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## BIOGRAPHICAL SKETCH

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NAME NIHAL TÜMER, PH.D	POSITION TITLE Professor / Research Pharmacologist		
eRA COMMONS USER NAME TUMERN			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Hacettepe University	B.S. M.S	1972	Biology
Hacettepe University	Ph.D.	1980	Biophysics
Medical College of Pennsylvania	Post-doc	1984-88	Pharmacology

### A. Personal Statement

The proposed collaboration involving Drs. Tümer, Wang, and Foster brings together a collection of experience and expertise that collectively will make it possible to implement a novel multidisciplinary and preclinical approach to studying the impact of OBI on memory and cerebrovascular reactivity. Given the far reaching effects of OBI on neural systems in producing neuronal, cardiovascular, autonomic, endocrine, immunological, physiological and behavioral changes, the assembled research team collectively represents the expertise necessary to address the multidisciplinary questions raised in the research plan. The combination of expertise and research experience of the research team has made it possible to thoroughly evaluate interactions between OBI and autonomic tone resulting in memory, vascular and autonomic consequences. With a unique collection of research expertise the proposed research will address important questions related to mechanisms and potential therapeutic targets that can be translated to the human arena. By assembling a group that has expertise in brain injury, neurodegeneration (Wang), memory and anxiety ( Foster) and vascular function, oxidative stress, blood pressure (Tümer), a multidisciplinary strategy can be implemented that will go far beyond the research that could have been carried out by any single member of the group.

In summary, I have a demonstrated record of successful and productive research projects in an area of high relevance to the current oxidative stress and cerebrovascular dysfunction, and my expertise and experience have prepared me to direct the proposed project.

### B. Positions and Honors

#### Positions and Employment:

1989 - Present, Research Pharmacologist, Geriatric Research, Education and Clinical Center. VA Medical Center, Gainesville, FL.

2003 - Present, Tenured Professor, Department of Pharmacology and Therapeutics College of Medicine, University of Florida, Gainesville, FL.

2006 - Present, Adjunct Professor, Department of Aging, University of Florida, Gainesville, FL.

1994 - Present, Adjunct Professor, Department of Applied Physiology and Kinesiology, University of Florida, Gainesville, FL.

1994-2003 Tenured Associate Professor, Department of Pharmacology and Therapeutics, College of Medicine, University of Florida, Gainesville, FL.

1989-1994 Assistant Professor, Department of Pharmacology and Therapeutics College of Medicine, University of Florida, Gainesville, FL.

1988-1989 Research Assistant Professor, Department of Pharmacology, Medical College of Pennsylvania, Philadelphia, PA.

1984 -1988 Postdoctoral Fellow, Department of Pharmacology, Medical College of Pennsylvania, Philadelphia, PA;

1980-1983 Assistant Research Biophysicist, Department of Biophysics, Hacettepe University, Faculty of Medicine, Ankara, Turkey;

1976-1980 Graduate Research Assistant, Department of Biophysics, Hacettepe University, Faculty of Medicine, Ankara, Turkey

1973 -1976 Biologist, Cancer Research and Cytopathology Department, Hacettepe University, Faculty of Medicine, Ankara, Turkey;

### **Other Experience and Professional Memberships**

2009 - Present	Turkish Pharmacological Society
2008 - 2011	American Aging Association
1994 - Present	Society for Neuroscience
1992 - 1997	American Heart Association Basic Science Counsel
1990 - Present	American Society for Pharmacology and Experimental Therapeutics
1986 - 1989	Mid-Atlantic Pharmacology Society
1985 - Present	(Fellow) The Gerontological Society of America
1985 - 1989	American Association for the Advancement of Science

### **Honors**

2009 University of Florida International Educator Ambassador Award

1986 - 1989 Postdoctoral Fellowship: NIA Training Program in Cellular and Molecular Aspects of Aging (#T32-AG00131-01, PI, Dr. Vincent J. Cristofalo)

1978 - 1980 Postdoctoral Fellowship: Cardiovascular Trainee (Training Grant), Scientific and Technical Research Council of Turkey

