

Curriculum vitae

SEBASTIAN BRANDHORST

Personal Information

Date of birth: March 19th, 1983
Place of birth: Essen, Germany
Nationality: German

Professional Experience and Education

11.2018 – *Current* **Research Assistant Professor**; Longevity Institute, School of Gerontology, and Department of Biological Sciences, University of Southern California, Los Angeles, CA 90089, USA

01.2019- *Current* **Medical Director**; Create Cures Foundation, Los Angeles, CA, USA

10.2012- 11.2018 **Consultant**; L-Nutra Inc., Culver City, CA 90232, USA.

03.2015 – 11.2018 **Laboratory supervisor**; Longevity Institute, School of Gerontology, University of Southern California, Los Angeles, CA 90089, USA

10.2012 - 03.2015 **Laboratory technician** for Prof. Dr. Valter Longo at the Longevity Institute, School of Gerontology, and Department of Biological Sciences, University of Southern California, Los Angeles, CA 90089, USA

03.2010 - 03.26.2013 **Doctorate Degree** from the University of Duisburg-Essen (Germany);
Visiting scholar at the University of Southern California (USA)
Thesis title: *"Dietary- and Fasting-based Interventions to Improve the Efficacy of Cancer Treatment"*

03.2009 - 09.2009 **Master-Thesis**, laboratory of Dr. Jakob at the University of Michigan, Ann Arbor, Michigan, USA
Thesis Title: *"The role of the Thioredoxin reductase system in maintaining the yeast redox-balance and its implication in chronological aging"*

09.2008 - 03.2009 **Internship** in the Laboratory of Dr. Ursula Jakob
University of Michigan, Ann Arbor, Michigan, USA

09.2007 - 09.2009 **Medical-Biology (M.Sc.)**
University of Duisburg-Essen, Germany

03.2007 - 09.2007 **Bachelor-Thesis** at the Department for Developmental Biology, Centre for Medical Biotechnology, University Duisburg-Essen, Germany
Thesis title: *"Establishment of an in vitro model for the analysis of chondrocyte-specific gene expression in the ATDC5-cell line"*

09.2004 – 09.2007 **Medical-Biology (B.Sc.)**
University of Duisburg-Essen, Germany

2003 – 2004 **Social service**
SOS Pflegedienst Essen, Germany

1994 – 2003 **Abitur**
Helmholtz-Gymnasium, Essen, Germany

Awards and Honors

01.15.2020	2019 AARP Best Research Scientist Award
06.04.2019	Butler-William Scholar , National Institute on Aging
12.31.2017	Irene Diamond Fund/AFAR Postdoctoral Transition Award in Aging
05.03.2017	Stevens Center for Innovation Commercialization Award
10.19.2016	Dean's Research Staff Award 2016
05.17.2013	Heinz H. Osterburg Prize for Predoctoral Research in Gerontology

Memberships

January 2017	Growth Research Society
March 2017	The National Academy of Inventors
April 2018	The Gerontological Society of America
January 2019	American College of Nutrition

List of Publications

Peer-reviewed Original Research Publications:

Fasting-mimicking diet and hormone therapy induce breast cancer regression.

Caffa I, Spagnolo V, Vernieri C, Valdemarin F, Becherini P, Wei M, [Brandhorst S](#), Zucal C, Driehuis E, Ferrando L, Piacente F, Tagliafico A, Cilli M, Mastracci L, Vellone VG, Piazza S, Cremonini AL, Gradaschi R, Mantero C, Passalacqua M, Ballestrero A, Zoppoli G, Cea M, Arrighi A, Odetti P, Monacelli F, Salvadori G, Cortellino S, Clevers H, De Braud F, Sukkar SG, Provenzani A, Longo VD, Nencioni A.

Nature. 2020 Jul;583(7817):620-624. PMID: 32669709

The mitochondrial derived peptide humanin is a regulator of lifespan and healthspan.

