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California Lutheran University
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EDUCATION

2002-2008 Ph.D., Molecular Biology
Molecular Biology Interdepartmental Graduate Program
Molecular Biology Institute
University of California, Los Angeles (UCLA)

1997-2000 M.S., Biology, *with Distinction*.
Masters Candidate, Biology Department.
California State University, Northridge

1993-1997 B.S., Biology
Pepperdine University, CA

CURRENT EMPLOYMENT

2022-present Professor of Biology: California Lutheran University
2018-2023 Associate Dean of Undergraduate Education, College of Arts and Sciences:
California Lutheran University
2017-2022 Associate Professor of Biology: California Lutheran University
2011-2017 Assistant Professor of Biology: California Lutheran University

TEACHING EXPERIENCE

8/11-present California Lutheran University: Biology Department

- Lower Division Courses:
 - First Year Seminar (UNIV 101)
 - Pre-Health Seminar (UNIV 208)
 - Introduction to Cells and Organisms (Biol 121)
 - Introduction to Metabolism, Genes and Development (Biol 122)
 - Introduction to Biological Experimentation I (Biol 123L)
 - Introduction to Biological Experimentation II (Biol 124L)
- Upper Division Courses:
 - Cell Biology and Lab (Biol 375 and 375L)
 - Immunology and Lab (Biol 438 and 438L)
 - Cancer Biology and Lab (Biol 400 and 400L)
 - Developmental Biology (Biol 342)
 - Scientific Literature (Biol 463)
 - Internal Medicine Seminar (Univ. 482)

TEACHING EXPERIENCE (cont.)

- 08/10-5/11 Lecturer, Pepperdine University: Biology Department
- Course: Biology of Animals (Biol 212L) Laboratories
- 09/08-06/09 Lecturer, UCLA: Undergraduate Education Initiatives Department
- Biology Lecturer in Multidisciplinary Teaching Team. Course: General Education Cluster: “Frontiers in Human Aging: Biomedical, Social and Policy Perspectives”.
 - Seminar, “Stem Cell Therapy, Aging and Chronic Disease: Biological, Policy and Ethical Discussions.” Novel seminar I developed to integrate modern biology into the course concepts of Human Aging.
- 06/08-08/08 Lecturer, UCLA: Department of Molecular, Cellular and Developmental Biology
- Course: Developmental Biology
- 04/04-12/04 Teaching Associate, UCLA Department of Molecular, Cellular and Developmental Biology
- Course: Biology of the Cell
 - Course: Genetic Control of Organogenesis
- 01/99-06/00 Teaching Associate, Cal. State Univ. Northridge. Dept. of Biology
- Course: Human Anatomy

RESEARCH EXPERIENCE

- 2011-present Principal Investigator: California Lutheran University, Biology Dept.
- Effects of integrin binding on cellular behavior and differentiation
 - Canine tumor immunology
 - Effect of natural compounds with anti-tumor properties on canine cancer cells *in vitro*.
- 2008-2011 Post-Doctoral Fellow: UCLA, in the lab of Dr. Ken Dorshkind.
- Origin and function of B cell progenitors.
- 2002-2008 Graduate Student Researcher: UCLA, in the lab of Dr. Luisa Iruela-Arispe.
- Dissertation: VE-Cadherin and $\beta 1$ Integrin: Adhesion Molecules and their Role in Hematopoiesis and Vasculogenesis
 - VEGF signaling in vascular and hematopoietic lineages
 - Endothelial Progenitor Cells (EPC) and their role in tumor vascularization
- 2000-2002 Research Associate II, University of California, Los Angeles (Dr. William H. McBride, D.Sc., Dr. Keisuke S. Iwamoto, Ph.D.)
- The effects of ionizing radiation in biology

RESEARCH EXPERIENCE (cont.)

