

CURRICULUM VITAE

Valter D. Longo

Birthplace

Genoa, Italy

Citizenship

US Citizen

Work Address

Andrus Gerontology Center,
Division of Biogerontology,
University of Southern California
3715 McClintock Ave., Los Angeles, CA 90089
Tel. 213-740-6212, Fax 213-821-5714
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Present Position

Professor

Education/Training

1987-1992 B.S. in Biochemistry (minor in jazz performance) University of North Texas, Denton, Texas
1992-1994 Dept. of Pathology, PhD program, UCLA (Rita Effros, Roy Walford)
1994-1997 Ph.D., Biochemistry, UCLA (Dr. Joan S. Valentine, Dr. Edith B. Gralla)
1997-2000 Postdoc, Andrus Gerontology Center, Neurobiology, University of Southern California (Dr. Caleb E. Finch)

Positions and Honors

Positions and Employment

1991-1992 Research Assistant, Department of Biochemistry, University of North Texas (Dr. Robert Gracy)
1992-1994 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 Dpt. of Biological Sciences, USC
09/06-2011 Associate Professor, Hanson Chair of Biogerontology, School of Gerontology and Dept. of Biological Sciences, USC
02/11-present Professor and Edna Jones Chair of Biogerontology, School of Gerontology and Dept. of Biological Sciences, USC
07/11-present Director, USC Longevity Institute

Other Experience and Professional Memberships

Genetics Society of America, Society for Neuroscience, AAAS, American Cancer Society, Gerontological Society of America

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
- 2002 2002 Alzheimer's Association Research Award
- 2010 Nathan Shock Lecture Award, National Institute on Aging, NIH
- 2013 2013 Vincent Cristofalo Rising Star Award in Aging Research, American Federation of Aging Research.

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

1. **Longo, VD.**, 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. PMID: 8647826
2. **Longo, VD.**, 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. PMID: 9199172
3. 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, VD.**, Yi, Z., Manton, K.G., and Curtsinger, J.W. Bio demographic Trajectories of Longevity. *Science*. 1998. 280 (5365):855-60. PMID: 9599158
4. **Longo, VD.**, Liou, L.L., Valentine, J.S., and Gralla, E.B. Mitochondrial Superoxide Decreases Yeast Survival in Stationary Phase. *Archives of Biochemistry and Biophysics*, 1999. 365, 131-142. PMID: 10222047
5. **Longo, VD.** Mutations in Signal Transduction Proteins Increase Stress Resistance and Longevity in Yeast, Nematodes, Fruit Flies, and Mammalian Neuronal Cells. *Neurobiology of Aging*, 1999. 20, 479-486. PMID: 10638521
6. **Longo, VD.** Viola, K., William L. Klein, and Caleb E. Finch. Reversible Inactivation of Superoxide -sensitive Aconitase in A β 1-42-treated Neuronal Cell Lines. *Journal of Neurochemistry*, 2000. 75, 1977-1985. PMID: 11032887
7. Fabrizio, P, Pozza F., Pletcher, S., Gendron, C.M., and **Longo VD.** Regulation of Longevity and Stress Resistance by Sch9 in Yeast. *Science*, 2001. 292, 288-290. PMID: 11292860
8. Xie Z, Wei M, Morgan TE, Fabrizio P, Han D, Finch CE, **Longo VD.** Peroxynitrite Mediates the Neurotoxicity of LPS or AB1-42 Activated Microglia. *Journal of Neuroscience*, 2002. 22 (9): 3484-3492. PMID: 11978825
9. **Longo, VD.** (2002) Oxygen? No Thanks, I'm on a Diet. *Science, SAGE KE.* PMID: 14602992
10. **Longo, VD** and Fabrizio, P. Regulation of longevity and stress resistance: a molecular strategy conserved from yeast to humans? *Cellular and Molecular Life Sciences*, 2002. 59 (6) 903-908. PMID: 12169020
11. Finch, CE. and **Longo VD.** Genetics of Aging and Diseases: from rare mutations and model systems to disease prevention. *Archives of Neurology*, 59, 2002, 1706-1708. PMID: 12433254
12. Fabrizio, P, Liou, LL., Moy, V., Valentine, J.S., Gralla, E.B., and **Longo VD.** SOD2 functions downstream of Sch9 to Extend Life Span in Yeast. *Genetics*, 163, 2003, 35-46. PMID: 12586694
13. **Longo, VD**, Finch CE. Evolutionary Medicine: from Starvation and Dwarf Model Systems to Healthy Centenarians? *Science* 299, 2003, pp. 1342-1346. PMID: 12610293
14. Fabrizio, P. and **Longo VD.** The Chronological Life Span of *Saccharomyces cerevisiae*. *Aging Cell*, 2, 2003, 73-81. PMID: 12882320
15. **Longo VD** . The Ras and Sch9 Pathways Regulate Stress Resistance and Longevity. *Experimental Gerontology*, 38, 2003, 807-811. PMID: 12855292

