

Gregory Joel Villareal, Ph.D

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I've collaborated in culturally diverse teams working on multi-disciplinary projects in person and virtual, identified emerging technology and market trends which led to critical business decisions, mentored underrepresented students in science, organized professional development and career transition programs involving biotechnology and entrepreneurship, established and met performance milestones and objectives in accordance with federal, academic and private sector standards. Over the past decade, I developed skills in organizational analysis, strategic planning and fund development. I am a self-starter, critical thinker, highly-networked, proficient communicator, a life-long learner, accountable and reliable.

EDUCATION

University of California Los Angeles (UCLA), Department of Neurobiology

Degree: Doctor of Philosophy (2006)

Thesis Advisor: David L. Glanzman, Ph.D

University of Texas at San Antonio, Division of Life Sciences

Degree: Bachelor of Science (1998)

Advisors: Joe L. Martinez, Jr., Ph.D; Clyde F. Phelix, Ph.D

PRIVATE SECTOR EXPERIENCE

CFPAL Biomedical Consultants (AL Phahelix Biometrics, Inc.) – San Antonio, Tx (Aug 2010 – Aug 2019)

Scientist & Consultant – Involved with business development, research, and strategic partnership identification for company's technology (Transcriptome-to-Metabolome™) for personalized medicine. Technology evaluation, experimentation and validation include biosimulation and live-cell reanimation of microarray gene-expression analysis data. The company focuses on clinical validation and identifying molecular biomarker signatures in cancer (breast) and Alzheimer's disease; predictive neurophysiology modeling; biomarkers in health disparities; and biofuels research.

<http://www.alphahelixbiometric.com>

University of Texas San Antonio – San Antonio, Tx (Jan 2015 – Apr 2015) RISE Program Specialist

Assisted in programmatic research and successful submission for a National Institutes of Health renewal grant for the RISE program. Served as mentor for undergraduate and graduate students for research presentations and career transitions.

<https://www.utsa.edu/mbrs/>

CAV Bali – Bali, Indonesia (Nov 2008- Jul 2010) Vice President

While awaiting Immigration proceedings for my wife we co-founded a retail and export business of hand-made Indonesian crafts. Skills included website development, developing a marketing and sales strategy, and international export process. I trained myself to become fluent in Bahasa Indonesian and honed negotiation skills with individuals ranging from impoverished villagers to high level government officials. <https://sites.google.com/site/cavbalistoresite/CAV-Bali>

Galenea Corporation – Cambridge, Ma (Jan 2007- Aug 2008) Associate Scientist

Identified a new technology for high-throughput electrophysiology which allowed the company to develop a proprietary methodology for measuring in vivo synaptic network signatures allowing for the discovery and testing of pro-cognitive neuromodulators; established company methodology for obtaining synaptosomal samples from mice cortices; mice cerebral dissection; immunocytochemistry; western blotting; contributed to establishing a novel assay for the platform technology MANTRA™ which utilizes high-throughput screening of compounds with viral-mediated fluorescent probes.

NON-PROFIT EXPERIENCE WITH SACNAS

SACNAS (Society for the Advancement of Hispanics/Chicanos and Native Americans in Science) Santa Cruz, Ca (2007 – 2018) past Board Member and volunteer. Served on Board of Directors (2008-2010, 2012-2014) and various committees which allowed me to develop and improve upon skillsets such as oral and written communication, time management, multi-disciplinary reading proficiency, organizational analysis, multi-million dollar budget oversight, emotional intelligence and active listening. www.SACNAS.org

Science Policy Advisor (2009 – 2014): Arranged and participated in a meeting with Policy officials at the Texas Governor (Rick Perry) office. I contributed to the SACNAS Science Policy team's response to the Salzman Report "Steady As She Goes: Three Generations of Students in the Science and Engineering Pipeline". I contacted President Barack Obama regarding his commitment to funding STEM education. (<http://sacnas.org/get-involved/policy/resources/SLI-alum-writes-to-Obama>). These exercises allowed me to gain further understanding on how to influence legislation and redirect further funding for STEM educational programs.

