

# CURRICULUM VITAE

**Valter D. Longo**

## **Birthplace**

Genoa, Italy

## **Citizenship**

US Citizen

## **Work Address**

Andrus Gerontology Center,  
Division of Biogerontology,  
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## **Present Position**

Professor of Gerontology and Biological Sciences and Director of the Longevity Institute

## **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

06/12-Present Senior Group Leader, IFOM Longevity and Cancer, Milan Italy

### 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.
- 2016 Jubilee professorship, Sweden
- 2016 Boehaave professorship, Leiden Holland
- 2016 Italian Association for Scientific and Medical journalists (UNAMSI) award for 2016 biomedical Scientist
- 2016 Glenn Award for Research in Biological Mechanisms in Aging
- 2017 USC Stevens Commercialization Award
- 2017 Glenn Award for Research in Biological Mechanisms in Aging

### 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 $\beta$  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
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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. PMID:1844548 PMCID:PMC2536486
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. PMID:18930829
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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
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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
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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 PMCID:PMC343941
  66. Mirisola MG, **Longo VD**. Acetic acid and acidification accelerate chronological and replicative aging in yeast. *Cell Cycle.* 2012 Sep 5;11(19). PMID:22951542
  67. **Longo VD**, Shadel GS, Kaeberlein M, Kennedy B. Replicative and chronological aging in *Saccharomyces cerevisiae*. *Cell Metab.* 2012 Jul 3;16(1):18-31. PMID:22768836 PMCID: PMC3392685
  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 PMCID:PMC3421054
  70. Fontana L, Adelaiye RM, Rastelli AL, Miles KM, Ciamporcero E, **Longo VD**, Nguyen H, Vessella R, Pili R. Dietary protein restriction inhibits tumor growth in human xenograft models. *Oncotarget.* 2013 Nov 23. PMID: 24353195
  70. Nencioni A, Cea M, Montecucco F, **Longo VD**, Patrone F, Carella AM, Holyoake TL, Helgason GV. Autophagy in blood cancers: biological role and therapeutic implications. *Haematologia.* 2013 sep; 98(9):1335-43, PMID:24006406 PMCID: PMC3762088
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  73. Brandhorst S, Wei M, Hwang S, Morgan TE, **Longo VD**. Short-term calorie and protein restriction provide protection from chemotoxicity but do not delay glioma progression. *Exp Gerontol.* 2013 Oct; 48(10) : 1120-8. PMID: 23454633 PMCID: PMC3762887
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  75. Hu J, Wei M, Mirisola MG, **Longo VD**. Assessing chronological aging in *Saccharomyces cerevisiae*. *Methods Mol Biol.* 2013; 965:463-72. PMID:23296677
  76. Gonidakis S, **Longo VD**. Assessing chronological aging in bacteria. *Methods Mol Biol.* 2013; 965: 421-37.

