Overstreet DH, Breese GR (2005). Effects of CP-154,526, Flumazenil, and Buspirone on Corticosterone Levels Induced by Acute Ethanol Treatment or Exposure to Restraint Stress. *Alcohol Clin Exp Research* 29:5 [Abstract # 305].

Wills TA, Knapp DJ, Overstreet DH, Breese GR (2006). Effects of multiple withdrawals from ethanol in adolescents and adults: analysis of anxiety-like behavior and seizure thresholds. *Alcohol Clin Exp Research* 27:5 [Abstract #223]

Wills TA, Knapp DJ, Overstreet DH, Breese GR (2006). Sensitization of Anxiety-like Behavior Following Multiple Ethanol Withdrawals in Adolescents. *Soc. for Neurosci*, Abstract#477.11.

Wills TA, Knapp DJ, Overstreet DH, Breese GR (2007). Duration, persistence, and treatment of anxiety-like behavior following multiple withdrawals from ethanol in adolescent rats. *Alcohol Clin Exp Research* 31:6 [Abstract #814].

Wills TA, Angle RA, Knapp DJ, Overstreet DH, Breese GR (2008). The role of stress and cytokines in the sensitization of anxiety-like behavior in adolescents. *Alcohol Clin Exp Res* 32:6 [Abstract#88].

Wills TA, Blake BL, Knapp DJ, Huang M, Morrow AL, Overstreet DH, Breese GR (2008). Effects of ethanol and LPS on progesterone, neuroactive steroids, and GABA_A- α 4 subunit expression in adolescent and adult rats. *Alcohol Clin Exp Res* 32:6 [Abstract#596].

Wills TA, Angel RA, Knapp DJ, Overstreet DH, Breese GB (2008). Role of CRF in the sensitization of anxiety-like behavior following repeated ethanol withdrawals in adolescents. *Soc. for Neurosci*, Abstract#847.4.

Wills TA, Angel RA, Whitman BA, Huang M, Knapp DJ, Overstreet DH, Breese GB (2009). Changes in CRF and p-Erk 1/2 following repeated ethanol withdrawal and stress-withdrawal paradigms in adolescent and adult rats. *Alcohol Clin Exp Res* 33:s1 [Abstract#451].

Wills TA, Winder DG (2010). Repeated chronic intermittent ethanol vapor exposure alters long-term potentiation in the bed nucleus of the stria terminalis. *Alcohol Clin Exp Res* 34:6 [Abstract#509].

Wills TA, Delpire E, Winder DG (2010). Effects of chronic ethanol exposure on excitatory transmission in the dorsal-lateral bed nucleus of the stria terminalis: assessing contributions of GluN2B with Ro25-6981. *Soc. for Neurosci*, Abstract#266.15.

Wills TA, Silberman Y, Delpire E, & Winder DG (2011). Effects of ethanol on excitatory transmission in the dorsal-lateral bed nucleus of the stria terminalis in GluN2BKO mice. *Alcoholism and Stress: A Framework for Future Treatment Strategies*, 45:3 [Poster#117].

Wills TA, Silberman Y, Klug JR, Delpire E, and Winder DG (2011). Conditional GluN2B knockout Mice reveal NMDAR subtype-dependent EtOH sensitivity of excitatory transmission in the bed nucleus of the stria terminalis. *Alcohol Clin Exp Res* 35:6 [Symposia#133].

Wills TA, Louderback KM, Winder DG (2012). Interaction of stress with chronic ethanol treatment on ethanol intake and BNST plasticity. *Alcohol Clin Exp Res*, 36:6 [Abstract#375].

Wills TA, Louderback KM, Baucum AJ, Colbran RJ, Winder DG (2013). Targeted proteomic analysis of synaptic and extrasynaptic GluN2B-NMDA receptors following chronic ethanol. *Alcohol Clin Exp Res*, 37:S2 [Abstract#716].

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

2005-present Research Society on Alcoholism

2005-present Society for Neuroscience