

BIOGRAPHICAL SKETCH

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NAME LONGO, VALTER D.	POSITION TITLE Associate Professor		
eRA COMMONS USER NAME vlongo			
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 North Texas	B.S.	1992	Biochemistry
University of California, Los Angeles (UCLA)	Ph.D.	1997	Biochemistry
University of Southern California, Los Angeles (USC)	Postdoc	1997-2000	Neurobiology

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

- 1991-1992 Research Assistant, Department of Biochemistry, University of North Texas (Dr. Robert Gracy)
 1993-1994 Research Assistant, Department of Pathology, UCLA (Dr. Rita Effros, Roy Walford).
 1994-1997 Graduate Student researcher, Department of Biochemistry, UCLA (Dr. Joan Valentine, Dr. Edith Gralla)
 3/97-10/97 Postdoctoral Fellow, Department of Biochemistry, UCLA (Dr. Joan Valentine, Dr. Edith Gralla)
 10/97-9/99 Postdoctoral Fellow, Andrus Gerontology Center, Department of Biological Sciences, USC (Dr. Caleb E. Finch)
 09/99-08/01 Research Assistant Professor, Andrus Gerontology Center, School of Gerontology and Dept. of Biological Sciences, USC
 09/01-08/06 Assistant Professor, Hanson Chair of Biogerontology, School of Gerontology and Dept. of Biological Sciences, USC
 09/06-present Associate Professor, School of Gerontology and Dept. of Biological Sciences, USC

Other Experience and Professional Memberships

Present Genetics Society of America, Society for Neuroscience, AAAS

Honors

- 1993 Training Grant in Tumor Immunology
 1995 Young Investigator Award from the Oxygen Society of America
 1997 French Foundation on Alzheimer's Disease Fellowship
 2001 Career Development Award in Neuroscience, NIA
 2001 2001 Alzheimer's Association Research Award

B. Selected peer-reviewed publications (in chronological order).

- Longo, V.D., Gralla, E.G., and J.S. Valentine. (1996). Superoxide Dismutase Activity is Essential for Stationary Phase Survival in *Saccharomyces cerevisiae*: Mitochondrial Production of Toxic Oxygen Species in vivo. *Journal of Biological Chemistry* 271, 12275-12280.
- Longo, V.D., Ellerby, L., Bredesen, D., Gralla, E.G., and J.S. Valentine. (1997). The Human Bcl-2 Oncoprotein Reverses Growth and Survival Defects in Yeast Lacking Superoxide Dismutases and Delays Death of Wild-Type Yeast. *Journal of Cell Biology* 137, (7), 1581-1588.
- Vaupel, J.W., Carey, J.R., Christensen, K, Johnson, T.E., Yashin, A.I., Holm, N.V., Iachine, I.A., Khazaeli, A.A., Liedo, P., Longo, V.D., Yi, Z., Manton, K.G., and Curtsinger, J.W. (1998). Biodemographic Trajectories of Longevity. *Science*. 280 (5365):855-60.
- Longo, V.D., Liou, L.L., Valentine, J.S., and Gralla, E.B. (1999) Mitochondrial Superoxide Decreases Yeast Survival in Stationary Phase. *Archives of Biochemistry and Biophysics*, 365, 131-142.
- Longo, V.D.. (1999) Mutations in Signal Transduction Proteins Increase Stress Resistance and Longevity in Yeast, Nematodes, Fruit Flies, and Mammalian Neuronal Cells. *Neurobiology of Aging*, 20, 479-486.

