

BIOGRAPHICAL SKETCH

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NAME Colin Sumners		POSITION TITLE Professor and Program Director, Physiology and Functional Genomics	
eRA COMMONS USER NAME csumners			
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
University of Southampton, UK	B.Sc. (Hons)	1976	Physiology/Biochemistry
University of Southampton, UK	Ph.D	1979	Physiology

A. Positions and Honors.**Positions and Employment**

1979-1980	Postdoctoral Fellow, Department of Pharmacy, University of Groningen, Holland
1981-1982	Postdoctoral Associate, Department of Physiology, University of Florida
1982-1987	Assistant Professor, Department of Physiology, University of Florida
1987-1992	Associate Professor, Department of Physiology, University of Florida
1992- Present	Professor, Department of Physiology, University of Florida
1999-2001	Associate Dean for Graduate Education, College of Medicine, University of Florida
1999- Present	Director, Medical Sciences Research Program, University of Florida

Honors and Awards

Royal Society, London, European Programme Postdoctoral Fellowship (1980)
 NINDS Jacob Javits Neuroscience Investigator Award (1992-99)
 University of Florida Presidential Medal for Teacher/Scholar of the Year (1997)
 Chair, Research Committee, AHA FL/PR, (1996-98)
 Chair, CV Regulation 1 study section, AHA National (2000 and 2001)
 University of Florida Research Foundation Professor (2002-05)
 Chair, Molecular Signaling 5a study section, AHA Southern/Ohio Valley (2003-2004)
 U.F. College of Medicine, Basic Science Teacher of the Year (2003-2004; 2005-2006)
 Alpha Omega Alpha Medical Honor Society (2005)

B. Selected peer-reviewed publications or manuscripts in press (from 2000, from a total of 160).

1. Kopnisky K.L and **Sumners C**. Angiotensin II-induced decrease in the expression of inducible nitric acid synthase in rat astroglial cultures: role of protein kinase C. *J. Neurochem.* 74:613-620, 2000.
2. Gallinat S, Busche S, Raizada M.K, and **Sumners C**. The angiotensin II type 2 receptor: an enigma with multiple variations. *Am. J. Physiol. [Endocrinology and Metabolism]* 278:E357-E374, 2000.
3. Busche S, Gallinat S, Bohle R-M, Reinecke A, Seebeck J, Franke F, Fink L, Zhu M, **Sumners S**, and Unger T. Expression of Angiotensin AT₁- and AT₂ receptors in adult rat cardiomyocytes after myocardial infarction: a single-cell RT-PCR study. *Am. J. Pathol.* 157:605-611, 2000.
4. Zima A, Martynyuk A.E, Seubert C.N, Morey T.E, **Sumners C**, Cucchiara R.F and Dennis D. Antagonism of the positive dromotropic effect of isoproterenol by adenosine: role of nitric oxide, cGMP-dependent cAMP-phosphodiesterase and protein kinase G. *J. Mol. Cell. Cardiol.* 32:1609-1619, 2000.
5. Zhu M, Natarajan R, Nadler J.L, Moore J.M, Gelband C.H and **Sumners C**. Angiotensin II type 2 receptor-mediated increases in neuronal Kv current are mediated by 12-lipoxygenase metabolites of arachidonic acid. *J. Neurophysiol.* 84:2494-2501, 2000.
6. Gallinat S, Busche S, Yang H, Raizada M.K and **Sumners C**. Gene expression profiling of rat brain neurons reveals angiotensin II-induced regulation of calmodulin and synapsin I: possible role in neuromodulation. *Endocrinol.* 142:1009-1016, 2001.
7. Zhu M, **Sumners C**, Gelband C.H and Posner P. Chronotropic action of angiotensin II via the AT₂ receptor in neuronal cultures. *J. Neurophysiol.* 85:2177-2183, 2001.
8. Pan, S-J, Zhu M, Raizada M.K, **Sumners C** and Gelband C.H. Angiotensin II-mediated inhibition of