Entrepreneurship Advisor (2011 – 2018) – As chair of the annual "Entrepreneurship Essentials: concept, commercialization, capital" session at the national SACNAS conference I developed and implemented activities geared to inform and network entrepreneurs (students & professionals) with investors, inventors and relevant startup stakeholders. Past speakers included the Kauffman Foundation, Startup Weekend, Technology Transfer Officer, Angel/Incubator mentor, Chief Financial Officer, Inventor-Faculty, Tech Chief Executive Officers, Venture Lab, University Accelerator, Center for Entrepreneurship Director, US Department of Energy. <https://medium.com/@GVPhD/entrepreneurship-essentials-session-at-sacnas-1b98f1537a4d>

Industry Advisor (2007-2013) – As chair I raised funds to support the inaugural Post Doctoral/Graduate student poster reception and regional meetings, sustained relationships with corporate vendors at the conference, promoted inclusion of industry representatives as keynote speakers during the annual conference, and consecutively co-chaired the industry-relevant professional development curriculum at the conferences.

National Chapter Program Committee (2007–2013) – I developed a national fundraising policy, reviewed chapters' annual reports, assigned chapter recognition awards, established the SACNAS regional meeting program and facilitated corporate funding from the private sector, a private foundation and academic institutional partners. I carried out a large scale analysis to identify need-based scholarships for conference attendees and identified growth opportunities for future chapters. We realized over 140% growth in chapters during my service period.

Board of Directors Nomination Committee (2013 – 2014) – I worked with a small team of distinguished scientists to identify the organization's next leaders. We developed and communicated desired board qualities to the public, sourced and screened potential candidates and executed the nomination process within a strict timeline.

National Conference Program Committee (2013 – 2014) – I developed specific career tracks (academia, private sector, government) and curricula for society members (undergraduates, graduate students, post docs, professionals) at the conference. Curriculum was developed to enhance customer experience and improve retention of attendees. This curriculum was complimented by development of multi-disciplinary scientific symposia.

Local Organizing Committee (2013, 2018) San Antonio – As co-chair I helped organize and lead strategic partnership efforts with industry and academic institutions that raised over half a million dollars towards conference programming. I helped secure Julian Castro (Former San Antonio Mayor, US HUD Secretary and Presidential candidate) and UC President Janet Napolitano as 2013 and 2014 keynote speakers, respectively.

ACADEMIC EXPERIENCE

University of California Los Angeles (1999-2006) Department of Neurobiology Graduate Student – Electrophysiology recordings of glutamatergic ion channels in primary neuronal cell culture using sharp-electrode current clamp methods; pharmacology; measuring signaling cascades of serotonergic G-protein coupled activation; rapid live cell calcium imaging; statistical analysis. I identified and tested new research equipment for my laboratory. Personnel management duties included oversight and research training of two UCLA undergraduates – one whom ultimately received his PhD from Emory University, the other, her MD/PhD from University of California San Francisco. UCLA teaching assistant – Molecular Biology with Dr. Paul O'Lague (2003 – 2004). Laboratory of Dr. David L. Glanzman

Marine Biological Laboratory (MBL) Woods Hole, Ma (summers 1999-2004) Neural Systems & Behavior Teaching Assistant - Constructed multiple electrophysiology stations for in vivo and in vitro recordings, designing and management of course experiments relevant to course teaching curriculum; training graduate students, post-docs, faculty in electrophysiological recording and imaging techniques. I was tasked to improved course design for future iterations of the instructional, hands-on modules.
<https://www.mbl.edu/education/courses/neural-systems-behavior/>

University of Texas at San Antonio (1995-1998) Undergraduate Research - Polymerized Chain Reaction (PCR), western blotting, library plating and titering, lambda DNA isolation, restriction endonuclease

mapping, insert excisions; catheterizing rat femoral arteries to monitor alcohol effects on blood pressure; intraperitoneal drug injections; rat animal care. Laboratory of Dr. Clyde F. Phelix