6. Longo, V.D. Viola, K., William L. Klein, and Caleb E. Finch. (2000). Reversible Inactivation of Superoxide-sensitive Aconitase in A β 1-42-treated Neuronal Cell Lines. *Journal of Neurochemistry* 75, 1977-1985.
7. Fabrizio, P, Pozza F., Pletcher, S., Gendron, C.M., and Longo VD. (2001). Regulation of Longevity and Stress Resistance by Sch9 in Yeast. *Science* 292, 288-290
8. Zhong X, Wei M, Fabrizio P, Han D, Morgan T, Finch CE, and Longo VD. (2002) Peroxynitrite Mediates the Neurotoxicity of LPS or AB1-42 Activated Microglia. *Journal of Neuroscience*. 22 (9): 3484-3492.
9. Longo, VD. (2002) Oxygen? No Thanks, I'm on a Diet. *Science*, SAGE KE (<http://sageke.sciencemag.org/cgi/content/full/sageke;2002/24/pe10>)
10. Longo, VD and Fabrizio, P. Regulation of longevity and stress resistance: a molecular strategy conserved from yeast to humans? (2002). *Cellular and Molecular Life Sciences*. 59 (6) 903-908
11. Finch, CE. and Longo VD. The Genetics of Aging and Diseases: from rare mutations and model systems to disease prevention. *Archives of Neurology*, 59, 2002, 1706-1708.
12. Fabrizio, P, Liou, LL., Moy, V., Valentine, J.S., Gralla, E.B., and Longo V.D. SOD2 functions downstream of Sch9 to Extend Life Span in Yeast. *Genetics*, 163, 2003, 35-46.
13. Longo, VD, Finch CE. Evolutionary Medicine: from Starvation and Dwarf Model Systems to Healthy Centenarians? *Science* 299, 2003, pp. 1342-1346.
14. Fabrizio, P. and Longo VD. The Chronological Life Span of *Saccharomyces cerevisiae*. *Aging Cell*, 2, 2003, 73-81.
15. Longo VD . The Ras and Sch9 Pathways Regulate Stress Resistance and Longevity. *Experimental Gerontology*, 38, 2003, 807-811.
16. Christi M. Gendron, Nadège Minois, Longo, VD., Scott D. Pletcher and James W. Vaupel. Biodemographic trajectories of age-specific re proliferation from stationary phase in the yeast *Saccharomyces cerevisiae* seem multiphasic, *Mechanisms of Aging and Development*, 124, 2003, 1059-63.
17. Fabrizio, P., Pletcher, S.D., Minois, N., and Longo VD. Chronological Aging-independent Replicative Life Span Regulation by Msn2/Msn4 and SOD2 in *Saccharomyces cerevisiae*, *FEBS letters*, 557 2004, 136-152.
18. Longo, VD. (2002) Search for Methuselah Genes Heats Up. *Science*, SAGE KE, 2004
19. Wallace, MA., Liou, LL., Martins J., Clement, M., Bailey S., Longo VD, Valentine JS., Gralla EB. Copper. Zinc Superoxide Dismutase and its Maintenance of 4Fe-4S Cluster Enzymes Involved in *Saccharomyces cerevisiae* Amino Acid Biosynthesis. *Journal of Biological Chemistry*, 2004, 279 (31): 32055-62.
20. Fabrizio, P., Battistella, L., Vardavas, R., Gattazzo, C., Liou, LL., Gralla, EB., Diaspro, A., and Longo VD. Superoxide is a Mediator of an Altruistic Aging program in *S. cerevisiae*. *Journal of Cell Biology*, 2004. 1055-1067.
21. Fabrizio, P. and Longo, VD. Analysis of gene expression profile in yeast aging chronologically. *Mechanisms of Aging and Development*. 2005, 126:11-6.
22. Longo, V and Skulachev, V.. Programmed and Altruistic Aging. *Nature Reviews Genetics* 2005, 6:866-872.
23. Fabrizio, P, Gattazzo, C., Battistella, L., Wei, M., Cheng, C., and Longo VD. Sir2 Blocks Extreme Life Span Extension. *Cell* , 123, 2005, 1-13.
24. Longo, VD and Kennedy, BK. Sirtuins in aging and age-related disease. *Cell*. 2006 Jul 28;126 (2):257-68.
25. Madia F, Gattazzo C, Fabrizio P, Longo VD. A simple model system for age-dependent DNA damage and cancer. *Mech Ageing Dev*. 2007 Jan.
26. Cheng C, Fabrizio, P., Longo VD, and Lei Li. Inference of transcription modification in long-lived yeast strains from their expression profile. *BMC Genomics*. 2007:219.
27. Fabrizio P, Longo VD. The chronological life span of *Saccharomyces cerevisiae*. *Methods Mol Biol*. 2007;371:89-95.
28. Cheng C, Fabrizio P, Ge H, Wei M, Longo VD, Li LM. Significant and systematic expression differentiation in long-lived yeast strains. *PLoS ONE*. 2007 Oct 31;2(10)
29. Wei, M., Fabrizio, P., Chen, C., and Longo VD Chronological life span extension by calorie restriction in *Saccharomyces cerevisiae* is dependent on Rim15 and stress response transcription factors regulated by Ras-cAMP-PKA/Sch9/Tor'. *PLoS Genetics*, 2008 Jan 4.
30. Madia, F., Gattazzo C., Fabrizio, P., Wei M., Nguyen, C., Huey, S., and Longo VD.

Sch9/akt longevity mutation prevents recombination errors and premature genomic instability in a Werner/Bloom model system. *Journal of Cell Biology*, 2008 Jan 14, 67-81.