- neuronal delayed rectifier K⁺ current: role of protein kinase C . *Am. J. Physiol.* 281:C17-C23, 2001.
9. Busche S, Gallinat S, Fleegal M.A, Raizada M.K and **Sumners C**. Novel role of macrophage migration inhibitory factor in angiotensin II regulation of neuromodulation in rat brain. *Endocrinol.* 142:4623- 4630, 2001.
 10. Evans J, **Sumners C**, Moore J, Deng J, Gelband, C. Hand, Shaw G.A. Characterization of mitotic neurons derived from adult rat hypothalamus and brainstem. *J. Neurophysiol.* 87:1076-1085, 2002.
 11. **Sumners C**, Fleegal M.A and Zhu M. Angiotensin type 1 receptor signaling pathways in neurons. *Clin. Exp. Physiol. Pharmacol.* 29:483-490, 2002.
 12. Sun C, **Sumners C** and Raizada M.K. Chronotropic action of angiotensin II in neurons via PKC and CaMK II. *Hypertension* 39:562-566, 2002.
 13. Yang H, Wang X, **Sumners C** and Raizada. M.K An obligatory role of protein kinase C β and MARCKS in vesicular trafficking in neurons. *Hypertension* 39:567-572, 2002.
 14. Yang H, Francis S.C, Sellers K, DeBarros M, Sun, C, **Sumners C**, Ferrario C.M, Katovich M.J, Muro A.F, and Raizada M.K. Hypertension-Linked Decrease in the Expression of Brain α -Adducin. *Circulation Research* 91:633-63, 2002.
 15. Vazquez J, Sun C, Du J, Fuentes L, **Sumners C** and Raizada MK. Efficient transduction of a functional domain of the AT1B receptor in neurons by HIV-TAT PTD. *Hypertension* 41:751-56, 2003
 16. M. A. Fleegal and **Sumners C**. Drinking behavior elicited by central injection of Angiotensin II: Roles for protein kinase C and Ca²⁺/calmodulin dependent protein kinase II. *Am. J. Physiol* 285: R632-640, 2003.
 17. Sun C, Du J, **Sumners C** and Raizada MK. PI3-Kinase inhibitors abolish the enhanced chronotropic effects of angiotensin II in SHR rat brain neurons. *J. Neurophysiol.* 90:3155-3160, 2003.
 18. M. A. Fleegal and **Sumners C**. Angiotensin II induction of AP-1 in neurons requires stimulation of PI3-K and JNK. *Biochem. Biophys. Res. Comm.* 310:470-477, 2003.
 19. Sun C, Du J, M.K. Raizada and **Sumners C**. Modulation of delayed rectifier potassium current by angiotensin II in CATH.a cells. *Biochem. Biophys. Res. Comm.* 310:710-714, 2003.
 20. **Sumners C** and Richards E.M.. Angiotensin receptor signaling in the brain: ionic currents and neuronal activity. In: "Handbook of Experimental Pharmacology", edited by T. Unger and B. Scholkens, Springer-Verlag (Berlin). 163:141-161, 2004.
 21. Dogan M.D., **Sumners C**, Broxson C.S, Clark N, and Tümer N. Central angiotensin II increases biosynthesis of tyrosine hydroxylase in the rat adrenal medulla. *Biochem. Biophys. Res. Comm.* 313:623-626, 2004.
 22. Metcalfe BL, Huentelman MJ MJ, Parilak LD, Taylor DJ, Knot HJ, **Sumners C**, Raizada MK. Prevention of cardiac hypertrophy by angiotensin II type-2 receptor gene transfer. *Hypertension* 43:1233-1238, 2004.
 23. Wang H, Gallinat S, Li HW, **Sumners C**, Raizada MK, Katovich MJ. Elevated blood pressure in normotensive rats produced by 'knockdown' of the angiotensin type 2 receptor. *Exp Physiol* 89:313-322, 2004.
 24. Kagiya T, Glushakov AV, **Sumners C**, Roose B, Dennis, DM Phillips MI, Ozcan MS, Seubert CN, Martynyuk AE. Neuroprotective action of halogenated derivatives of L-phenylalanine. *Stroke* 35: 1192-1196, 2004.
 25. Falcon BL, Stewart JM, Bourassa E, Katovich MJ, Walter G, Speth R.C, **Sumners C**, Raizada MK. Angiotensin II type 2 receptor gene transfer elicits cardioprotective effects in an angiotensin II infusion rat model of hypertension. *Physiol Genomics* 19:255-261, 2004.
 26. Sun C, Li, HW, Leng L, Raizada MK, Bucala R, **Sumners C**. Macrophage Migration Inhibitory Factor: an intracellular inhibitor of angiotensin II-induced increases in neuronal activity. *J. Neuroscience* 24: 9944-9952, 2004.
 27. Gong Y, Chen S, Sonntag, C.F **Sumners C**, Klein RL, King MA, Hughes JA, Meyer EM. Recombinant adeno-associated virus serotype 2 effectively transduces primary rat brain astrocytes and microglia. *Brain Res Brain Res Protoc.* 14(1):18-24, 2004.
 28. Vazquez J, Correa de Adjouian MF, **Sumners C**, Gonzalez A, Diez-Freire C, Raizada MK. Selective silencing of angiotensin receptor subtype 1a by RNA interference. *Hypertension* 45(1):115-119, 2005.
 29. Li, HW, Gao Y, Matsuura T, Martynyuk A, Raizada MK and **Sumners C**. Adenoviral-mediated neuronal-specific over expression of the angiotensin AT2 receptor. *Reg. Peptides* 126: 215-222, 2005.
 30. Sun CW, Sellers K, **Sumners C** and Raizada MK. NAD(P)H oxidase inhibition attenuates neuronal chronotropic actions of angiotensin II. *Circ Res.* 96(6):659-66, 2005.
 31. Matsuura T, Sun C, Leng L, Kapurniotu A, Bernhagen J, Bucala R, Martynyuk AE, Sumners C. Macrophage migration inhibitory factor (MIF) increases neuronal delayed rectifier K⁺ current. *J Neurophysiol.* 95:1042-48, 2006.