16. Gendron CM, Minois N, Fabrizio P, **Longo VD**, Pletcher SD, Vaupel JW. 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. PMID: 14741356
18. **Longo, VD**. (2002) Search for Methuselah Genes Heats Up. *Science*, *SAGE KE*, 2004. PMID: 14960761
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. PMID: 15166213
20. Longo, VD. Ras: the other pro-aging pathway. *Sci Aging Knowledge Environ*. 2004 Sep 29; (39):pe36. PMID: 15456908
21. 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. PMID: 15452146
22. Fabrizio, P. and **Longo, VD**. Analysis of gene expression profile in yeast aging chronologically. *Mechanisms of Aging and Development*. 2005, 126:11-6. PMID: 15610757
23. **Longo, VD**, Mitteldorf J., and Skulachev, V. Programmed and Altruistic Aging. *Nature Reviews Genetics* 2005, 6:866-872. PMID: 16304601
24. Fabrizio, P, Gattazzo, C., Battistella, L., Wei, M., Cheng, C., and **Longo VD**. Sir2 Blocks Extreme Life Span Extension. *Cell*, 123, 2005, 1-13. PMID: 16286010
25. Skulachev VP, **Longo VD**. Aging as a mitochondria-mediated atavistic program: can aging be switched off? *Nat Rev Genet*. 2005 Nov;6(11):866-72. PMID: 16304601
26. **Longo, VD** and Kennedy, BK. Sirtuins in aging and age-related disease. *Cell*. 2006 Jul 28;126 (2):257-68. PMID: 16873059
27. Madia F, Gattazzo C, Fabrizio P, **Longo VD**. A simple model system for age-dependent DNA damage and cancer. *Mech. Ageing Dev*. 2007 Jan. PMID: 17118426
28. 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. PMID: 17617911
29. Fabrizio P, **Longo VD**. The chronological life span of *Saccharomyces cerevisiae*. *Methods Mol Biol*. 2007;371:89-95. PMID: 17634576
30. 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). PMID: 17971858
31. Wei, M., Fabrizio, P., Hu, Ge, H., Li, L., and **Longo VD**. Life span extension by calorie restriction in *Saccharomyces cerevisiae* depends on Rim15 and stress response transcription factors regulated by Ras-cAMP-PKA/Sch9/Tor'. *PLoS Genetics*, 2008 Jan 4. PMID:18225956
32. Madia F., Gattazzo C., Fabrizio P., Wei M., Nguyen C., Huey S., and **Longo VD**. Longevity mutation in SCH9 prevents recombination errors and premature genomic instability in a Werner/Bloom model system. *Journal of Cell Biology*, 2008 Jan 14, 67-81. PMID: 18195102
33. Raffaghello, L. , Lee, C. , Safdie, F.M., Wei, M., Madia, F., Gonidakis, S., Bianchi, G., and **Longo VD**. Starvation-dependent Differential Stress Resistance Protects Normal but not Cancer Cells Against High Dose Oxidants/Chemotherapy. *PNAS*, 2008 Mar 3.
34. Li Y., Xu W., McBurney MW and **Longo VD**. SirT1 inhibition reduces IGF-I/IRS-2/Ras/ERK1/2 signaling and protects neurons against oxidative damage. *Cell Metabolism*, 2008, 838-48. PMID: 18590691
35. Fabrizio P and **Longo VD**. Chronological aging-induced apoptosis in yeast. *Biochim Biophys Acta*. 2008 Apr 10.
36. **Longo VD**., Lieber, M., and Vijg, J. Turning Anti-aging genes against Cancer. *Nature Reviews Molecular Cell Biology*, Nov. 2008, 902. PMID: 18946478
37. Parrella, E. and **Longo VD**. The chronological life span of *Saccharomyces cerevisiae* to study mitochondrial dysfunction and disease. *Methods*. 2008 Oct 16.
38. **Longo VD**. Linking sirtuins, IGF-I signaling, and starvation. *Exp Gerontol*. 2008 Jun 24.
39. Madia, F., Gattazzo, C., Wei M., Weinberger, M., Nguyen, C., Huey, S., Jia H. and **Longo VD**. Oncogene homolog Sch9 promotes age-dependent genomic instability by a superoxide and Rev1-dependent

