Bios of Speakers and Moderators for the 2023 FaceBase Community Forum

Speakers

Harrison Brand, PhD (Harvard)

Dr. Harrison Brand is an Assistant Professor in the Departments of Neurology and Surgery at Massachusetts General Hospital (MGH) and Harvard Medical School. Research in his lab focuses on the analysis of genomic datasets to help better understand the mechanism behind craniofacial birth defects and other developmental disorders. Specifically, we apply novel computational approaches utilizing cloud computing to discover new genetic loci associated with these complex diseases. We have a particular expertise in the development of novel methods for the detection and analysis of structural variation (SV) from whole genome sequencing data. Recently, we have begun to explore the potential diagnostic utility of WGS and other novel sequencing-based techniques in prenatal and pediatric settings.

Alejandro Bugacov, PhD (USC)

Alejandro Bugacov is a Computer Scientist at the USC Information Sciences Institute (ISI) where he works as the Data Scientist for the NIDCR funded FaceBase Project in the ISI Informatics Systems Research Division.

Bugacov joined ISI in 1999. He obtained his PhD in Physics from USC and his Licenciatura en Fisica from the Universidad Nacional de Rosario in Argentina.

Yang Chai, DDS, PhD (USC)

Dr. Yang Chai is the University Professor and the George and MaryLou Boone Chair in Craniofacial Biology at the University of Southern California. He serves as the Director of the Center for Craniofacial Molecular Biology (CCMB) and Associate Dean of Research at the Herman Ostrow School of Dentistry of USC. Dr. Chai earned a DMD degree from Peking University School of Stomatology as well as DDS and PhD in Craniofacial Biology from the University of Southern California. He is most noted for his research on craniofacial development and birth defects, which has transformed the field and led to the successful rescue of cleft palate in mouse embryos. He also studies stem cells and is currently using innovative 3D-printed scaffolds seeded with stem cells to regenerate tissue for patients who have lost bone due to trauma, congenital defects, or disease.

Dr. Chai is a member of the National Academy of Medicine. He is an elected member of the American Academy of Arts and Sciences (AAAS). Dr. Chai has authored more than 170 scientific papers and numerous book chapters, and recently edited a book - Craniofacial Development. Dr. Chai has been continuously funded by the National Institutes of Health for more than 25 years. His work has earned him multiple awards including the 2011 IADR (International Association of Dental Research) Distinguished Scientist Award.

Alicia Chou, M.S. (NIH/NIDCR)

Ms. Chou is a Health Specialist at the National Institute of Dental and Craniofacial Research (NIDCR), Division of Extramural Research, Translational Genomics Research Branch. Ms. Chou also serves as the Co-Chair of the NIDCR/FaceBase Data Access Committee. Prior to joining NIDCR, Alicia served as a Project Manager supporting the Critical Path to Tuberculosis Drug Regimens (CPTR) Initiative at the Critical Path Institute (C-Path) and the Reagan-Udall Foundation (RUF) for the FDA. In this role, she provided project management oversight for several CPTR projects, including operational support for Relational Sequencing TB Data Platform (ReSeqTB) data contributions and regulatory engagement with the U.S. Food and Drug Administration on the ReSeqTB platform and the CPTR Lipoarabinomannan (LAM) biomarker project. Her previous work has been strongly centered in development of guidelines and strategies to increase patient, community, and stakeholder engagement in research, including serving as the lead of the CPTR Stakeholder and Community Engagement Workgroup and co-lead of proposal development for RUF's Big Data for Patients program. Before moving into project management, Alicia served as a research technician in the Laboratory of Mycobacterial Diseases and Cellular Immunity at FDA's Center for Biologics Evaluation and Research, where her work focused on immunological mechanisms of the disease tularemia cause by the bacterium

Francisella tularensis. Alicia holds a B.A. in biochemistry and molecular biology from Clark University and a M.S. in biohazardous threat agents and emerging infectious diseases from Georgetown University.