Stanford University, Palo Alto, Ca (1997) Undergraduate Intern Summer Program
Undergraduate Summer Research - Used genomic analysis and immunocytochemistry to study neurodevelopment in the *Drosophila melanogaster* nervous system. Laboratory of Dr. Liqun Luo

National Institute on Drug Abuse, National Institutes of Health (NIH) Baltimore, Md (1996)
Undergraduate Intern Summer Program - spectrophotometry, PCR-RFLP phenotyping of drug abusers in the Baltimore, MD area. Laboratory of Dr. Lawrence A. Rodriguez

AWARDS

Distinguished Award – SACNAS Board Member (2014)
SACNAS Leadership Institute (2012), Washington D.C.
BIO conference award (Boston, Ma), sponsored by Genentech (2007)
BIO conference award (Chicago, Ill), sponsored by Amgen (2006)
Federation of European Neuroscience Society award, Vienna, Austria (2006)
F31 National Institutes of Health Pre-Doctoral National Research Service Award (2003-2005)
Summer Program in Neuroscience, Ethics & Survival (SPINES) program at the MBL (2005)
Society for Neuroscience/SACNAS Scholars Award (2001-2003)
UCLA Eugene Cota-Robles Graduate Fellowship (1999-2001, 2005)
Minority Access to Research Careers (MARC) fellowship (1998)
Louis Stokes Alliance for Minority Participation Award at UTSA (1997)
Eli Lilly Company/SACNAS Outstanding Undergraduate Research Award (1996)

CAREER ADVANCEMENT WORKSHOPS and SPEAKING EVENTS

“Alternative Careers: Academia?” – UT Health Science Center San Antonio (Jan 2015)
“STEM Career Day”, speaker – St. Phillip’s College Southwest Campus San Antonio (2014)
“Career challenges and solutions”, speaker - UCLA-SACNAS conference VIP reception (2014)
“Careers in Industry”, chair - SACNAS conferences (2007-2013)
“Entrepreneurship Essentials”, chair – SACNAS conferences (2011 - 2018)
“Business Pitching”, speaker – School of Business and Management Institut Teknologi Bandung, Indonesia (2012)
“Post Doc/Graduate Student Poster and Networking Reception”, co-founder – SACNAS
“Networking for Success”, speaker – NSF sponsored Program for Excellence and Equity in Research Program at the University of Tennessee, Knoxville (2012)
“Careers in Biotechnology”, speaker - GxP Regulation course – UTSA (2011)
“Diversifying the portrayal of Hispanic and Native American Scientists in Film and Television”, – SACNAS Conference (2010)
Scientific Jury Delegate representing the United States at the International Conference for Young Scientists in Bali, Indonesia (Spring 2010)
“How to survive in Graduate School”, speaker – SACNAS conference 2008

ADVISORY AND COMMUNITY WORK

3-day startup - Biotechnology at Geekdom, San Antonio, Tx. (2014)

SACNAS Board of Directors (2008-2010, 2012-2014)
San Antonio STEM Council, member (2012 – 2015)
San Antonio Hispanic Chamber of Commerce, Education Committee member (2012 - 2015)
Scientist Mentoring & Diversity Program for Biotechnology (2007 – 2008)
Consultant and scientific collaborator for California NanoSystems Institute (2005-2006)
Brain Awareness Week speaker to Overland Elementary Culver City, Ca (2001 - 2006)
KCRW 89.9FM (KCRW.com) Production volunteer Santa Monica, Ca (2001-2006)
HUM Music – music supervision intern Santa Monica, Ca (2004)
UCLA Center for Academic Research and Excellence mentor – summer program (2001)
Co-founder Minority Graduate Recruitment Committee Dept. of Neurobiology at UCLA (1999)