- mechanism. *Journal of Cell Biology*, 2009, August 24, 186, 509-23. PMID: 19687253
40. Wei, M., Fabrizio, P., Hu, Ge, H., Cheng, C., Li, L., and **Longo VD**. Tor1/Sch9-regulated carbon source substitution is as effective as calorie restriction in life span extension. *PLoS Genetics*. May 2009. PMID: 19424415
 41. Safdie FM, Dorff T, Quinn D, Fontana L, Wei M, Lee C, Cohen P, **Longo VD**. Fasting and Cancer Treatment in Humans. A case series report. *Aging*. 2009, 1(12): 988-1007. PMID: 20157582
 42. Parrella E, **Longo VD**. Insulin/IGF-I and related signaling pathways regulate aging in non-dividing cells: from yeast to the mammalian brain. *ScientificWorldJournal*. 2010 Jan 21;10:161-77. PMID: 20098959
 43. **Longo VD**, Fontana L. Calorie restriction and cancer prevention: metabolic and molecular mechanisms. *Trends Pharmacol Sci*. 2010 Feb;31(2):89-98. PMID: 20097433
 44. Ge H, Wei M, Fabrizio P, Hu J, Cheng C, **Longo VD**, Li LM. Comparative analysis of time-course gene expression analysis of the long-lived *sch9* mutant. *Nucleic Acids Res*. 2010 Jan;38(1):143-58. PMID: 19880387
 45. Lee, C. , Safdie, F., Raffaghello, L., Wei, M., Madia, F., Parrella, E., Hwang, D., Cohen, P., Bianchi, G., and **Longo VD**. Reduced IGF-I levels differentially protects normal and cancer cells in response to fasting and improves chemotherapeutic index in mice. *Cancer Research* 2010 Feb 15;70(4):1564-72. PMID: 20145127
 46. Finch CE, Morgan TE, **Longo VD**, de Magalhaes JP. Cell resilience in species lifespan: a link to inflammation? *Aging Cell*, April 23, 2010. PMID: 20415721
 47. Fontana, L, Partridge, L., **Longo VD**. Extending the Healthy Life span: from yeast to humans. *Science*, April 16, 328, 321-6. PMID: 20395504
 48. Fabrizio P, Hoon S, Shamalnasab M, Galbani A, Wei M, Giaever G, Nislow C, **Longo VD**. Genome-wide screen in *Saccharomyces cerevisiae* identifies vacuolar protein sorting, autophagy, biosynthetic, and tRNA methylation genes involved in life span regulation. *PLoS Genetics*, 2010, Jul 15; 6 (7). PMID: 20657825
 49. Michán S, Li Y, Chou MM, Parrella E, Ge H, Long JM, Allard JS, Lewis K, Miller M, Xu W, Mervis RF, Chen J, Guerin KI, Smith LE, McBurney MW, Sinclair DA, Baudry M, de Cabo R, **Longo VD**. SIRT1 is essential for normal cognitive function and synaptic plasticity. *Journal of Neuroscience*, 2010, Jul 21 (29):9695-707. PMID: 20660252
 50. Gonidakis S, Finkel SE, **Longo VD**. E. coli hypoxia-inducible factor ArcA mediates lifespan extension in a lipoic acid synthase mutant by suppressing acetyl-CoA synthetase. *Biol Chem*. 2010 Oct; 391(10):1139-47. PMID: 20707605
 51. Gonidakis S, Finkel SE, **Longo VD**. Genome-wide screen identifies Escherichia coli TCA-cycle-related mutants with extended chronological lifespan dependent on acetate metabolism and the hypoxia-inducible transcription factor ArcA. *Aging Cell*. 2010 Oct;9(5):868-81. PMID: 20707865
 52. **Longo VD**, Nislow C, Fabrizio P. Endosomal protein sorting and autophagy genes contribute to the regulation of yeast life span. *Autophagy*. 2010 Nov 16;6(8):1227-8. 2010 Nov 16. PMID: 20953148
 53. Balasubramanian P, **Longo VD**. Linking Klotho, Nrf2, MAP kinase and aging. *Aging (Albany NY)*. 2010 Oct;2(10):632-3. PMID: 21076180
 54. Raffaghello L, Safdie F, Bianchi G, Dorff T, Fontana L, **Longo VD**. Fasting and differential chemotherapy protection in patients. *Cell Cycle*. 2010 Dec 7;9(22):4474-6. 2010 Nov 15. PMID: 21088487
 55. Guevara-Aguirre J, Balasubramanian P, Guevara-Aguirre M, Wei M, Madia F, Cheng CW, Hwang D, Martin-Montalvo A, Saavedra J, Ingles S, de Cabo R, Cohen P, **Longo VD**. Growth hormone receptor deficiency is associated with a major reduction in pro-aging signaling, cancer and diabetes in humans. *Science Transl Med*. 2011 Feb 16;3(70): PMID: 21325617
 56. Sehati S, Clement MH, Martins J, Xu L, **Longo VD**, Valentine JS, Gralla EB. Metabolic alterations in yeast lacking copper-zinc superoxide dismutase. *Free Radic Biol Med*. 2011 Mar 9. PMID: 21397007
 57. Mirisola MG, **Longo VD**. Conserved role of Ras-GEFs in promoting aging: from yeast to mice. *Aging*. 2011 Apr;3(4):340-3. PMID: 21732566
 58. Lee C, **Longo VD**. Fasting vs dietary restriction in cellular protection and cancer treatment: from model organisms to patients. *Oncogene*. 2011 Jul 28;30(30):3305-16. doi: 10.1038/onc.2011.91. PMID: 21516129
 59. Gonidakis S, Finkel SE, **Longo VD**. Lifespan extension and paraquat resistance in a ubiquinone-deficient Escherichia coli mutant depend on transcription factors ArcA and TdcA *Aging*. 2011 Mar;3(3):291-303. PMID: 21464517
 60. Wei M, Madia F, **Longo VD**. Studying age-dependent genomic instability using the *S. cerevisiae* chronological lifespan model. *J Vis Exp*. 2011 Sep 29;(55). pii: 3030. doi: 10.3791/3030. PMID: 21989366