Yen K, Mehta HH, Kim SJ, Lue Y, Hoang J, Guerrero N, Port J, Bi Q, Navarrete G, [Brandhorst S](#), Lewis KN, Wan J, Swerdloff R, Mattison JA, Buffenstein R, Breton CV, Wang C, Longo V, Atzmon G, Wallace D, Barzilai N, Cohen P.

Aging (Albany NY). 2020 Jun 23;12(12):11185-11199. PMID: 32575074

Assessing Insulin and Glucose Tolerance in the Aging Mouse.

Buono R, [Brandhorst S](#).

Methods Mol Biol. 2020;2144:125-129. PMID: 32410030

Synergistic effect of fasting-mimicking diet and vitamin C against KRAS mutated cancers.

Di Tano M, Raucci F, Vernieri C, Caffa I, Buono R, Fanti M, [Brandhorst S](#), Curigliano G, Nencioni A, de Braud F, Longo VD.

Nat Commun. 2020 May 11;11(1):2332. PMID: 32393788

Fasting-Mimicking Diet Modulates Microbiota and Promotes Intestinal Regeneration to Reduce Inflammatory Bowel Disease Pathology.

Rangan P, Choi IY, Navarrete G, Guen E, [Brandhorst S](#), Enyati N, Pasia G, Wei M, Longo VD.

Cell Reports 26, 2704–2719, March 5, 2019. PMID: 30840892

Humanin Prevents Age-Related Cognitive Decline in Mice and is Associated with Improved Cognitive Age in Humans.

Yen K, Wan J, Mehta HH, Miller B, Christensen A, Levine ME, Salomon MP, [Brandhorst S](#), Xiao J, Kim SJ, Navarrete G, Campo D, Harry GJ, Longo V, Pike CJ, Mack WJ, Hodis HN, Crimmins EM, Cohen P.

Sci Rep. 2018 Sep 21;8(1):14212. PMID: 30242290

Chronic Treatment With the Mitochondrial Peptide Humanin Prevents Age-related Myocardial Fibrosis in mice.

Qin Q, Mehta H, Yen K, Navarrete G, [Brandhorst S](#), Wan J, Delrio S, Lerman LO, Cohen P, Lerman A.

Am J Physiol Heart Circ Physiol. 2018 Jul 13. PMID: 30004252

Fasting and Metformin Regulate EGR1 to Protect from Dexamethasone and Glucose - Dependent Sensitization.

Di Biase S, Shim HS, Kim KH, Vinciguerra M, Rappa F, Wei M, [Brandhorst S](#), Cappello F, Mirzaei H, Lee C, Longo VD.

PLoS Biology. 2017 Mar 30;15(3):e2001951. PMID: 28358805

Fasting-Mimicking Diet and Risk Factors for Aging, Diabetes, Cancer and Cardiovascular Disease.

Wei M[#], [Brandhorst S](#)[#], Shelehchi M, Mirzaei H, Cheng CW, Budniak J, Groshen S, Mack WL, Guen E, Di Biase S, Cohen P, Morgan TE, Dorff T, Hong K, Michalsen A, Laviano A, Longo VL.

Sci Transl Med. 2017 Feb 15;9(377). PMID: 28202779

#Both authors contributed equally to this publication.

Effects of Prolonged GRP78 Haploinsufficiency on Organ Homeostasis, Behavior, Cancer and Chemotoxic Resistance in Aged Mice.

Lee AS, [Brandhorst S](#), Rangel DF, Navarrete G, Cohen P, Longo VL, Chen J, Groshen S, Morgan TE, Dubeau L.

Scientific Reports. 2017 Feb 1;7:40919. PMID: 28145503

Fasting Mimicking Diet Reduces HO-1 to Promote T cell-mediated Tumor Cytotoxicity.

Di Biase S, Lee C, [Brandhorst S](#), Manes B, Buono R, Cheng CW, Cacciottolo M, Martin-Montalvo A, de Cabo R, Wei M, Morgan TE, Longo VD.