RELEVANT INSTRUCTIONAL WORK

Frontiers in Biotechnology – UCLA Anderson School of Management (audits 2004, 2006)
Business of Science course in the Dept. of Pharmacology at UCLA (Fall 2005)
Healthcare Business Association – UCLA Anderson School of Management (2005-2006)

PEER REVIEWED JOURNAL ARTICLES and INVITED PAPERS

Yoo TJ (2022) Anti-Anti-Inflammatory Gene Therapy Improves Spatial Memory Performance in a Mouse Model of Alzheimer's Disease. *Journal of Alzheimer's Disease* (GJV wrote and edited the manuscript from a provisional patent for TJY)

Bourdon AK, Villareal G, Perry G, Phelix, CF (2017)
Alzheimer's and Parkinson's Disease Novel Therapeutic Target: The Mitochondrial Pyruvate Carrier - Ligand Docking to Screen Natural Compounds Related to Classic Inhibitors. *International Journal of Knowledge Discovery in Bioinformatics* Volume 7, Issue 2

Phelix CF, Bourdon AK, Dugan J, Villareal G, Perry G (2017)
MSDC-0160 and MSDC-0602 Binding with Human Mitochondrial Pyruvate Carrier (MPC) 1 and 2 Heterodimer: PPAR γ Activating and Sparing TZDs as Therapeutics. *International Journal of Knowledge Discovery in Bioinformatics* Volume 7, Issue 2

Phelix CF, Villareal G, Lee AY, Perry G. (2016) *Texas FreshAIR Neuroscience*.

Phelix CF, Bourdon AK, Villareal G, Lebaron RG (2016) Modeling non-clinical and clinical drug tests in Gaucher disease. Conference proceedings: Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference 2016:1434-1438.

Phelix CF, Villareal G, Perry G. (2016) CX3CR1 and DAPI2-TREMI&2 signaling in MS-vs-AD: biosimulations of proteomics differences and effects of a novel orally active CX3CR1 blocker (AZD8797). *Texas Academy of Science Annual Meeting*

Hammack CD, Perry G, Lebaron RG, Villareal G, Phelix CF (2015) Low Dose Pioglitazone Attenuates Oxidative Damage in Early Alzheimer's Disease by Binding mitoNEET:: Transcriptome-To-

Reactome™ Biosimulation of Neurons (2015). International Journal of Knowledge Discovery in Bioinformatics, Volume 5, Issue 1, 24-46

Phelix CF, Villareal G, LeBaron RG, Perry G, Roberson (2014) Precision Medicine Using Individualized Biosimulations of Drug Dosing: Alzheimer's Disease. Proceedings of the IEEE EMBS Special Topic Conference on Healthcare Innovation & Point-of-Care Technologies. PP.292-295

Phelix CF, Villareal G, LeBaron RG, Perry G, Roberson (2014) Racial and Ethnic Differences in Response to Drugs: Transcriptome-To-Metabolome™ biosimulation of pioglitazone effects in subcutaneous adipose tissue in silico. International Symposium on Minority Health and Health Disparities. Pg.6.

Phelix CF, Villareal G, LeBaron RG, Roberson DJ (2014) Biomarkers from Biosimulations: Transcriptome-To-Reactome™ Technology for Individualized Medicine. Proceedings of the 36th Annual International IEEE EMBS Conference.

Phelix CF, Villareal G, LeBaron RG, Roberson DJ (2013) Molecular Neural Model Recreates Electrophysiology: Transcriptome-To-Physiome™ NeurobioSimulations Using COPASI® Software. 6th International IEEE EMBS Conference on Neural Engineering. San Diego, CA

Phelix C, LeBaron R, Roberson D, Villareal G, Perry G. (2013) Flux and metabolite pathway mapping in the aging and Alzheimer's Disease hippocampus. *Alzheimers Dementia* 9 (Suppl):P346-P347.

Phelix CF, Villareal G, LeBaron RG, Roberson DJ (2012) Biomarkers from Biosimulations: Transcriptome-To-Metabolome™ Technology for Individualized Medicine. IEEE Transactions on Biomedical Engineering.

