

Zoltan Ungvari, MD, PhD

Position

Professor & Donald W. Reynolds Chair of Aging Research, Dept. of Geriatric Medicine & Dept. of Physiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK

Education/training

1999-2003 New York Medical College, Department of Physiology, Valhalla, NY
American Heart Association Postdoctoral Fellow
1996-1999 Semmelweis University, Budapest, Hungary
Ph.D. in Pathology
1990-1996 Semmelweis University, Budapest, Hungary
M.D.

Professional Memberships

Member, American Physiological Society
Member, Microcirculatory Society
Member, American Aging Association
Member, Gerontological Society of America

Other Experience

2008-2011 Laboratory director, Biology of Aging Summer Course, Marine Biological Laboratory
Woods Hole, MA
2010-Present Associate Editor, Journal of Gerontology-Biological Sciences
2013-present Associate Editor, American Journal of Physiology-Heart and Circulatory Physiology
2016-Present Deputy Editor, GeroScience

Grant reviewer

NIH
American Heart Association
National Science Foundation
Austrian Science Fund
Deutsche Forschungsgemeinschaft

Honors

Benjamin Zweifach Student Award (The Microcirculatory Society, 2001)
Young Investigator Award (Eastern Hypertension Society, 2002)
August Krogh Young Investigator Award (The Microcirculatory Society, 2002)
Young Investigator Award (Cardiovascular Section, American Physiological Society, 2003)
New Investigator Award (Cardiovascular Section, American Physiological Society, 2005)
Fellow of the American Heart Association (2010)
Nathan Shock Lecture Award (NIA, 2015)
Fellow of the Gerontological Society of America (2017)

Scientometrics

Total number of publications: 181
Citations: 13338
h-index: 66

Selected publications

a) Discovering novel mechanisms contributing to the development and consequences of intracerebral hemorrhage:

1. Tarantini S, Valcarcel-Ares NM, Yabluchanskiy A, Springo Z, Fulop GA, Ashpole N, Gautam T, Giles CB, Wren JD, Sonntag WE, Csiszar A, Ungvari Z. Insulin-like growth factor 1 deficiency exacerbates hypertension-induced cerebral microhemorrhages in mice, mimicking the aging phenotype. *Aging Cell*. 2017. PMID: 28295976
2. Toth P, Tarantini S, Springo Z, Tucsek Z, Gautam T, Giles CB, Wren JD, Koller A, Sonntag WE, Csiszar A, Ungvari Z. Aging exacerbates hypertension-induced cerebral microhemorrhages in mice: role of resveratrol treatment in vasoprotection. *Aging Cell*. 2015 PMID: 25677910
3. Vinukonda G, Csiszar A, Hu F, Dummula K, Pandey NK, Zia MT, Ferreri NR, Ungvari Z, LaGamma EF, Ballabh P. Neuroprotection in a rabbit model of intraventricular haemorrhage by cyclooxygenase-2,

prostanoid receptor-1 or tumour necrosis factor-alpha inhibition. Brain. 2010;133(Pt 8):2264-80. PMID: 20488889

4. Zia MT, Csiszar A, Labinsky N, Hu F, Vinukonda G, LaGamma EF, Ungvari Z, Ballabh P. Oxidative-nitrosative stress in a rabbit pup model of germinal matrix hemorrhage: role of NAD(P)H oxidase. Stroke. 2009 Jun;40(6):2191-8. PMID: 19372442.
5. Ballabh P, Xu H, Hu F, Braun A, Smith K, Rivera A, Lou N, Ungvari Z, Goldman SA, Csiszar A, Nedergaard M. Angiogenic inhibition reduces germinal matrix hemorrhage. Nat Med. 2007;13(4):477-85. PMID: 17401377

b) Characterization of underlying mechanisms and functional consequences of oxidative stress and chronic low-grade vascular inflammation in aging.

1. Csiszar A, Gautam T, Sosnowska D, Tarantini S, Banki E, Tucsek Z, Toth P, Losonczy G, Koller A, Reglodi D, Giles CB, Wren JD, Sonntag WE, Ungvari Z. Caloric restriction confers persistent anti-oxidative, pro-angiogenic, and anti-inflammatory effects and promotes anti-aging miRNA expression profile in cerebrovascular endothelial cells of aged rats. Am J Physiol Heart Circ Physiol. 2014;307(3):H292-306. PMID: 24906921
2. Toth P, Tarantini S, Tucsek Z, Ashpole NM, Sosnowska D, Gautam T, Ballabh P, Koller A, Sonntag WE, Csiszar A, Ungvari Z. Resveratrol treatment rescues neurovascular coupling in aged mice: role of improved cerebrovascular endothelial function and downregulation of NADPH oxidase. Am J Physiol Heart Circ Physiol. 2014;306(3):H299-308. PMID: 24322615
3. Ungvari Z, Bailey-Downs L, Sosnowska D, Gautam T, et al. Vascular oxidative stress in aging: a homeostatic failure due to dysregulation of NRF2-mediated antioxidant response. Am J Physiol Heart Circ Physiol. 2011;301(2):H363-72. doi: 10.1152/ajpheart.01134.2010. PMID: 21602469
4. Ungvari Z, Bailey-Downs L, Gautam T, Sosnowska D, et al. Age-associated vascular oxidative stress, Nrf2 dysfunction, and NF- κ B activation in the nonhuman primate Macaca mulatta. J Gerontol A Biol Sci Med Sci. 2011;66(8):866-75. doi: 10.1093/gerona/glr092. PMID: 21622983

c) Establishing novel mechanistic links between mechanotransduction of hemodynamic forces and vascular inflammation: role of pressure/wall tension and oxidative stress in regulation of vascular expression of factors promoting vascular pathologies.