Gage Crump, PhD (USC)

Dr. Gage Crump has made a career of using genetics and in vivo imaging to understand how complex organs are assembled. As a postdoc, he developed single-cell lineage techniques and in vivo time-lapse microscopy in zebrafish to make the first fate map of the vertebrate facial skeleton. As a founding member of the Broad Stem Cell Center at USC, his group studies the development, maintenance, and regeneration of the adult craniofacial skeleton. His lab has established a number of models of human birth defects in zebrafish, including for craniosynostosis, craniofacial dysmorphologies, arthritis, and black bone disease, and is using these to understand the developmental bases of craniofacial disease. Their unique efforts in validating zebrafish discoveries in mammalian models show their commitment to one day translating foundational research findings in zebrafish into new therapies for patients.

Rena D'Souza, DDS, PhD (NIH/NIDCR Director)

Dr. Rena N. D'Souza is the director of the National Institute of Dental and Craniofacial Research. She oversees NIDCR's annual budget of more than $475 million, which supports basic, translational, and clinical research in areas of oral cancer, orofacial pain, tooth decay, periodontal disease, salivary gland dysfunction, craniofacial development and disorders and the oral complications of systemic diseases.

A licensed dentist, Dr. D'Souza is recognized for her research in craniofacial development, genetics, tooth development, and regenerative dental medicine. Prior to joining NIH, Dr. D'Souza was the assistant vice president for academic affairs and education for health sciences at the University of Utah, Salt Lake City. There she also served as a professor of dentistry, the Ole and Marty Jensen chair of the School of Dentistry and professor of neurobiology and anatomy, pathology and surgery in the School of Medicine and the department of biomedical engineering. In 2012, Dr. D'Souza was selected to be the inaugural dean of the University of Utah's School of Dentistry. She is a devoted mentor and champion of diversity in the biomedical research workforce. Since 1985, she has served as a volunteer dentist for women in need and people struggling with homelessness in Salt Lake City, Dallas and Houston.

D'Souza received her bachelor's degree in dental surgery from the University of Bombay, India, after which she completed her general practice residency. She earned her D.D.S, Ph.D., and master's degree in pathology/biomedical sciences from the University of Texas Health Science Center in Houston.

Olivier Duverger, PhD (NIH NIDCR)

Dr. Duverger obtained his Ph.D. in Molecular and Cellular Developmental Biology from the University Pierre et Marie Curie (Paris, France). His graduate research focused on the function of stress proteins in skin and hair development. After his Ph.D., Dr. Duverger worked for two years as a project manager in the Research and Development department of the LVMH Group (Perfumes and Cosmetics). He then joined the National Institute of Arthritis and Musculoskeletal & Skin Diseases (NIAMS) as a visiting fellow to study the molecular and cellular mechanisms underlying hair and tooth anomalies in a form ectodermal dysplasia. He was later recruited as a Staff Scientist at NIAMS. In 2017, his research leaning more and more towards tooth development and pathologies of the dentition, he joined the National Institute of Dental and Craniofacial Research (NIDCR). Dr Duverger's work at the NIDCR has been to study dental anomalies in rare diseases, building his basic science projects in close connection with clinical conditions seen at the NIDCR Dental Clinic. His broad interest is to unravel the mechanistic link between dental anomalies and other clinical manifestations featured in syndromes.

Carl Kesselman, PhD (USC)

Dr. Kesselman leads ISI's Informatics Systems Research division. Created to understand how to build informatics systems that can help tackle the hardest problems of great societal impact, the work of the division spans grid computing, information security, service-oriented architectures, and sociotechnical systems and reproducibility.

Kesselman is an ISI Fellow, the Institute's highest honor. One of the fathers of grid computing and the GLOBUS open-source toolbox, now the de facto grid computing standard, he has received numerous honors for his pioneering research including the Lovelace Medal from the British Computer Society and the Goode Memorial Award from the IEEE Computer Society. He is a Fellow of the British Computer Society and the Association for Computing Machinery.

Kesselman joined ISI in 1997 as a USC Computer Science Department research associate professor. Kesselman received his PhD in Computer Science from the University of California at

Los Angeles, an MS in Electrical Engineering from the University of Southern California and a BS in Electrical Engineering from the State University of New York at Buffalo.