61. **Longo VD**, Fabrizio P. Chronological Aging in *Saccharomyces cerevisiae*. *Subcell Biochem*. 2012;57:101-21. PMID: 22094419
62. **Longo VD**, Fontana L. Intermittent supplementation with rapamycin as a dietary restriction mimetic. *Aging* (Albany NY). 2011 Nov;3(11):1039-40. PMID: 22147496
63. Lee C, Raffaghello L, Brandhorst S, Safdie FM, Bianchi G, Martin-Montalvo A, Pistoia V, Wei M, Hwang S, Merlino A, Emionite L, de Cabo R, **Longo VD**. Fasting cycles retard growth of tumors and sensitize a range of cancer cell types to chemotherapy. *Sci Transl Med*. 2012 Mar 7;4(124):124ra27. Epub 2012 Feb 8. PMID: 22323820
64. Lee C, Raffaghello L, **Longo VD**. Starvation, detoxification, and multidrug resistance in cancer therapy. *Drug Resist Updat*. 2012 Mar 3. PMID: 22391012
65. Safdie F, Brandhorst S, Wei M, Wang W, Lee C, Hwang S, Conti PS, Chen TC, **Longo VD**. Fasting enhances the response of glioma to chemo-and radiotherapy. *PLoS One*. 2012;7(9):e44603. Epub 2012 Sep 11. PMID:22984531[PubMed - in process]
66. Mirisola MG, **Longo VD**. Acetic acid and acidification accelerate chronological and replicative aging in yeast. *Cell Cycle*. 2012 Sep 5;11(19). [Epub ahead of print] PMID:22951542
67. **Longo VD**, Shadel GS, Kaerberlein M, Kennedy B. Replicative and chronological aging in *Saccharomyces cerevisiae*. *Cell Metab*. 2012 Jul 3;16(1):18-31. PMID:22768836 [PubMed - in process]
68. Fontana L, Vinciguerra M, **Longo VD**. Growth factors, nutrient signaling, and cardiovascular aging. *Circ Res*. 2012 Apr 13;110(8):1139-50. Review. PMID:22499903
69. Pfaffenbach KT, Pong M, Morgan TE, Wang H, Ott K, Zhou B, **Longo VD**, Lee AS GRP78/BiP is a novel downstream target of IGF-1 receptor mediated signaling. *J Cell Physiol*. 2012 Dec;227(12):3803-11. doi: 10.1002/jcp.24090. PMID:22422508[PubMed - in process]

Book Chapters

Finch, C.E., **Longo, VD.**, 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.

Finch, C.E., **Longo, VD.** The gero-inflammatory manifold. (2001) In: *Neuroinflammatory Mechanisms in Alzheimer's Disease: Basic and Clinical Research*. J. Rogers (ed.), Birkhauser Verlag, Basel, Chapter 1.

Gonidakis, S., **Longo, VD.** Oxidative Stress in Aging: From Model Systems to Human Diseases (2008). In "Oxidative Stress in Aging". Human Press, Towata NJ.

Gonidakis S., Longo V.D. Programmed longevity and programmed aging theories. (2008) In *Handbook of theories of aging*. Bengston V., Silverstein M., Putney N., Gans D. (eds.), Springer.

B. Research Support

Ongoing Research Support

R01AG020642

Longo (PI)

04/01/02 – 12/31/18

NIH/NIA

Role of Longevity Regulatory Pathways in Age-dependent Macro-molecular Damage 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 \$ 201,000/year

Role: PI

P01 AG 034906-03

Longo (PI)

03/15/10 – 02/29/16

NIA
Dietary Restriction, GH/IGF-I & Mechanisms of Differential Cellular Protection
The major goal of this project is to study the molecular mechanisms linking dietary restriction and starvation to cellular protection and aging. Direct \$317,000/year
Role: PI

Completed Research Support

R01-AG20642

Longo (PI)

04/01/02 – 12/31/12

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.
Role: PI

Bakewell Foundation

Longo (PI)

01/01/09 – 12/31/11

Foods and Nutraceuticals for the Differential Protection against Chemotherapy and Radiotherapy
The major goal of this project is to identify nutrients that do not interfere with the effect of fasting on cellular protection and improve the nourishment of cancer patients. This project includes part of a clinical trial.