- 1997-2000 Graduate Student Researcher, Masters Program. Department of Biology, California State University, Northridge (Dr. Edward J. Carroll, Ph.D.)
- Thesis: Isolation, Characterization and Sequence Determination of Seminal Fluid Glycoproteins in the Anuran *Lepidobatrachus laevis*.
- 1997-1999 Research Associate I, Borun Center for Gerontological Research, University of California, Los Angeles (Dr. Jack Schnelle, Ph.D.)
- Physiological effects of exercise training in the aged.

PUBLICATIONS

- Tiffany Shajian* and Chad Barber. 2023. CRISPR/Cas9 as a Treatment for Cancer. Review. *Journal of Student Research*. 12 (1): 1-7.
- Oohashi, T., Tsukahara, H., Ramirez, F. and **Barber, C.L.** and Otsuka, F. (Eds.). (2019). *Human Pathobiochemistry: From Clinical Studies to Molecular Mechanisms*. (Textbook). Singapore, Singapore: Springer Nature.
- Reinhold J. Medina, **Chad L. Barber**, Osamu Ohneda, Anna M. Randi, Teruhide Yamaguchi, Mervin C. Yoder, Alan W. Stitt. 2017. Perspective: Time for Harmonising Nomenclature and Definitions Surrounding Endothelial Progenitors. *Stem Cell Translational Medicine*. 6: 1316-1320.
- Encarnacion Montecino-Rodriguez, Michael Fice*, David Casero, Beata Berent-Maoz, **Chad L. Barber**, and Kenneth Dorshkind. 2016. Distinct Genetic Networks Orchestrate the Emergence of Specific Waves of Fetal and Adult B-1 and B-2 Development. *Immunity*. 45(3): 527-39.
- Jeanine M.L. Roodhart, Huanhuan He*, Laura G.M. Daenen, Arnaud Monvoisin, **Chad L. Barber**, Miranda van Amersfoort, Jennifer J. Hofmann, Freddy Radtke, Timothy F. Lane, Emile E. Voest, M. Luisa Iruela-Arispe. 2013. Notch1 regulates angio-supportive bone marrow-derived cells: relevance to chemoresistance. *Blood*. 122, (1): 143-53.
- Chad L. Barber**, Encarnacion Montecino-Rodriguez, Kenneth Dorshkind. 2011. Developmental relationships between B-1 and B-2 Progenitors. *Cell Cycle*. 10(22): 3810-1.
- Chad L. Barber**, Encarnacion Montecino-Rodriguez, Kenneth Dorshkind. 2011. Reduced production of B-1 specified common lymphoid progenitors results in diminished potential of adult marrow to generate B-1 cells. *Proc. of the Nat. Acad. of Sci*. 108(33): 13700-13704.

*-denotes mentored undergraduate student.

PEER-REVIEWED PUBLICATIONS (cont.)

Sunyoung Lee, Tom Chen, **Chad L. Barber**, Jared Murdock, Maria Jordan, Sharina Desai*, Napoleone Ferrara, Andras Nagy, Kenneth Ross and M. Luisa Iruela-Arispe. 2007. Autocrine VEGF Signaling is Required for Vascular Homeostasis. *Cell*. 130: 691-703.

Keisuke S. Iwamoto and **Chad L. Barber**. 2007. Radiation-induced post-transcriptional control of M6P/IGF2r expression in breast cancer cell lines. *Molecular Carcinogenesis*. 46(7): 497-502.

Chad L. Barber and M. Luisa Iruela-Arispe. 2006. The ever-elusive endothelial progenitor cell: identities, functions and clinical implications. *Pediatric Research*. 59(4 Pt 2): 26R-32R.

Keisuke S. Iwamoto, Shiho Yano, **Chad L. Barber**, Donald G. MacPhee, and Shoji Tokuoka. 2006. A Dose-Dependent Decrease in the Fraction of Cases Harboring M6P/IGF2R Mutations in Hepatocellular Carcinomas from the Atomic Bomb Survivors. *Radiation Research*. 166: 870-876.