Cancer Cell. 2016 Jul 11;30(1):136-46. PMID: 27411588

A Diet Mimicking Fasting Promotes Regeneration and Reduces Autoimmunity and Multiple Sclerosis Symptoms.

Choi IY, Piccio L, Childress P, Bollman B, Ghosh A, [Brandhorst S](#), Suarez J, Michalsen A, Cross AH, Morgan TE, Wei M, Paul F, Bock M, Longo VD.

Cell Rep. 2016 Jun 7;15(10):2136-46. PMID: 27239035

Safety and feasibility of fasting in combination with platinum-based chemotherapy.

Dorff TB, Groshen S, Garcia A, Shah M, Tsao-Wei D, Pham H, Cheng CW, [Brandhorst S](#), Cohen P, Wei M, Longo V, Quinn DI.

BMC Cancer. 2016 Jun 10;16(1):360. PMID: 27282289

A Periodic Diet that Mimics Fasting Promotes Multi-System Regeneration, Enhanced Cognitive Performance, and Healthspan.

Brandhorst S, Choi IY, Wei M, Cheng CW, Sedrakyan S, Navarrete G, Dubeau L, Yap LP, Park R, Vinciguerra M, Di Biase S, Mirzaei H, Mirisola MG, Childress P, Ji L, Groshen S, Penna F, Odetti P, Perin L, Conti PS, Ikeno Y, Kennedy BK, Cohen P, Morgan TE, Dorff TB, Longo VD.
Cell Metab. 2015 Jul 7;22(1):86-99. PMID: 26094889

Starvation promotes REV1 SUMOylation and p53-dependent sensitization of melanoma and breast cancer cells.

Shim HS, Wei M, Brandhorst S, Longo VD.
Cancer Res. 2015 Mar 15;75(6):1056-67. PMID: 25614517

Low protein intake is associated with a major reduction in IGF-1, cancer, and overall mortality in the 65 and younger but not older population.

Levine ME, Suarez JA, Brandhorst S, Balasubramanian P, Cheng CW, Madia F, Fontana L, Mirisola MG, Wan J, Passarino G, Kennedy BK, Cohen P, Crimmins EM, Longo VD.
Cell Metab. 2014 Mar 4;19(3):407-17. PMID: 24606898

Short-term calorie and protein restriction provide partial protection from chemotoxicity but do not delay glioma progression.

Brandhorst S, Wei M, Hwang S, Morgan TE, Longo VD.
Exp Gerontol. 2013 Oct;48(10):1120-8. PMID: 23454633

Spermidine promotes stress resistance in Drosophila melanogaster through autophagy-dependent and -independent pathways.

Minois N, Carmona-Gutierrez D, Bauer MA, Rockenfeller P, Eisenberg T, Brandhorst S, Sigrist SJ, Kroemer G, Madeo F.
Cell Death Dis. 2012 Oct 11;3:e401. PMID: 23059820

Fasting enhances the response of glioma to chemo- and radiotherapy. *

Safdie F[#], Brandhorst S[#], Wei M, Wang W, Lee C, Hwang S, Conti PS, Chen TC, Longo VD.
PLoS One. 2012;7(9):e44603. PMID: 22984531

[#] Both authors contributed equally to this publication.

Fasting cycles retard growth of tumors and sensitize a range of cancer cell types to chemotherapy.

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.
Science Translational Medicine. 2012 Mar 7;4(124):124ra27. PMID: 22323820

Reviews and Proceedings:

Periodic and Intermittent Fasting in Diabetes and Cardiovascular Disease.

Crupi AN, Haase J, Brandhorst S, Longo VD.
Curr Diab Rep. 2020 Dec 10;20(12):83. PMID: 33301104

Protein Quantity and Source, Fasting-Mimicking Diets and Longevity.