R01-AG025135

Longo (PI)

07/01/06 – 06/30/11

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.
Role: PI

V-Foundation

Longo (PI), Quinn (PI)

06/01/09 – 05/31/11

Fasting Based Differential Stress Resistance to enhance cancer treatment
The goal of this grant is to study the role of fasting in the protection of mice against cisplatin and gemcitabine. The same grant also funds a clinical study of 90 bladder cancer patients on fasting and chemotherapy.
Role: PI

Editorial boards

Aging Cell (2001-) (Editor, Genes and Functional Genomics)

Aging (2009-)

Journal of Gerontology, Biological Sciences (2009-)

Ad Hoc Reviewer

Science

Cell

Nature

Journal of Neuroscience

Genes and Development

Journal of Cell Biology

Genetics

EMBO Journal

EMBO Reports

FASEB

PNAS

Molecular Microbiology

Biochemical Journal
Free Radicals in Biology and Medicine
Experimental Gerontology
Experimental Neurology
Neurobiology of Aging
European Journal of Neurobiology

Participation in Grant Review Panels

1999-present	Reviewer for American Federation of Aging Research (AFAR)
2001-present	Reviewer for Alzheimer's Association
2004	Member of Genetics of Aging Study Section, National Institute on Aging, Special Emphasis Panel.
2005	Ad Hoc reviewer Neurogenesis and Cell Fate Study Section, NIH/CSR
2007	Ad Hoc reviewer PO1 Berger et al, NIH/NIA
2008	Ad Hoc reviewer PO1 C. Leeuwenburgh et al, NIH/NIA
2008	Ad hoc reviewer for NIA research grants
2009	Ad hoc reviewer, CMAD Biology of Aging Study Section

Invited Lectures

-Studies of Yeast Survival and Mortality. Workshop on the Experimental and Evolutionary Biology of Aging, Duke University, Durham, North Carolina 1995.

-The Role of SOD's in the Chronological Life Span of Yeast. Gordon Conference on: The Biology of Aging, Ventura, California, 1997.

-Mitochondrial Superoxide Decreases Survival of Stationary Phase Yeast by Inactivating Iron-Sulfur clusters-Containing Enzymes. Meeting of the American Society for Microbiology (ASM), Atlanta, Georgia, 1998.

-The Role of Superoxide in the Survival of *S. cerevisiae*. Genetics of Aging, meeting of the Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, 1998.

-Toxic Oxygen Species and the Chronological Life Span of *S. cerevisiae*. Molecular Biology of Aging, Woods Hole, MA, 1999.

-Oxidants, antioxidants and survival in stationary phase yeast. UCLA Biomedical Sciences Department, Los Angeles, CA, 2000.

-Signal transduction pathways, 4Fe-4S clusters, and survival in yeast and neuronal cells. The Buck Center on Aging Seminar Series, Novato, California, 2000.

-Superoxide, signal transduction and survival in yeast. Biochemical Society Meeting. September 28-30 Porto, Portugal, 2000.

-Regulation of Longevity in *S. cerevisiae*. California State University, Los Angeles California, 2001.

-Regulation of Longevity in *S. cerevisiae*. A Molecular Strategy Conserved from Yeast to Mammals? The Burnham Institute, La Jolla California, 2002.

-Regulation of Longevity in *S. cerevisiae*. A Molecular Strategy Conserved from Yeast to Mammals? Biology of Human Aging Colloquium. Brown University, 2002.

- SOD2* functions downstream of Sch9 to extend longevity in yeast. Molecular Genetics of Aging Meeting, CSHL, Cold Spring Harbor, NY, 2002.
- The Chronological Life Span of Yeast. GSA Meeting, Boston MA, 2002.
- Peroxynitrite Mediates the Neurotoxicity of LPS or AB1-42 Activated Microglia. Symposium on the Pharmacology, Biochemistry, and Molecular Biology of Oxidative Stress in Alzheimer's Disease. California Institute of Technology, Pasadena CA, 2003.
- Regulation of Longevity and Stress Resistance in *S. cerevisiae*. Is Death Programmed? Keystone Symposia. Molecular Mechanisms of Apoptosis. Alberta Canada, 2003.
- Mechanisms of B-amyloid neurotoxicity. Cellular Homeostasis Lecture Series. University of Southern California School of Medicine. Los Angeles, 2003.
- Evolutionary Medicine: From dwarf Model systems to Healthy Centenarians? Ross University Research Symposium. Dominica. 2003.
- Regulation of Longevity in *S. cerevisiae*. Is Death programmed? International Conference on Yeast Genetics and Molecular Biology. Goteborg, Sweden, 2003.
- Regulation of Stress Resistance and Longevity: from yeast to neurons. Basic Research Seminar Series. Children's Hospital Los Angeles, 2003.
- Aging and stress resistance – the role of superoxide. Oxygen Radicals Gordon Research Conference. Ventura CA, 2004.
- Pathways that regulate yeast replicative and chronological life span and similarities with higher eukaryotes. American Aging Association 33d annual meeting. St. Petersburg Florida. 2004.
- Regulation of oxidative damage, aging, and apoptosis in yeast. Summer meeting. Society for Free Radical Research, Lodz Poland 2004.
- The role of superoxide in aging and Alzheimer's Disease. Cardiovascular Research and Therapeutic Development Conference. MIT, MA, 2004.
- Superoxide is a mediator of an altruistic aging program. Molecular Genetics of Aging Conference, Cold Spring Harbor Laboratories, NY 2004.
- The Genetics of Aging and Diseases. DNA Day International Conference. Dalian, China 2005.
- Sir2 Blocks Extreme Life Span Extension, Japanese Biochemical Society Meeting, Kobe Japan, 2005.
- Sir2 and Life span Regulation, Kyoto University, Japan, 2005.
- Programmed and Altruistic Aging and Death, 4th International Meeting on Yeast Apoptosis, Keynote Lecture, Miami, 2005.
- Reprogramming the life span of yeast. International Conference on Functional Genomics of Aging, Palermo Italy, 2006.
- Superoxide, aging and death in *S. cerevisiae*. European Bioenergetics Conference (EBEC), Moscow Russia, 2006.