Wen-Cheng Chen, William H. McBride, Keisuke S. Iwamoto, **Chad L. Barber**, Chun-Chieh Wang, Young-Taek Oh, Yu-Pei Liao, Ji-Hong Hong, Jean de Vellis, and Hungyi Shau 2002. Induction of radioprotective peroxiredoxin-I by ionizing irradiation. *J. Neurosci. Res*. 70(6): 794-8.

PRESENTED PAPERS, POSTERS AND PUBLISHED ABSTRACTS (selected)

^aMalik Hays* and Chad L. Barber. Perfluorooctanoic Acid (PFOA) Proliferation and Apoptosis in Healthy Human Cells. Southern California Council on Undergraduate Research Conference (SCCUR), November 19th, 2023. Pepperdine University, Malibu, CA.

^aMalik Hays* and Chad L. Barber. Perfluorooctanoic Acid (PFOA) Proliferation and Apoptosis in Healthy Human Cells. The 46th Annual West Coast Biological Sciences Undergraduate Research (WCBSUR) Conference. April 22nd, 2023. Loyola Marymount University, Los Angeles, CA.

^aPatience Berkel* and Chad L. Barber. Generation of a Novel Immortalized Canine Cell Line via *hTERT* transfection for *In Vitro* Cancer Research. The 46th Annual West Coast Biological Sciences Undergraduate Research (WCBSUR) Conference. April 22nd, 2023. Loyola Marymount University, Los Angeles, CA.

^aLucy Minasian* and Chad L. Barber. The Anti-Cancer Effects of Methyl Protodioscin on MCF-7 Breast Cancer Cells and Its Role in Apoptosis. The 46th Annual West Coast Biological Sciences Undergraduate Research (WCBSUR) Conference. April 22nd, 2023. Loyola Marymount University, Los Angeles, CA. ******1st Place Cell Biology Category.**

* :denotes mentored undergraduate student.

^a : denotes competitive, peer-reviewed abstract.

PRESENTED PAPERS, POSTERS AND PUBLISHED ABSTRACTS (cont.)

- ^aChristian Bustillos*, Jessica Correa* and Chad L. Barber. The Identification and Analysis of Immune Cells Present in Canine Carcinomas. Southern California Council on Undergraduate Research Conference (SCCUR), November 23rd, 2019. California State University San Marcos, CA.
- ^aIssai Cisneros* and Chad L. Barber Investigating the Anti-Cancer Effects of Curcumin on Canine Osteosarcoma Cells". Southern California Council on Undergraduate Research Conference (SCCUR), November 23rd, 2019. California State University San Marcos, CA.
- ^aJajour, Mary* and **Chad L. Barber**. Characterization and analysis of integrins on immune cells found in canine carcinomas. Southern California Council on Undergraduate Research Conference (SCCUR), November 18th, 2017. Cal Poly Pomona, CA.
- ^aDavid Andrew Crago*, Mary M. Jarjour*, Mao Kohara*, and **Chad L. Barber**. 2017. Investigating the Presence and Quantity of Immune Cells in Canine Tumors SCCUR, November 18th, 2017. Cal Poly Pomona, CA
- ^aJajour, Mary* and **Chad L. Barber**. 2016. Role of integrins in Canine Cancer Cells. SCCUR, November 12th, 2016. UC Riverside, CA.
- ^aFrem, William* and **Chad L. Barber**. 2016. Analyzing Cell Kinetics and Integrin Expression in Canine Tumors. The West Coast Biological Sciences Undergraduate Research (WCBSUR) Conference. April 9, 2016. Point Loma, San Diego.
- ^aDeMartino, C. H., **Barber, C. L.**, Gardener, K., He, M., Lesh, K., Medders, R., Rogers, T., Sandlin, J., Starn, H., Tierney, N., & Watkins, B. (2015, May). Comparing learning in blended and traditional sections across disciplines in a small liberal arts university. Paper presented at the meeting of Blended Learning in the Liberal Arts Conference, Bryn Mawr, PA.
- ^aTristen Burt* and **Chad L. Barber**. 2014. Analysis of Gene Sequences in Canine Tumors. Southern California Council on Undergraduate Research Conference (SCCUR), Fullerton, CA.
- ^aMaxine R. Nelson* and **Chad L. Barber**. 2014. Simulating Atheroprotective Laminar Blood Flow to Investigate KLF2 and β 1 Integrin in Endothelial and Smooth Muscle Cells. Southern California Council on Undergraduate Research Conference (SCCUR), Fullerton, CA.
- ^aJeremy Anderson* and **Chad L. Barber**. 2013. Effects of a Collagen Scaffold on Mouse Bone Marrow Stromal (S17) Cell Culture. Southern California Council on Undergraduate Research Conference (SCCUR), Whittier, CA.