Brandhorst S, Longo VD.

Advances in Nutrition. 2019 Nov 1;10. PMID: 31728501

Personalized Nutrition: Translating the Science of NutriGenomics into Practice: Proceedings From the 2018 American College of Nutrition Meeting.

Aruoma OI, Hausman-Cohen S, Pizano J, Schmidt MA, Minich DM, Joffe Y, Brandhorst S, Evans SJ, Brady DM.

J Am Coll Nutr. 2019 May-Jun;38(4):287-301. PMID: 31099726

Dietary restrictions and nutrition in the prevention and treatment of cardiovascular disease.

Brandhorst S, Longo VD.

Circulation Research. 2019 019 Mar 15;124(6):952-965. PMID: 30870119

Protective effects of short-term dietary restriction in surgical stress and chemotherapy.

Brandhorst S, Harputlugil E, Mitchell JR, Longo VD.

Ageing Res Rev. 2017 Feb 16. pii: S1568-1637(17)30033-8. PMID: 28216454

Fasting and Caloric Restriction in Cancer Prevention and Treatment.

Brandhorst S, Longo VD.

Recent Results Cancer Res. 2016;207:241-66. PMID: 27557543

Book chapter:

Metabolism in Cancer

Chapter: Fasting and Caloric Restriction in Cancer Prevention and Treatment.

Brandhorst S, Longo VD

ISBN 978-3-319-42116-2; Springer Publishing; 2016

Judge for Peer Reviewed Articles:

Including: Aging Cell, Cell Reports, Cell Metabolism, Nature Communications, JAMA Internal Medicine, PloS One, Journal of Nutrition, BMC Cancer,...

Patents:

Methods and diets for lowering glucose and/or IGF-1 levels.

Document Identifier US 20140227373A1

Publication Date 08.14.2014

[Also published as:](#) CA2900782A1, CN105008929A, EP2956776A2, US20140227373, WO2014127000A2

Methods and Formulations Promoting Tissue/Organ Regeneration, Longevity and Healthspan.

Document Identifier US 20140112909A1

Publication Date 04.24.2014

[Also published as:](#) CA2888811A1, EP2909802A1, WO2014066426A1

Media Reports:

Please see <https://www.longolab.org/news-events> ; <http://l-nutra.com/news.aspx>

Scientific Presentations/Meetings:

<u>Date</u>	<u>Conference Title</u>	<u>Presentation Title</u>	<u>Location</u>
April 2011	American Association for Cancer Research (AACR)	Fasting enhances the response of G126-glioma to radiation and multiple chemotherapies. (<i>poster</i>)	Orlando, Florida
October 2011	Moving Targets 2011: Aging and Oxidative Stress		Los Angeles, California
August 2012	Moving Targets 2012: Metabolic syndrome: Past, Present and Future	Starvation sensitizes breast cancer by differential modulation of heme oxygenase-1. (<i>poster</i>)	Los Angeles, California
February 2012	Gordon Research Conference (GRC) on Aging, Biology	Fasting cycles retard growth of tumors and sensitize cancer cells to chemotherapy. (<i>poster</i>)	Ventura, California
10.06-10.07 2013	Preclinical Imaging Workshop; Centers for Excellence in Research	The application of small rodent imaging in fasting-related preclinical research.	Los Angeles, California
04.05-04.09 2014	American Association for Cancer Research (AACR)	Periodic fasting mimicking diet started late in life reduces and delays carcinogenesis. (<i>poster</i>)	San Diego, California
02.17-02.18 2015	USC Diabetes & Obesity Research Institute; 2nd Annual Research Symposium	The mitochondrial-derived peptide humanin enhances healthspan and improves metabolic markers in aged mice.	Los Angeles, California
10.06-10.09 2016	The 8th International Congress of the GRS and IGF Society	Fasting-mimicking diets lower IGF-1, promote regeneration, enhance cognitive performance and healthspan in mice, and reduce diabetes and cardiovascular disease risk factors in a randomized trial.	Tel Aviv, Israel
03.31-04.01 2017	World Obesity Stock Conference 2017	Periodic fasting mimicking diet - effects in humans.	Sydney, Australia
11.14-11.17 2017	Biology of Ageing II "Impactful Interventions"	Fasting-mimicking diet reduces risk factors for aging, diabetes, cancer and cardiovascular disease in preclinical and clinical studies. (<i>oral presentation, poster</i>)	Singapore, Singapore
02.26-02.28 2018	International Congress on Vegetarian Nutrition	Protein quality and source, fasting mimicking diets and longevity.	Loma Linda, California
04.12-04.14 2018	American Academy of Anti-Aging Medicine, A4M	From Fasting to Fasting Mimicking Diets: Preclinical and Clinical Findings.	Hollywood, Florida
05.04-05.06 2018	Australasian College of Nutritional and Environmental Medicine	Fasting-mimicking diet reduces risk factors for ageing, diabetes, cancer and cardiovascular disease in preclinical and clinical studies.	Melbourne, Australia
05.31-06.02 2018	The Institute for Functional Medicine: Annual International Conference	Fasting and Autoimmune Disease	Hollywood, Florida