- A Cell Death and Aging Regulatory Network. Gordon Conference on Cell Death. Montana, USA, 2006.
- Regulation of longevity and stress resistance. Harvard Medical School, Beth Israel Medical Center, 2006.
- Regulation of longevity in *S. cerevisiae*. University of Texas San Antonio, Fall Seminar Series, 2006.
- Regulation of longevity: from yeast to humans. University of Michigan Geriatrics Center and Department of Internal Medicine, 2006.
- Mechanisms of starvation-dependent life span extension. Nutrition, exercise and neurodegenerative diseases, Verbier Switzerland 2007.
- Genetic pathways that regulate aging in model organisms. Society of toxicology 46th annual meeting, 2007.
- Conserved mechanisms of longevity regulation, National Institute on Aging, Baltimore 2007.
- Is Aging Programmed? Special event: Debate. AGE Conference, San Antonio Texas 2007.
- Nutrient signaling and aging. 2007 Buck Institute Symposium on Aging, Novato, 2007.
- Mechanisms of Aging and age-dependent genomic instability. UC Berkeley Seminars, 2007.
- Aging, starvation and DNA damage. University of Seville Seminars, Seville Spain 2008.
- Aging and age-dependent genomic instability. Mayo Clinic, 2008.
- Superoxide and age-dependent DNA damage. 27th meeting of the Panamerican Biochemical Society, Aguas de Lindoia, Brazil, 2008.
- Aging and Programmed Cell Death in yeast. 12th International yeast Meeting, Kiev, Ukraine, 2008.
- Starvation, IGF-I and Sirtuins in the nervous system. Ninth International Symposium of Aging. Bregenz Austria, 2008.
- Anti-aging pathways and resistance to chemotherapy. National Institute on Aging, Baltimore, 2008.
- Regulation of aging and stress resistance. University of Washington, Aging Center, 2009.
- Aging and cancer prevention and treatment. Interventions on Aging: Evidence-based Anti-aging medicine: Volterra Italy, 2009.
- Turning Starvation Against Diseases. AGE meeting, Scottsdale, Arizona, 2009.
- The Genetics of Longevity: from *E. coli* to humans. IAGG World Congress, Paris France, 2009.
- Carbon Source and Aging in yeast. Annual International Yeast Meeting. Gratz, Austria, 2009.
- Regulation of metabolic pathways, superoxide generation, stress resistance, and DNA damage in aging. Environmental Adaptation International Symposium, Nara Japan, 2009.
- Growth Hormone signaling and Aging in Humans. Annual Gerontology Meeting, Florence Italy. 2009.
- Regulation of Age-dependent genomic instability: from yeast to humans. Aging Workshop, Sevilla Spain, 2009.

- Growth signaling pathways and aging: from yeast to humans. Mosbacher Colloquium, Mosbach Germany, 2010.
- Turning anti-aging and stress resistance genes against diseases. Dasan Conference, Buyeo, Korea 2010
- Differential Stress Resistance in Cancer Treatment. 13th Annual JBL Symposium, Harvard School of Public Health in Boston, MA 2010
- Differential Cellular Protection and Sensitization in Cancer Treatment. MIC2010 Conference, Berlin, Germany
- IGF-I & Stress Resistance. Endo 2010, San Diego
- Sirtuins, IGF-I signaling and ageing, 7th European Congress of Biogerontology, Palermo 2010
- Nutrient signaling and age-dependent genomic instability: from yeast to humans. GRC Biology of Aging, Le Diablerets, Switzerland 2010
- Extending the healthy lifespan. 2nd AmorePacific International Symposium on Anti-aging, Korea 2010
- Differential stress resistance in cancer treatment. CNIO Cancer Symposium, Madrid, Spain 2010
- Differential Stress Resistance: Turning Anti-Aging Genes Against Diseases, 8th Annual Nathan Shock Symposium, Aging and Stress Responses : Modern Views of Homeostatic Dysregulation, Baltimore, MD 2010
- Tor/S6K signaling, stress resistance and longevity. International Conference on "TOR, Caloric Restriction and Anabolism in Ageing. The Mediterranean Institute for Life Sciences in Split, Croatia 2010
- Conserved IGF-I-regulated genes and the prevention and treatment of age-related diseases. The 5th International Congress of the GRS and IGF Society, New York, 2010
- Growth hormone receptor and IGF-I deficiency, stress resistance and diseases in Humans. Cell Symposia: Metabolism & Aging Conference 2011, Cape Cod, MA
- Nutrient signaling and DNA damage: from microbial adaptation to human cancer. DKFZ-ZMBH, Alliance Forum, Aging and Cancer 2011, Heidelberg, Germany
- Differential Cellular Protection and Sensitization in Cancer Treatment. American Aging Association, Raleigh, NC 2011
- Biochemical Consequence of Caloric Restriction. The European Multidisciplinary Cancer Congress 2011, Stockholm 2011
- Starvation and Substitute Diets to Enhance Cancer Treatment. The NIA Advisory Council, Bethesda, MD 2011
- Mechanisms of nutrients-dependent regulation of stress resistance and longevity in *S. Cerevisiae*. The 5th International Workshop on Cell Regulations in Division and Arrest, Okimawa, Japan, 2011
- Nutrient signaling genes, stress resistance and longevity; from yeast to humans. YSM Genetics Seminar, Yale University, Department of Genetics, 2011
- Cell Biology and genetics, regulation of aging and multiple stress resistance systems in yeast and mammals, Alzheimer's Disease, Seminar Series, University of California at Riverside, 2011