Phelix CF, Watson B, LeBaron RG, Villareal G, Roberson D. (2012) Transcriptome to Reactome Deterministic Modeling: Validation of in silico simulations of transforming growth factor- β 1 signaling in MG63 osteosarcoma cells TTRTM Deterministic Modeling. Proceedings of the 2nd International Congress on Computer Applications and Computational Science Volume 2. Advances in Intelligent and Soft Computing. (Vol 145/2012), 451-457

Phelix C, Villareal G, Perez-Cordova M, Hernandez S, Perry G, Colom L. (2012) Reanimating basal forebrain cholinergic neurons in electrophysiology biosimulations using COPASI software. *Alzheimers Dementia* 8 (Suppl):P593-P594.

Phelix CF, LeBaron RG, Roberson DL, Villanueva RE, Villareal GJ, Rahimi OB, Siedlak S, Zhu X., Perry G (2011). Transcriptome-To-Metabolome™ Biosimulation Reveals Human Hippocampal Hypometabolism with Age and Alzheimer's Disease. International Journal of Knowledge Discovery in Bioinformatics. Vol. 2, Issue 2.

Phelix CF, LeBaron RG, Roberson DJ, Villanueva RE, Villareal G, Rahimi OB, Siedlak S, Zhu X, Perry G. (2011) *In vivo* and *in silico* evidence: hippocampal cholesterol metabolism decreases with aging and

increases with Alzheimers disease: Modeling brain aging and disease. 2011 11th IEEE International Conference on Data Mining Workshops, pp 1064-1070. Vancouver, Canada

Choi DS, Fung AO, Moon H, Villareal G, Chen Y, Ho D, Presser N, Stupian G, Leung M. (2009) Detection of neural signals with vertically grown single platinum nanowire-nanobud. *Journal of Nanoscience Nanotechnology*. Nov;9(11):6483-6.

Villareal G, Li Q, Cai D, Fink AE, Lim T, Bougie JK, Sossin WS, Glanzman DL. (2009) Role of Protein Kinase C in the induction and maintenance of serotonin-dependent enhancement of the glutamate response in isolated siphon motor neurons of *Aplysia californica*. *Journal of Neuroscience*. Apr 22;29(16):5100-7.

Villareal G, Li Q, Cai D, Glanzman DL. (2007) The role of rapid, local, postsynaptic protein synthesis in learning-related synaptic facilitation in *Aplysia*. *Current Biology*. Dec 4;17(23):2073-80.

Vandenbergh DJ, Rodriguez LA, Hivert E, Schiller JH, Villareal G, Pugh EW, Lachman H, Uhl GR. (2000) Long forms of the dopamine receptor (DRD4) gene VNTR are more prevalent in substance abusers: no interaction with functional alleles of the catechol-o-methyltransferase (COMT) gene. *American Journal of Medical Genetics*. Oct 9;96(5):678-83.

Meilandt, W.J., Peña de Ortiz, S., Derrick, B.E., Villareal, G.J., and Martinez, Jr., J.L. (1998) Genomic identification of LAG, encoding for a FLP-like site-specific recombinase in rat associated with spatial learning. *Society for Neuroscience Abstracts*, 24, 327.

MEDIA PUBLICATIONS

Villareal G, Lopez A, Carranza DL (2016) "Entrepreneurship Essentials: The Academic Entrepreneur" <https://medium.com/stem-and-culture-chronicle/the-academic-entrepreneur-4a07826e4b74>

Villareal G (2013), "STEM investment can help San Antonio" Oct. 18. Express News – opinion <http://www.mysanantonio.com/opinion/commentary/article/STEM-investment-can-help-San-Antonio-4907842.php>

Villareal G and Vidal-Pizzaro I (2010) From the Pillars to the Private Sector: Personal insights for a successful transition from academia to industrial science. *SACNAS News*. Vol 12 (2).

REFERENCES

Available upon request