32. Li HW, Gao Y, Diez-Freire C, Raizada MK, Toney GM and Sumners C. Macrophage migration inhibitory factor in the PVN attenuates the pressor and dipsogenic actions of angiotensin II. *FASEB J* (in press), 2006.

Research Support

Ongoing

“AT₂ Receptors in Cardiovascular Control” PI: C Sumners, Ph.D. Type: R01 HL-68085-04 Period: 9/1/01-8/31/06 Agency: National Institute of Health

Major Goal: The goal is to investigate the role of AT₂ receptors in cardiovascular function and hypertension primarily with the use of systemic viral-mediated gene transfer technology.

Role: P.I.

“MIF: a novel CNS regulator of Cardiovascular Function.” PI: C Sumners, Ph.D. Type: R01 HL 076803-01A1 Period: 8/1/05-7/31/10 Agency: National Institute of Health

Major Goal: the major goal is to investigate the role of macrophage migration inhibitory factor (MIF) in the CNS-mediated control of blood pressure, testing the hypothesis that MIF negatively regulates the stimulatory actions of angiotensin II on blood pressure.

“Brain Angiotensin in Hypertensive Neurons in Culture” PI: MK Raizada, Ph.D. Type: R37 HL-33610 Period: 7/1/03-6/30/08 Agency: National Institute of Health

Major Goal: the major goal of this project is to elucidate the signal transduction mechanisms involved in angiotensin regulation of norepinephrine neuromodulation in normal and hypertensive rat brain neurons.

“Control of Corticotropin during pregnancy” PI: Keller-Wood, Type: 2 R01 DK38114-11 Period: 12/1/02-11/30/07, Agency: National Institute of Health

Major Goal: the major goals of this project are to determine the role changes in corticosteroid receptors in the brain during pregnancy, and to test the hypothesis that progesterone alters mineralocorticoid function and ACTH secretion in pregnancy.

“Short Term Training: Students in Health Professional Schools” PI: C Sumners, Type: 5T35 HL07489 Period: 4/1/02-3/31/07 Agency: National Institute of Health

Major Goal: the purpose of this grant is to offer short-term stipends to fund research by students in Health Professional schools.

“Health Science Student Summer Research” PI: C Sumners, Type: 0515074B Period: 6/1/05-6/30/07 Agency: American Heart Affiliation/Peurto Rico

Major Goal: the purpose of this grant is to offer short-term stipends to fund cardiovascular research by medical students.

“Nkx2.5-dependent pathways in postnatal cardiomyocytes” PI: H Kasahara, Type: R01 HL 081577-01 Period 7/1/05-6/30/10 Agency: National Institute of Health

Major goal: the major goal is to elucidate the role of Nkx2.5, an evolutionarily conserved NK2 class of homeobox transcription factor, in mature cardiomyocytes.

Pending

“Short Term Training: Students in Health Professional Schools” PI: C Sumners, Type: 5T35 HL07489 Period: 4/1/07-03/31/12 Agency: National Institute of Health

Major Goal: the purpose of this grant is to offer short-term stipends to fund research by students in Health Professional Schools.