06.27-06.30 2018	Nathan Shock Symposium at the AGE meeting	Orentreich Symposium on Nutrition and Longevity: Fasting and Fasting-mimicking Diets in Health and Lifespan	Philadelphia, Pennsylvania
10.11-10.13 2018	Personalized Lifestyle Medicine Institute: 2018 Thought Leaders Consortium	The Science of the Fasting-mimicking Diet	Tucson, Arizona
11.07-11.09 2018	American College of Nutrition: 2018 Personalized Nutrition	Genes, Nutrition, Longevity and Chronic Disease.	Seattle, Washington
12.13-12.16.2018	World Congress, American Academy of Anti-Aging Medicine, A4M	Fasting, FMDs and the Inflammatory Response.	Las Vegas, Nevada
01.02-02.02.2019	Can Chronic Disease Be Reversed?	Fasting-mimicking diet reduces risk factors for ageing, diabetes, cancer and cardiovascular disease in preclinical and clinical studies	Orlando, Florida
02.15-02.16.2019	8th Annual OncANP Conference	Fasting and FMDs in Cancer Prevention and Treatment.	San Diego, California
06.18.2019	Penn Center for Nutritional Science and Medicine	The Fasting-Mimicking Diet and Inflammatory Bowel Disease: From Mice to Humans?	Philadelphia, Pennsylvania
07.10-07.11.2019	The 20th Annual Harvard Nutrition and Obesity Symposium	Ecuadorians with GH Receptor Deficiency: Lessons in Longevity	Boston, Massachusetts
09.28-09.29.2019	8th Annual Integrative Medicine Conference, Osher Center for Integrative Medicine	Inflammatory Bowel Disease: From Mice to Humans?	Fort Lauderdale, Florida
10.16-10.18.2019	2019 Symposium on Healthy Aging, OFAS	Fasting-mimicking diet reduces risk factors for ageing, diabetes, cancer and cardiovascular disease in preclinical and clinical studies.	New Paltz, New York
10.25.2019	State of the Science, Uniformed Services University	Low Calorie Diets for Chemotherapy Augmentation.	Bethesda, Maryland
10.26-10.28.2019	Dietitians in Integrative and Functional Medicine	Fasting and Fasting-Mimicking Diets in Health and Lifespan.	Philadelphia, Pennsylvania
11.12-11.13.2019	RCCN Workshop Travel Awards for Early Career Investigators	Resilience and Reserve in Aging	Austin, Texas
11.13-11.16.2019	Gerontological Society of America	Fasting-Mimicking Diet Reduces Risk Factors for Aging-Related Diseases in Preclinical and Clinical Studies	Austin, Texas