31. Raffaghello, L. , Lee, C. , Safdie, F.M., Wei, M., Madia, F. , Gonidakis, S. , Bianchi, G. , and Longo V.D. Starvation-dependent Differential Stress Resistance Protects Normal but not Cancer Cells Against High Dose Oxidants/Chemotherapy. *PNAS*, 2008 Mar 3.
32. Ying Li, Wei Xu, Michael McBurney and Valter D. Longo. Inhibition of SirT1 reduces IGF-I/IRS-2/Ras/ERK1/2 signaling and protects neurons against oxidative damage. *Cell Metabolism*, **2008, 838-48**.
33. Fabrizio P and **Longo VD**. Chronological aging-induced apoptosis in yeast. *Biochim Biophys Acta*. 2008 Apr 10.
34. **Longo VD.**, Lieber, M., and Vijg, J. Turning Anti-aging genes against Cancer. *Nature Reviews Molecular Cell Biology*, Nov. 2008, 902.
35. Parrella, E. and **Longo VD**. The chronological life span of *Saccharomyces cerevisiae* to study mitochondrial dysfunction and disease. *Methods*. 2008 Oct 16.
36. **Longo, VD**. Linking sirtuins, IGF-I signaling, and starvation. *Exp Gerontol*. 2008 Jun 24
37. Madia, F.¹, Gattazzo, C., Wei M., Burhans, W.C.², Weinberger, M., Galbani A., Nguyen, C., Huey, S., Jia H. and **Longo V.D.**: Oncogene homolog Sch9/Akt promotes age-dependent genomic instability by a Rev1-dependent mechanism (Submitted).
38. Wei, M., Fabrizio, P., Chen, C., and **Longo VD**. A Ras/Tor/Sch9-centered Aging Regulatory Network (submitted).

Book Chapters

1. Finch, C.E., Longo, V.D., Morgan, T.E., Rozovsky, I., Soong, Y., Wei, M., Xie, Z., Zanjani, H. (1999). Amyloids, Inflammatory mechanisms in Alzheimer Disease, and Aging. In: *Molecular Mechanisms in Neurodegenerative Diseases*. M.F. Chesselet (ed.), Humana Press, Totowa NJ, Chapter 2.
2. Finch, C.E., Longo, V.D. The gero-inflammatory manifold. (2001) In: *Neuroinflammatory Mechanisms in Alzheimer's Disease: Basic and Clinical Research*. J. Rogers (ed.), Birkhauser Verlag, Basel, Chapter 1.

C. Research Support

Ongoing Research Support

R01-AG20642 (Longo, PI)

04/01/08-12/31/13

NIH/NIA

Mechanisms of Longevity Regulation in Yeast.

The goal of this project is to identify genes and pathways that regulate the chronological life span of *S. cerevisiae* and understand the mechanisms of aging. Direct \$ 205,000/year

Role: PI

R01-AG025135 (Longo, PI)

07/01/06-06/30/2011

NIH/NIA

Chronological Age-dependent Genomic Instability in *Saccharomyces cerevisiae*.

The goal of this project is to characterize age-dependent genomic instability in *S. cerevisiae* and determine the role of longevity mutations on DNA damage during aging. Direct \$ 165,000/year

Role: PI

R01-GM075308 (Lei, PI; Longo, Co-PI)

04/01/05 - 03/31/2010

NIH/NIGMS

Detection and Understanding of Expression Differentiation in Yeast.

The goal of this project is to obtain and analyze the age-dependent gene expression data for wild type and long-lived *S. cerevisiae* mutants. Direct \$ 80,000/year

Role: PI, Subaward

Pending

R01 (Longo, PI)

07/01/09-06/30/2014

Principal Investigator/Program Director (Last, First, Middle): Longo, Valter D.

NIH/NIA

Differential Stress Resistance to Enhance Cancer Treatment.

The goal of this project is to develop a system to protect mammalian organisms but not cancer cells against high dose chemotherapy, based on the understanding of the role of oncogenes in regulating stress resistance made by the Longo laboratory.

Completed Research Support

99-SC-NIH-1027 (Longo)

05/01/1999-12/31/2000

NIH/NIA

Oldest-Old Mortality-Demographic Models and Analysis

The goal of this research was to study the age-specific mortality of large populations of *S. cerevisiae* to isolate long-lived mutants and to establish whether this unicellular eukaryote undergoes age-dependent deteriorative physiological changes analogous to those seen in higher eukaryotes.

Role: PI Subcontractor of Duke University, P01-AG08761 (Vaupel)

American Federation of Aging Research/98 (Longo) 07/01/98-06/30/01

Identification of Chronological Longevity Assurance Genes in Yeast

The goal of this proposal was to clone mutated genes that increase longevity in mutagenized yeast populations.

Role: PI

K01-AG01028 (Longo)

11/01/01–10/30/05

4 iron-4 sulfur Clusters in Aging and Alzheimer's Disease

Mentored Research Scientist Development Award in Aging provided salary support for 4 years to further develop career in the neurobiology of aging field with emphasis on oxidative stress.