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77. Bartke A, Sun Ly, Longo V. Somatotrophic signaling: trade-offs between growth, reproductive development, and longevity. *Physiol Rev.* 2013;93(2):571-98. doi:10.1152/physrev.00006.2012. Pubmed PMID: 23589828 PMCID:3768106
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79. Mirosoia MG, Taormina G, Fabrizio P, Wei M, Hu J, **Longo VD**. Serine-and Threonine/Valine-Dependent Activation of PDK and Tor Qrthologs Converge on Sch9 to Promote Aging. *PLos Genet.* 2014 Feb. 6;10(2):e1004113. Doi: 10.1371 PMID 24516402
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82. Hu J, Wei M, Mirzaei H, Madia F, Mirisola M, Amparo C, Chagoury S, Kennedy B, **Longo VD**. Tor-Sch9 deficiency activates catabolism of the ketone body-like acetic acid to promote trehalose accumulation and longevity. *Aging Cell.* 2014 Jun;13(3):457-67. Doi; 10.1111 Epub 2014 Mar 20 PMID:24649827 PMCID: PMC4032597
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84. Cheng CW, Adams GB, Perin L, Wei M, Zhou X, Lam BS, Da Sacco S, Mirisola M, Quinn Di, Dorff TB, Kopchick JJ, **Longo VD**. Prolonged fasting reduces IGF-1/PKA to promote hematopoietic-stem-cell-based regeneration and reverse immunosuppression. *Cell Stem Cell.* 2014 Jun 5;14(6):810-23.doi;10.1016 PMID;24905167 PMCID:PMC4102383
85. Fontana L, Kennedy BK, **Longo VD**,Prepare for human testing *Nature* 23 July 2014 vol 511;405-7 PMID:25056047 {Pubmed-indexed for MEDLINE}
86. Mirzaei H, Suarez JA, **Longo VD**. Protein and amino acid restriction, aging and disease: from yeast to humans. *Trends Endocrinol Metab.* 2014 Nov;25 (11):558-566 PMID: 25153840 PMCID:PMC4254277
87. Mattson MP, Allison DB, Fontana L, Harvie M, **Longo VD**, Malaisse WJ, Mosley M, Notterpek L, Ravussin E, Scheer FA, Syefried TN, Varady KA, Panda S. Meal frequency and timing in health and disease. *Proc Natl Acad Sci USA* 2014 Nov 25; 111(47); 16647-53. Doi PMID:25404320 PMCID:PMC4250148
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93. Caffa I, D'Agostino V, Damonte P, Soncini D, Cea M, Monacelli F, Odetti P, Ballestrero A, Provenzani A, **Longo VD**, Nencioni A. Fasting potentiates the anticancer activity of tyrosine kinase inhibitors by strengthening MAPK signaling inhibition. *Oncotarget.* 2015 May 20;6(14):11820-32. PMID:25909220
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135. Yen K, Mehta HH, Kim SJ, Lue Y, Hoang J, Guerrero N, Port J, Bi Q, Navarrete G, Brandhorst S, Lewis KN, Wan J, Swerdlow R, Mattison JA, Buffenstein R, Breton CV, Wang C, **Longo V**, Atzmon G, Wallace D, Barzilai N, Cohen P. The mitochondrial derived peptide humanin is a regulator of lifespan and health span. *Aging (Albany NY)*. 2020 Jun 23;12(12):11185-11199. doi: 10.18632/aging.103534. Epub 2020 Jun 23. PMID: 32575074
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141. Di Tano M, **Longo VD**. A fasting-mimicking diet and vitamin C: turning anti-aging strategies against cancer. *Mol Cell Oncol*. 2020 Jul 29;7(5):1791671. doi: 10.1080/23723556.2020.1791671. eCollection 2020. PMID: 32944646

## 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.

Longo, The Longevity Diet (2018) Penguin Random House, USA

## B. Research Support

### Ongoing Research Support

BC161452                      Longo (PI)    09/15/2017-08/31/2020  
DOD

Periodic Fasting-Mimicking Diet as a Strategy to Increase the Effectiveness of Hormone Therapies in Estrogen Receptor-Positive Breast Cancer.

The goal of this project is to address the two overarching challenges: "Revolutionize treatment regimens by replacing interventions that have life-threatening toxicities with ones that are safe and effective" and "Eliminate the mortality associated with metastatic breast cancer". We are testing whether fasting-mimicking dieting can be a safe and inexpensive approach to eliminate or at least strongly reduced the mortality of ER+ breast cancer, while at the same time avoiding anxiety-generating and potentially life-threatening side effects of hormone therapies, such as endometrial hyperplasia and endometrial carcinoma.

Direct: \$199,063

P01                                      Longo (PI)    2/15/2018-1/31/2023  
NIA

Dietary Restriction, GH/IGF-I & Mechanisms of Differential Cellular Protection and Regeneration

The project brings together two biogerontology laboratories from the University of Southern California and a Laboratory from Harvard University to study the molecular mechanisms linking fasting, fasting mimicking diets and protein restriction to reduced nutrient signaling, the stress resistance signaling network, the mitochondrial peptide humanin and in turn, cellular protection, regeneration and healthspan. These studies will contribute to the identification of drugs and dietary interventions to treat as well as prevent multiples diseases by acting on the aging process and on multi-system regeneration and rejuvenation.

Role: PI

**AIRC-IG 2018-21820**                                      Longo, PI    01/01/2019 – 12/31/2023  
IG

Synergistic differential effects of fasting mimicking diets and non toxic targeted therapies on normal and cancer cells.

The goal of this project is to assess whether FMD cycles potentiate the toxicity of vitamin C against KRAS mutant tumors; enhance the efficacy of immunotherapy; increase the efficacy of hormone therapy against estrogen receptor positive (ER+) breast cancer cell (BC); affect cancer stem cells survival and resistance.