:denotes mentored undergraduate student.

^a: denotes competitive, peer-reviewed abstract.

PRESENTED PAPERS, POSTERS AND PUBLISHED ABSTRACTS (cont.)

- ^a**Chad L. Barber**, Encarnacion Montecino-Rodriguez, Kenneth Dorshkind. 2012. Age-related differences in lymphocyte progenitor pools. *1st Annual Buck Institute Stem Cell Research and Aging Symposium*.
- ^aJeanine M.L. Roodhart, Huanhuan He*, Laura G.M. Daenen, Arnaud Monvoisin, **Chad Barber**, Miranda van Amersfoort, Jennifer J. Hofmann, Freddy Radtke, Timothy F. Lane, Emile E. Voest, M. Luisa Iruela-Arispe. 2012. Notch regulates the egression of angio-supportive bone marrow-derived cells after chemotherapy. *Cancer Research*. 72 (8 Supplement): 1022-1022.
- ^a**Chad L. Barber**, Ali R. Naqvi*, Kirsten A. Turlo, Alfonso Luque and M. Luisa Iruela-Arispe. Developmental Vascular Biology, January 2008. “Genetic Deletion of β 1 Integrin in the Fetal Hematopoietic Lineage Leads to Defects in Erythropoiesis.” *Angiogenesis*.
- ^a**Chad L. Barber** and Edward J. Carroll, Jr. Federation of American Societies for Experimental Biology (FASEB), April 2000. “ Identification of a novel seminal protein in the model *Lepidobatrachus laevis*.”

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^a : denotes competitive, peer-reviewed abstract.

PROFESSIONAL ASSOCIATIONS AND MEMBERSHIPS

- 2021-2022 American Association for the Advancement of Science (AAAS) Member.
- 2016-2020 American Society of Cell Biology: Member.
- 2006-2008 North American Vascular Biology Association: Graduate Student Member.
- 2000-2002 Sigma Xi, Scientific Research Society: Honorary Student Member.

PROFESSIONAL ACTIVITIES

- 2023- Journal Review Editor: *Frontiers in Immunology: Cancer Immunity and Immunotherapy*.
- 2023 Editorial Reviewer: Digital Textbook *Integrative Biology*, Chapter, Pearson.
- 2022 Consultant: *Integrative Biology* Textbook Development. Pearson Publishing.
- 2021-2022 CHESS Faculty Professional Development Program: Culturally-Inclusive & Responsive Curricula for Learning Equity (CIRCLE) Collaborative with Moorpark College.

PROFESSIONAL ACTIVITIES (CONT.)

- 2018 Peer Reviewer: Victor WM Van Hinsbergh, Dimitar Tasev, Laura Dekker-Vroling, Michiel van Wijhe, Henk J Broxterman, Pieter Koolwijk. 2018. Hypoxia Impairs Initial Outgrowth of Endothelial Colony Forming Cells And Reduces Their Proliferative And Sprouting Potential. *Frontiers in Medicine: Translational Medicine*. 5 (356): 1-13.
- 2018 Editorial Reviewer: Digital Textbook Chapter, Pearson.
- 2017 Facilitator: Summer Institute on Scientific Teaching for the Northwest Region
- 2016-present Editorial Reviewer: Introductory Biology Textbook with Sinauer Publishing.
- 2015-2018 Instructor: Pathobiochemistry. Medical School Course, Okayama University Medical School, Okayama Japan. Invited Guest Instructor.
- 2015-2016 Scientific Consultant for ADRx Pharmaceutical.
- 2014 Invited Reviewer: Abstracts for poster presentations at the 2014 SCCUR conference.
- 2013-14 National Academy of Sciences Teaching Fellow.
- 2013-present Editorial Reviewer: Cell and Molecular Biology Textbook with Wiley Publishing.
- 2013-2015 Organizer: Annual Cell Biology Symposium at Cal. Lutheran.