- Linking pro-ageing pathways, genomic instability and cancer, Genome, Cancer and Aging, Monaco, 2011
- Differential Stress Resistance and Sensitization in Cancer Treatments, Department of Cell Biology at UT Southwestern, 2011
- Growth signaling pathways stress resistance and aging: From yeast to humans. Nathan Shock Center for the Biology of Aging Research Retreat, University of Michigan 2012
- Fasting and Differential Stress Resistance and Sensitization, Buchinger Clinic, Uberlinger, Germany 2012
- Dietary and Pharmacological Modulation of Nutrient Signaling Pathways in Aging and Cancer Treatment. 5th Annual Biochemistry and Molecular Biology Student Symposium, Mayo Clinic, Rochester, MN 2012
- Pathways affected in long-lived yeast and in GH-receptor-deficient Ecuadorians with severe IGF-I deficiency. International Genetics of Aging Conference, Moscow, Russia 2012
- Fasting and Substitution Diets for Cancer Treatment, Disease Prevention and Longevity. AANP Annual Convention Seattle, WA 2012
- Drug-nutrients interactions in cancer. 34th ESPEN Congress Barcelona, Spain 2012
- Nutrients-dependent Regulation of stress resistance and chronological aging. IMYA 2012, Rome, Italy
- Differential Stress resistance and sensitization in cancer treatment. 2nd Scientific Retreat DK-MCD Graz, Austria 2012
- Longevity regulation by nutrient signaling pathways: radical problems without anti-radical solutions. SFRBM , San Diego, CA 2012
- Inhibition of Growth Signaling Pathways to Mimic Fasting in Differential Stress Resistance/Sensitization. GSA, San Diego, CA 2012
- Differential stress resistance and sensitization in cancer treatment. HCI Seminar Series, Salt Lake City, Utah 2012
- Nutrient Signaling Genes, Stress, Resistance and Aging. Sanford-Burnham Genetic Mechanisms of Functional Aging, Stress and Immunity. La Jolla, CA 2013
- Differential Stress Resistance and Sensitization in Cancer Treatment. Kosoft conference. Seoul, Korea 2013
- Periodic Fasting in Healthspan and Longevity. ASI Symposium. Hong Kong. 2013
- Fasting Cycles in Aging and Cancer. Cold Spring Harbor Conferences Asia. Suzhou, China 2013

Teaching Record

Summary of USC courses taught by Valter Longo

Gero 510	Physiology of Aging	Spring 2003
Gero 510	Physiology of Aging	Spring 2004
BISC 461	Molecular and Computational Biology of Aging	Fall 2004
Gero 510	Physiology of Aging	Spring 2005

BISC 461	Molecular and Computational Biology of Aging	Fall 2005
Gero 510	Physiology of Aging	Spring 2006
Gero 510	Physiology of Aging	Spring 2007
Gero 414	Neurobiology of Aging	Spring 2008
Gero 510	Physiology of Aging	Spring 2008
Gero 510	Physiology of Aging	Spring 2010
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2011
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2012
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2013

A. Description of major courses taught and developed:

Taught:

a) GERO 510: Physiology of Development and Aging

Course description: Examination of lifespan physiology of human development, growth, and aging; major emphasis in the physiology of the later years and implications for health maintenance. The emphasis of the course is on solidifying biological concepts and theories that underlie the practice of clinical gerontology. Students are responsible for in-depth study of selected topics through assigned readings and an in-depth written term paper.

b) GERO 414: Neurobiology of Aging

Course description: Examination of the basic neurobiology of aging as well as the neurobiology of diseases with focus on Alzheimer's, Parkinson's, and stroke. The emphasis of the course is on: 1) Free radicals and brain aging, 2) longevity regulatory pathways and CNS aging, 3) calorie restriction and brain aging. Major emphasis in the studies of model systems for aging and diseases including *S. cerevisiae*, *C. elegans*, *Drosophila* and mice. Students are responsible for in-depth study of selected topics through assigned readings and an in-depth written term paper.

c) GERO 498: Nutrition, Genes, Longevity and Diseases

Course description: Examines the role of nutrition and genes and the impact of each has on longevity and diseases, particularly diseases related to aging. Offered in Genoa, Italy.