**2018-0543**

Longo, PI

01/0/2019 – 9/30/2022

Fondazione CARIPLO

Fighting immunosenescence and promoting immunity by a fasting-mimicking diet.

The goal of this project is to determine whether FMD prevent frailty syndrome onset and symptoms; delay or reverse age-related immunosenescence and inflammaging; improve the functionality of bone marrow cells; enhances the response to flu vaccination.

### Completed Research Support

R01AG020642

Longo (PI)

04/01/02 – 5/30/2018

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 \$ 201,900/year

Role: PI

P01 AG 034906-03

Longo (PI)

03/15/10 – 07/31/2017

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.

Role: PI

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, 4<sup>th</sup> 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 46<sup>th</sup> 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. 27<sup>th</sup> meeting of the Panamerican Biochemical Society, Aguas de Lindoia, Brazil, 2008.
- Aging and Programmed Cell Death in yeast. 12<sup>th</sup> 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. 13<sup>th</sup> 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, 7<sup>th</sup> 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. 2<sup>nd</sup> 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, 8<sup>th</sup> 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 5<sup>th</sup> 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 5<sup>th</sup> 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. 5<sup>th</sup> 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. 34<sup>th</sup> 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. 2<sup>nd</sup> 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
- Growth and Nutrient Signaling in Disease Prevention and Treatment. Seminar Einstein College. New York, New York, 2013
- GHR-IGF-I Deficiency and age-related diseases. Winthrop Pediatric Endocrinology Symposium. New York, New York 2013
- Fasting Mimicking Diets and Healthspan. Workshop "Interventions to Slow Aging in Humans: Are We Ready?" Erice, Italy 2013
- Fasting to Reduce Cancer Risk. Obesity Week 2013. Atlanta, Georgia 2013
- Fasting and Fasting Mimicking Diets (FMD's) for Cancer Treatment and Prevention. OnCanp Conference. Phoenix, AZ 2014
- Growth factors, aging and age-related diseases. 12<sup>th</sup> Annual Review Course in Clinical Cardiology Zurich 2014
- Nutrients, aging and regeneration. Milan, 2014
- Fasting and the Ketogenic Diet: The Next Therapies for Cancer Treatment and Prevention? .Academy of Nutrition and Dietetics 2014 Food and Nutrition Conference and Exp Atlanta, Georgia 2014
- Drugs to extend longevity Calico Long-lived Mouse Meeting. San Francisco, CA 2014
- Fasting Mimicking Diets in Disease Prevention and Treatment. Harvard University 2014
- Extreme dietary interventions, aging, regeneration and diseases. Baylor College of Medicine Houston, TX 2015
- Fasting and dietary restriction in aging and disease. Interventions in Aging Conference. Cancun, MX 2015
- Nutrient signaling, differential cellular protection, and age-related diseases: from yeast to humans RSAS Jubilee Symposium, Aging of Societies, Stockholm, Sweden 2015
- Fasting, mimicking diets, regeneration and health span. 2015 Symposium on Aging, Bandera, TX 2015
- FDA Geroscience Seminar, Silver Spring, MD 2015