ASSESSMENT ACTIVITIES

- 2023 Assessment Coordinator: Biology Department: Annual Assessment.
- 2023 General Education Committee: Pilot Assessment of General Education Program
- 2023 External Reviewer: Biology Department, Pepperdine University.
- 2021-present Task Force on General Education re-design, Assessment Subcommittee member
- 2021 Institute on General Education and Assessment (IGEA), AAC&U: Workshop Participant.
- 2020 VALUE Assessment Training, AAC&U. Participant.
- 2018-present Program Review and Assessment Coordinator, College of Arts and Sciences.

UNIVERSITY SERVICE AND INVOLVEMENT

- 2021-present Task Force on General Education re-design, member
- 2021-present Task Force on General Education re-design, Assessment Subcommittee member
- 2018-present General Education Committee
- 2018-present Member, Educational Effectiveness Committee
- 2018-2020 Committee on First Year Seminar re-design.
- 2016-2018 Member-elect, Faculty Affairs and Development Committee 2016-2018.
- 2016-2018 Member, University Evidence Team to build Faculty Diversity.
- Fall, 2015 Interim Chair, Educational Policies and Planning Committee.
- 2014-2017 Pre-Med/Pre-Health Program Director.
- 2014-2017 Faculty Advisor to Pre-Med, Pre-Dent, Pre-Pharm, Pre-Vet Student Clubs.
- 2014-2017 Member, OURCS Executive Board, administration of Summer Fellowship Applications.
- 2012-2015 Member, Educational Policies and Planning Committee: Undergraduate Curriculum. (Chair 2014-2015).
- 2012-present California Lutheran University Triathlon Team: Faculty Advisor.
- 2011-2014 *Beta Beta Beta* Biological Honors Society: Faculty Advisor.
- 2010-2014 Committee Member: UCLA Pathology Research Alumni Committee. Outreach and networking of current and past members of Pathology Dept.
- 2004-2006 Graduate Student Representative: UCLA: Molecular, Cellular, and Developmental Biology Department Representative for the Graduate Student Association.

SUPERVISORY ACTIVITIES

- 2011-present Faculty Academic Advisor to over 300 undergraduate biology majors and 15 research students at California Lutheran University to date.
- 2011-2015 Faculty Advisor: Tri-Beta Biological Honor Society

- 2011-present Train and supervise undergraduate students in lab techniques and research, CLU.
- 2008-present Train and supervise research associates and undergraduate researchers in lab techniques and projects in Dorshkind Lab, UCLA.
- 2006-2008 Mentor to undergraduate student in the Directed Research Program in the Arispe Lab at UCLA. Supervised research project and training of techniques.
- 1999-2000 Mentor to student in Minority Access to Research Careers program at CSUN.

GRANTS, HONORS AND AWARDS

- 2015-2018 Recipient, co-PI, \$300,000 grant from the W.M. Keck Foundation: “Acquisition Of Advanced Research Instrumentation For Use In Undergraduate Education And Mentored Research.” to acquire a flow cytometer.
- 2014-2015 Recipient, \$6,000 grant from UCLA Health (2015)/Los Robles Hospital (2014) (for Cell Biology Symposium.
- 2014, 2015 Recipient, Experiential Learning Grant for Biol 482: Cancer Biology
- 2012 Recipient, Faculty Research and Creative Works Award.
- 2012-2014 Recipient, Community Leaders Association Award for Faculty Projects.
- 2011-2014 Recipient, Hewlett Foundation Grant for Faculty Development.
- 2007-2008 Recipient, Dissertation Year Fellowship, UCLA Graduate Division.
- 2005-2007 Recipient, American Heart Association, Pre-Doctoral Fellowship Award.
- 2005 Graduate Student Poster Award. Conference: Molecular, Cellular and Developmental Biology Departmental Conference, 2005.
- 2000 Sigma Xi Graduate Student Division 2000 Research Symposium: 1st place.
- 1999 Recipient, Graduate Student Services Grant-In-Aid of Research from California State University, Northridge.