Developed:

a) BISC 461: Molecular and Computational Biology of Aging

Seminars by the instructors and by other faculty on the molecular mechanisms of aging and on the computational biology techniques and methods developed to analyze complex gene expression data related to aging and disease research. The 1-hour seminar by the faculty is followed by 1 or 2 presentations by students. Under the instructor's guidance, the students select recent and original molecular biology articles to be presented to the class. The students are also required to write a report on each of the faculty talks, which are graded every week by either the instructors or the faculty presenting. This course was developed by myself and John Tower for 2 purposes: 1) To expose advanced undergraduate and graduate biology students to some of the most important topics in the molecular biology of aging, 2) To select the initial group of biology, medicine, and gerontology USC faculty to be included in a "Molecular and Computational Biology of Aging" training grant application to be submitted to the National Institute on Aging by Dr. Longo and Tower.

b) Nutrition, Genes, Longevity and Diseases (2010-present)

I'm currently developing a new 400 level course on the biology of aging with focus on the age-related changes that promote cancer, diabetes, stroke, heart disease, and neurodegenerative diseases. This course will be based in part on the Longo/Finch 414 Neurobiology of aging course (no longer taught) but with additional focus on the genes, pathways and mechanisms that affect aging and a wide variety of age-related diseases. The course will also emphasize the understanding of the drugs and dietary

interventions that target these pro- and anti-aging pathways and their potential to extend the healthy life span.

B. Other lectures (2001-2010):

GERO 519	Neurobiology and Endocrinology of Aging	Fall 2001
BISC 502a	Computational and Molecular Biology Graduate core course	Fall 2001
BISC 502b	Computational and Molecular Biology Graduate core course	Spring 2002
GERO 200	Fundamental in Gerontology	Spring 2002
GERO 414	Neurobiology of Aging	Spring 2002
BISC 549	Seminars in Integrative and Evolutionary Biology	Fall 2002
BISC 502a	Computational and Molecular Biology Graduate core course	Fall 2002
GERO 200	Fundamental in Gerontology	Spring 2003
BISC 502b	Computational and Molecular Biology Graduate core course	Spring 2003
BISC 511	Integrative and Evolutionary Biology Core Course	Spring 2003
PATH 575	Frontiers of Pathology	Spring 2003
BISC 549	Seminars in Integrative and Evolutionary Biology	Fall 2003
BISC 510a	Integrative and Evolutionary Biology Core Course	Fall 2003
GERO 200	Fundamental in Gerontology	Spring 2004
INTD 551	Advanced Pathology	Spring 2004
BISC 549	Seminars in Integrative and Evolutionary Biology	Fall 2004
BISC 510a	Integrative and Evolutionary Biology Core Course	Fall 2004
BISC 549	Seminars in Integrative and Evolutionary Biology	Fall 2005
GERO 519	Neurobiology and Endocrinology of Aging	Spring 2006
BISC 499	Molecular biology of Aging	Spring 2007
GERO 416	Nutrition and aging	Spring 2007
BIOCH 543	The Genetics of Aging	Spring 2008
GERO 416	The genetics of aging	Spring 2008
GERO 416	Calorie restriction and aging	Spring 2009
GERO 519	Neurobiology and Endocrinology of Aging	Fall 2009
GERO 310	Nutrition and Aging	Fall 2009
BISC 403	Aging in yeast	Fall 2009
GERO 416	Calorie restriction and aging	Spring 2010
BISC 544	The biology of aging and genomic instability	Spring 2010

Advising of undergraduates, graduate student, and postdoctoral fellows.

In the past 10 years I have been the primary advisor of 5 postdocs, 10 graduate students, 5 technicians and approximately 30 undergraduate students. I have also served on approximately 20 PhD. Committees. Below is a list of the graduate students that performed their thesis studies in my lab and of the past and present postdoctoral fellows.

Graduate Student	Faculty Mentor	PhD. Program	Year PhD. Awarded or anticipated
Sangeeta Cook	Valter Longo	Molecular Biology	2012
Jia Hu	Valter Longo	Molecular Biology	2012
Chia Wei Cheng	Valter Longo	IEB	2013
Hong Seok Shim	Valter Longo	IEB	2013

Sebastian Brandhorst	Valter Longo	Molecular Biology	2013
Inyoung Choi	Valter Longo	PIBBS	2014
Jorge Suarez-Ramirez	Valter Longo	IBD	2017
Stefano DiBiase	Valter Longo	IEB	2016
Stavros Gonidakis	Valter Longo	IEB	2011
Changhan Lee	Valter Longo	PIBBS	2012

Postdoctoral fellow

Edoardo Parrella	Valter Longo	Neurobiology	2012
Priya Balasubramanian	Valter Longo	Molecular Biology	2012
Paola Fabrizio	Valter Longo	Cell Biology	2009
Federica Madia	Valter Longo	Cell Biology	2011
Min Wei	Valter Longo	Molecular Biology	2009
Hamed Mirzaei	Valter Longo	Cell, Micro & Molecular Biology	2013