- Fasting and It's implications in Cancer Treatment and Prevention. 12<sup>th</sup> International Conference The Society for Integrative Oncology. Boston, MA
- The Healthspan Promoting Effects of Periodic Fasting, The University of Colorado Colloquim. Boulder, CO 2015
- Mechanisms of nutrients –dependent effects on aging, stress resistance and regeneration. Frontiers in Aging Seminar Series. Stanford, CA 2015
- Fasting mimicking diets in health and longevity. Berlin Institute of Health. Berlin, Germany 2015
- Endocrine/nutrient sensing in human and animal Lorentz Workshop on translational research in aging. Netherlands 2016
- Nutrition, Fasting Mimicking Diets, Regeneration and Longevity. Birmingham, Alabama 2016
- Nutrition and fasting mimicking diets in aging and healthspan. Springfield, Illinois 2016
- NIH Geroscience (GSIG) Bethesda, MD 2016
- Fasting: awakening the rejuvenation from within. TEDEX EchoPark, Los Angeles, CA 2016
- Fasting mimicking diets, multi-system regeneration, and aging. Cell Symposium-Aging & Metabolism Melia Sitges, Spain 2016
- CSSA Bari, Italy 2016
- Nutrition for Longevity; how mimicking Fasting could change the course of Cardiovascular disease, Cancer, Auto-immune diseases and Diabetes. Cardiovascular Research Center. New York, NY 2016
- Starvation-dependent Differential Stress Resistance and Sensitization in Cancer Treatment EMBO Conference Bilboa, Spain 2016
- Protein and glucose restriction, growth signaling, and aging: from yeast to humans. GSA New Orleans 2016
- Starvation-dependent Differential Stress Resistance and Sensitization in Cancer Treatment. Cancer Metabolism: Mechanisms and treatment strategies Frankfurt, Germany. 2016
- Fasting Mimicking diets and multi-system regeneration DGFA 2016 Ulm Germany
- Nutrition, Fasting, Regeneration and Longevity, LLU Basic Sciences Series Loma Linda, CA 2017
- Rancho Mirage Writers Festival Rancho Mirage, CA 2017
- Fasting Dependent Differential Stress Resistance and Sensitization in Cancer Treatment- 2<sup>nd</sup> Annual Conference Nutritional Ketosis and Metabolic Therapeutics Tampa, FL 2017
- Fasting mimicking diets and multi-system regeneration-Robert and Arlene Kogod Center on Aging Rochester, MN 2017
- Periodic Fasting mimicking diet-effects in animals-14<sup>th</sup> Stock Conference: Health Benefits of Intermittent and Periodic Energy Restriction- March 31-April 1, 2017 Sydney, Australia
- Nutrition and fasting in cancer therapy- AACR Annual Meeting- April 2017 Washington, DC

- CR mimicking diets in clinic and ageing research-KNAW Conference - May 19, 2017 Netherlands
- Leibniz Institute on Aging- June 29, 2017 Jena, Germany
- GRC Biology of Aging Conference- Systemic Regulation of Aging and Longevity July 9-14, 2017,Switzerland
- The Timing of Eating Effects Obesity- November 2017- Obesity Society Annual Meeting- Washington, DC
- Eating Kills & CRISPR Cures – November 2017- USON Annual Science Forum- Dallas, TX
- Nutrition, fasting, regeneration and healthspan- November 14-16, 2017- Singapore
- Fasting Mimicking Diets and Multi-system Rejuvenation- Cleveland Clinic- Dec. 8-10, 2017- Las Vegas, NV
- Fasting Mimicking Diets in combination with standard of care cancer therapy- MD Anderson Cancer Center- Houston, TX
- Periodic fasting mimicking diets, multi-system regeneration and longevity- Healthy Ageing: From Molecules to Organisms- Jan. 31-Feb. 2, 2018- Cambridge, UK
- Keystone Symposia on Molecular and Cellular Biology- Feb. 25-March 2, 2018- Austin, Texas
- UW Madison Seminar Series- Fasting mimicking diets, regeneration and rejuvenation, Madison, Wi
- Cell Symposia; Aging and Metabolism- Fasting-mimicking diet, regeneration and inflammatory disease September 23-25, 2018 Spain
- A4M Congress Event, Fasting Mimicking Diets, Regeneration, and Age-related Diseases Dec, 2018 , NV

## 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

Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2014
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2015
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2016
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2017
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2018
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2019
Gero 498	Nutrition, Genes, Longevity and Diseases	Summer 2020

#### 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
GERO 613		Spring 2020
BISC 321		Spring 2020

**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.

<b>Graduate Student</b>	<b>Faculty Mentor</b>	<b>PhD. Program</b>	<i>Year PhD. Awarded or anticipated</i>
Sangeeta Cook	Valter Longo	Molecular Biology	2012
Jia Hu	Valter Longo	Molecular Biology	2012
Chia Wei Cheng	Valter Longo	IEB	2014
Hong Seok Shim	Valter Longo	IEB	2015

Sebastian Brandhorst	Valter Longo	Molecular Biology	2013
Inyoung Choi	Valter Longo	PIBBS	2016
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
Priya Rangan	Valter Longo	Biology of Aging	2019
Fleur Lobo	Valter Longo	Biology of Aging	2021
Andrew Blake	Valter Longo	Biology of Aging	2023

**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
Roberta Buono	Valter Longo	Biotechnologies applied to the medical sciences	2010
Annunziata Crupi	Valter Longo	Morphogenetic and cytological sciences	2014
Novella Guidi	Valter Longo	Molecular Medicine	2016
Maura Fanti	Valter Longo		2019
Amrendra	Valter Longo		2020