PRESENTATIONS AND SEMINARS (selected)

- 2016 Faculty Research Seminar: “Integrins and Cancer”. California Lutheran University Faculty Retreat. August 24th. Ventura, California.
- 2016 Invited Seminar: “Immunology in Action”. University Village Experimental

Learning Seminar Series. October 19th. Thousand Oaks, CA.

- 2015 Invited Seminar: “B-1 Lymphocyte Production Decreases with Age”. I.E.E.E. Engineering in Medicine and Biology Society meeting on Feb. 25th at C.L.U.
- 2015 Invited Seminar: “A Reduced Capacity for B-1 Cell Production in Adult Bone Marrow”. 141st meeting of the Extracellular Matrix Society at Okayama University Medical School. February 3rd, 2015.
- 2015 Invited Seminar: “Reduced Capacity for B-1 Cell Production in Adult Bone Marrow of Mice”. Second Annual Research Meeting of the Chugoku/Shikoku Region Medical Students. Okayama University Medical School, Japan. January 24th, 2015.
- 2012 1st Annual Stem Cell Research and Aging: Buck Institute for Aging Research Symposium. Conference discussing breakthroughs in understanding the mechanisms behind aging in stem cells. Poster presentation of original research.
- 2010 Invited Seminar: Pepperdine University’s Natural Science Division. Original Research, “Can you teach an old stem cell new tricks? B-1 Lymphocytes in Aging and Leukemia”. Nov. 2nd, 2010.
- 2008 UCLA Orthopedic Hospital Research Center and Eli and Edith Broad Center for Stem Cell Research Combined Weekly Seminar Series. Seminar presentation of original research. Open meeting for an average of 50-75 faculty and students.
- 2007 UCLA Hematopoiesis Group. Seminar presentation of original research. Focus group of over 100 Faculty, fellows and students meeting monthly.
- 2007 Invited Seminar: Pepperdine University’s Natural Science Division. Original Research, “Adhesion Molecules in Hematopoiesis: Knocking out Integrins in Stem Cells”.
- 2007 UCLA Molecular, Cellular and Developmental Biology Departmental Research Conference. Seminar presentation of original research. Annual research meeting of department faculty, fellows and students.
- 2006 UCLA Vascular Biology Research Group. Seminar presentation of original research. Faculty, Fellows and Students in vascular biology laboratories at UCLA meeting monthly.

WORKSHOPS AND CONFERENCE ATTENDANCE (selected)

Institute on General Education and Assessment (IGEA), AAC&U: Workshop Participant. 2021. Remote.

Creating a 21st-Century General Education: Responding to Seismic Shifts. 2019. AAC&U Conference on General Education and Assessment. San Francisco, CA.

12th Annual UCLA Stem Cell Conference: 2016. Current topics, breakthroughs and challenges in stem cell research. Also attended in 2014, 2012, 2011, 2010, 2008, 2006, 2004.

Transcriptional Mechanisms of Early Lymphocyte Development Symposium. Fall, 2009. Conference on the regulation of lymphocyte development.

Developmental Vascular Biology Workshop, 2008. Current topics in vascular biology and angiogenesis. Presented by the North American Vascular Biology Association.

Vasculata, 2006. Workshop for the study of current topics in vascular biology for graduate students and postdoctoral fellows in the field of vascular biology. Presented by the North American Vascular Biology Association.

Molecular, Cellular and Developmental Biology Departmental Conference, 2003, 2004, 2005, 2007. Departmental conference for faculty, post-doctoral fellows and students.