### **C. Selected Peer-reviewed Publications (Selected from 96 total peer-reviewed publications)**

#### **Most relevant to the current application**

1. **Tümer, N.**, Toklu, H.Z., Muller-Delp J.M., Oktay S., Ghosh P., Strang K., Delp MD., Scarpace PJ: The effects of aging on the functional and structural properties of the rat basilar artery. *Physiol Rep*. 2014 Jun 6;2(6). pii: e12031. Print 2014 Jun 1.
2. Toklu HZ, Kwon OS, Sakarya Y, Powers SK, Llinas K, Kirichenko N, Sollanek KJ, Wiggs MP, Smuder AJ, Talbert EE, Scarpace PJ, **Tümer N.**: The effects of enalapril and losartan on mechanical ventilation-induced sympathoadrenal activation and oxidative stress in rats. *J Surg Res*. Feb 6. 188(2):510-6. doi: 10.1016/j.jss.2014.01.054, 2014
3. Kobeissy, F., Mondello, S., **Tümer , N.**, Toklu, HZ., Whidden, MA., Kirichenko , N., Zhang, Z., Prima, V., Yassin, W., Svetlov, S., and Wang, KK: Assessing neuro-systemic and behavioral components in the pathophysiology of blast-related brain injury, *Frontiers in Neurology*, 21(4):186;1-19, 2013
4. **Tümer, N.**, Svetlov, S., Kirichenko, N., Whidden, M.A, Erdos, B., Prima, V., Sherman, A., Kobeissy, F., Yeziarski, B., Scarpace, P.J., Vierck, C and Wang, KK: Overpressure blast-wave induced brain injury elevates oxidative stress in the hypothalamus and catecholamine biosynthesis in rat adrenal medulla , *Neuroscience Letters*, 544:62-7, 2013
5. Erdös, B., Kirichenko, N., Whidden, M., Basgut, B., Woods, M., Cudykier, I., Tawil, R., Scarpace, P.J and **Tümer, N**: Effect of age on high fat diet-induced hypertension. *Am J Physiol Heart Circ Physiol*. 301(1):H164-72, 2011

6. Whidden, M.A, Kirichenko, N., Halici, Z., Erdos, B., Foster, T.C and **Tümer, N.**: Lifelong caloric restriction prevents age-induced oxidative stress in the sympathoadrenal system of Fischer 344 x Brown Norway rats. *Biochem Biophys Res Commun.* 408 (3): 454-8, 2011.
7. Erdös, B., Cudykier, I., Woods, M., Basgut, B., Whidden, M., Tawil, R., Cardounel, A.R., and **Tümer, N.**: Hypertensive effects of central angiotensin II infusion and restraint stress are reduced with age. *J of Hypertension*, 28(6):1298-1306, 2010.
8. Erdös, B., Broxson, C.S., Cudykier, I., Basgut, B., Whidden, M., Landa, T., Scarpance, P.J., and **Tümer, N.**: Effect of high-fat diet feeding on hypothalamic redox signaling and central blood pressure regulation. *Hypertension Research*, 32(11) 983-88, 2009.
9. Staib, J.L., **Tümer, N** and Powers, S.K: Increased temperature and protein oxidation signal HSF1 activation and HSP 72 protein accumulation in the *in vivo* exercised heart. . *Experimental Physiology*. 94(1):71-80, 2009.
10. Erdös, B., Erdem, R.S, Erdem, A, Broxson, C.S, **Tümer, N**: Effect of age on angiotensin II mediated downregulation of adrenomedullary catecholamine biosynthetic enzymes. *Exp Gerontology*. 43(8):806-809, 2008.
11. Erdös, B., Broxson, C.S , Landa , T, Scarpance, P.J, Leeuwenburgh, C, Zhang, Y and **Tümer , N**: Effect of life-long caloric restriction and voluntary exercise on age-related changes in levels of catecholamine biosynthetic enzymes and angiotensin II receptors in the rat adrenal medulla and hypothalamus. *Exp Gerontology*, 42(8): 745-52, 2007.
12. Erdös,B., Broxson, C.S., King, M.A, Scarpance, P.J, and **Tümer N**: Acute pressor effect of central angiotensin II is mediated by NAD(P)H-oxidase-dependent superoxide production in the hypothalamic cardiovascular regulatory nuclei . *J of Hypertension*, 24(1):109-116, 2006.