1. Springo Z, Tarantini S, Toth P, Tucsek Z, Koller A, Sonntag WE, Csiszar A, Ungvari Z. Aging Exacerbates Pressure-Induced Mitochondrial Oxidative Stress in Mouse Cerebral Arteries. J Gerontol A Biol Sci Med Sci. 2015. PMID: 25631392
2. Csiszar A, Smith KE, Koller A, Kaley G, Edwards JG, Ungvari Z. Regulation of bone morphogenetic protein-2 expression in endothelial cells: role of nuclear factor-kappaB activation by tumor necrosis factor-alpha, H₂O₂, and high intravascular pressure. Circulation. 2005 May 10;111(18):2364-72. PMID: 15851600.
3. Csiszar A, Labinsky N, Smith KE, Rivera A, Bakker EN, Jo H, Gardner J, Orosz Z, Ungvari Z. Downregulation of bone morphogenetic protein 4 expression in coronary arterial endothelial cells: role of shear stress and the cAMP/protein kinase A pathway. Arterioscler Thromb Vasc Biol. 2007;27(4):776-82. PMID: 17272757.
4. Ungvari Z, Csiszar A, Huang A, Kaminski PM, Wolin MS, Koller A. High pressure induces superoxide production in isolated arteries. Circulation. 2003 Sep 9;108(10):1253-8. PMID: 12874194

d) Discovering novel mechanisms contributing to functional maladaptation to hypertension and increased microvascular injury in aging.

1. Springo Z, Toth P, Tarantini S, Ashpole NM, Tucsek Z, Sonntag WE, Csiszar A, Koller A, Ungvari ZI. Aging impairs myogenic adaptation to pulsatile pressure in mouse cerebral arteries. J Cereb Blood Flow Metab. 2015 PMID: 25605292.
2. Toth P, Tucsek Z, Sosnowska D, Gautam T, Mitschelen M, Tarantini S, Deak F, Koller A, Sonntag WE, Csiszar A, Ungvari Z. Age-related autoregulatory dysfunction and cerebrovascular injury in mice with angiotensin II-induced hypertension. J Cereb Blood Flow Metab. 2013;33(11):1732-42. PMID: 23942363;
3. Toth P, Csiszar A, Tucsek Z, Sosnowska D, Gautam T, Koller A, Schwartzman ML, Sonntag WE, Ungvari Z. Role of 20-HETE, TRPC channels, and BKCa in dysregulation of pressure-induced Ca²⁺ signaling and myogenic constriction of cerebral arteries in aged hypertensive mice. Am J Physiol Heart Circ Physiol. 2013 Dec;305(12):H1698-708. doi: 10.1152/ajpheart.00377.2013. Epub 2013 Oct 4. PubMed PMID: 24097425; PubMed Central PMCID: PMC3882550.
4. Csiszar A, Tucsek Z, Toth P, Sosnowska D, Gautam T, Koller A, Deak F, Sonntag WE, Ungvari Z. Synergistic effects of hypertension and aging on cognitive function and hippocampal expression of genes involved in β -amyloid generation and Alzheimer's disease. Am J Physiol Heart Circ Physiol. 2013;305(8):H1120-30. doi: 10.1152/ajpheart.00288.2013. PMID: 23955715; PMCID: PMC3798788.

e) Discovering novel mechanism by which IGF-1 deficiency promotes microvascular aging:

1. Toth P, Tucsek Z, Tarantini S, Sosnowska D, Gautam T, Mitschelen M, Koller A, Sonntag WE, Csiszar A, Ungvari Z. IGF-1 deficiency impairs cerebral myogenic autoregulation in hypertensive mice. *J Cereb Blood Flow Metab.* 2014;34(12):1887-97. PMID: 25248835;
2. Bailey-Downs LC, Mitschelen M, Sosnowska D, Toth P, Pinto JT, Ballabh P, Valcarcel-Ares MN, Farley J, Koller A, Henthorn JC, Bass C, Sonntag WE, Ungvari Z, Csiszar A. Liver-specific knockdown of IGF-1 decreases vascular oxidative stress resistance by impairing the Nrf2-dependent antioxidant response: a novel model of vascular aging. *J Gerontol A Biol Sci Med Sci.* 2012 Apr;67(4):313-29. PMID: 22021391
3. Csiszar A, Labinsky N, Perez V, Recchia FA, Podlutzky A, Mukhopadhyay P, Losonczy G, Pacher P, Austad SN, Bartke A, Ungvari Z. Endothelial function and vascular oxidative stress in long-lived GH/IGF-deficient Ames dwarf mice. *Am J Physiol Heart Circ Physiol.* 2008 Nov;295(5):H1882-94. PMID: 18757483
4. Bailey-Downs LC, Sosnowska D, Toth P, Mitschelen M, Gautam T, Henthorn JC, Ballabh P, Koller A, Farley JA, Sonntag WE, Csiszar A, Ungvari Z. Growth hormone and IGF-1 deficiency exacerbate high-fat diet-induced endothelial impairment in obese Lewis dwarf rats: implications for vascular aging. *J Gerontol A Biol Sci Med Sci.* 2012 Jun;67(6):553-64. PMID: 22080499

Complete List of Published Work:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=ungvari+z>