#### **Chapter in press:**

1. Toklu, H and **Tümer, N.**: Blood Brain Barrier Permeability and Brain Edema Due To Traumatic Brain Injury. In "*Brain Injury Principles: Molecular, Neuropsychological and Rehabilitation Aspects in Brain Injury Models*"; Ed; Kobeissy F. Taylor & Francis Group Co. 2014 (in press)

#### **Additional recent publications (in chronological order)**

1. Matheny M., Strehler K.Y., King M., Tümer N and Scarpance PJ: Targeted leptin receptor blockade: role of ventral tegmental area and nucleus of the solitary tract leptin receptors in body weight homeostasis. *J Endocrinol.* Jul;222(1):27-41. doi: 10.1530/JOE-13-0455, 2014.
2. Scarpance P.J., Matheny M., Kirichenko N., Gao Y.X., Tümer N., Zhang Y: Leptin overexpression in VTA trans-activates the hypothalamus whereas prolonged leptin action in either region cross-desensitizes. *Neuropharmacology*, 65:90-100, 2013.
3. Scarpance, E.T., Matheny, M., Strehler, K.Y., Shapiro, A., Cheng, K.Y, Tümer N and Scarpance P.J: Simultaneous introduction of a novel high fat diet and wheel running induces anorexia. *Physiol Behav.* 28;105(4):909-14, 2012
4. Andino, LM., Ryder, DJ., Shapiro, A., Matheny, M.K., Zhang, Y., Judge, M.K., Cheng, K.Y., **Tümer, N** and Scarpance, P.J.: POMC Overexpression in the ventral tegmental area ameliorates dietary obesity. *J Endocrinol.* 210(2): 199-207, 2011.
5. Zhang, Y., E. Rodrigues. G. Li, Y. Gao X., King, M., Carter, C.S. **Tümer, N.**, Cheng, K.Y., and Scarpance, P.J.: Simultaneous POMC gene transfer to hypothalamus and brain Stem increases physical activity, lipolysis and reduced Adult-Onset Obesity. *Euro J Neuroscience*, 33(8):1541-50, 2011.

6. Shapiro, A., **Tümer N**, Gao, Y., Cheng, K,Y and Scarpance, P.J: Prevention and reversal of diet-induced leptin resistance with a sugar-free diet despite high fat content. *Br J Nutr.* (22):1-8, 2011.
7. Matheny M.K., Shapiro, A., **Tümer, N** and Scarpance, P.J: Region-specific diet-induced and leptin-induced cellular leptin resistance includes the ventral tegmental area in rats. *Neuropharmacology.* 60(2-3):480-7, 2011.
8. Shapiro, A., Cheng, K.Y, Gao, Y., Seo, D.O., Anton, S., Carter, C,S., Zhang, Y., **Tümer, N** and Scarpance, P.J: The Act of Voluntary Wheel Running Reverses Dietary Hyperphagia and Increases Leptin Signaling in Ventral Tegmental Area of Aged Obese Rats. *Gerontology.* 57(4):335-42, 2011
9. Zhang, Y., Rodrigues E, Gao., Y.X, King, M., Cheng, K.Y., Erdös, B., Tümer, N, Carter, C., and Scarpance P.J.: Pro-opiomelanocortin gene transfer to the nucleus of the solitary track but not arcuate nucleus ameliorates chronic diet-induced obesity. *Neuroscience,* 15;169 (4):1662-71, 2010.

## **D. Research Support**

### **Ongoing Research Support**

National Institutes of Health RO1DK091710 (NIDDK), (PI: Scarpance), 7/2012 to 6/2016  
 Mechanisms of diet- induced leptin resistance in ARC and VTA  
 This grant examines the role of dietary fructose on leptin resistance.

### **Recently Completed Research Support**

NIH/NIND: R21 NS074354 (Co I). 04/2011 to 03/2014  
 “Nigrostriatal GDNF over-expression to modulate obesity: from rat to primate”.

The major goals of this program are to determine whether weight loss associated with GDNF over-expression in the substantia nigra pars acts within the mesolimbic system or hypothalamic terminal fields or both.

University of Florida, McKnight Brain Institute, 1/2013 – 12/2013  
 “Dysregulation of Norepinephrine pathway and the autonomic nervous system following closed-head and blast TBI – a Multiple biomarker, functional outcome and comorbidity approach” **(Co-PI)**

University of Florida:Brain Institute & Dept of Pharmacology (PI) 9/10 to 8/12  
 “Traumatic Brain Injury; Pilot Studies”  
 The major goals of this project are: 1) Establish a rat model of post-TBI dysautonomia. 2) Determine whether central inflammatory and redox mechanisms are involved in autonomic dysregulation. 3) Determine whether exercise therapy can facilitate the recovery from post-TBI dysautonomia.

VA RR&D Project Number: F47701 (PI) 10/1/2007 to 9/30/2011  
 “Obesity and Age Impaired Physical Performance: Gene Therapy Intervention”  
 The major goals of this program are to determine if the effects of high fat diet are exacerbated with age impairing physical performance and whether reducing obesity can reverse the latter.