Hong Li, PhD (University of Colorado)

Dr. Hong Li, a research assistant professor at the University of Colorado Anschutz Medical Campus, specializes in utilizing mouse models and multi-omics datasets to dissect the underlying genetic program that drives normal facial development, to extend these findings to mouse models of orofacial clefting, and to use humanized mouse models of orofacial clefting to derive effective therapeutic strategies to treat this common condition in utero.

After studying molecular biology at Hunan Normal University, she moved to the US for postdoctoral training under Dr. Trevor Williams. Her interest in early mammalian facial development led her to a key role in the NIDCR FaceBase 2 spoke project "RNA Dynamics in the Developing Mouse Face", starting in 2014. During this time, Dr. Li was fascinated by the power of big data in answering biological questions and undertook additional training in bioinformatics and data science. Leveraging this knowledge, Dr Li. profiled the alternative splicing programs operating during facial development and identified unique cell populations, gene expression profiles, and potential signal pathways associated with facial fusion. In 2021, Dr. Li obtained an NIDCR K01 award focusing on constructing genome wide transcriptional regulatory networks controlling face formation using the multi-omics datasets on FaceBase. Dr. Li has also had a long-standing interest in understanding and treating craniofacial clefting pathology. She studied how mutations in TFAP2A cause human Branchio-Oculo-Facial Syndrome (BOFS) – a condition associated with several facial malformations, especially cleft lip and palate.

Subsequently, Dr. Li generated a humanized mouse model by knocking in a BOFS mutation into the endogenous locus that can be activated using Cre recombinase and found that when expressed it recapitulates the orofacial clefting phenotypes seen in human. Currently, Dr Li is developing therapeutic strategies for orofacial clefting in this humanized mouse model using leading-edge technology and her expertise in data science.

Mary L. Marazita, PhD, FACMG (University of Pittsburgh)

Dr. Marazita received her Ph.D. in Genetics from the University of North Carolina, Chapel Hill in 1980. After a post-doc at the University of Southern California, she held faculty positions at UCLA then the Medical College of Virginia (Virginia Commonwealth University). She joined the University of Pittsburgh in 1993. Currently she is a Distinguished Professor and Vice Chair of the Department of Oral and Craniofacial Sciences, University of Pittsburgh School of Dental Medicine, with secondary appointments in Human Genetics (School of Public Health) and in Clinical and Translational Sciences (School of Medicine). She is the Founder and Co-Director of the Pitt Center for Craniofacial and Dental Genetics (a University Center of Excellence) and is a Founding Fellow of the American College of Medical Genetics.

Dr. Marazita's research program applies the techniques of genomics, statistical genetics and genetic epidemiology to multiple complex human traits including craniofacial birth defects, oral health traits, normal facial development, behavioral traits, premature birth, and others. She has had many years of experience in research with more than 480 publications to date, and continuous NIH funding as a PD/PI (primarily in craniofacial and dental genetics) since 1985.

The overriding themes of her research program to date include: emphasis on dental/oral/craniofacial primary phenotypes, emphasis on disparities in oral health and disease, emphasis on children's health conditions (e.g. dental caries and birth defects) in the context of their families, and emphasis on deep phenotyping to better understand our genetic findings. Dr. Marazita's major research contributions include ground-breaking studies of genetics/genomics and phenotypes in nonsyndromic orofacial cleft (OFC) families from many ethnicities; pioneering genetic studies of oral and dental diseases; and multidisciplinary studies of oral health disparities incorporating the metagenome, host genome, behaviors, and environment. Her studies have led to collaborations with colleagues across the USA, and in more than 15 other countries, representing all continents except Antarctica.

Noffisat Oki, PhD (NIH/NIDCR)

Dr. Oki is the Program Director for the Data Science, Computational Biology, and Bioinformatics Program at the National Institute of Dental and Craniofacial Research (NIDCR), Division of Extramural Research, Translational Genomics Research Branch. Dr. Oki also serves as the Project Scientist for the FaceBase Program. Prior to joining NIDCR, Dr. Oki was at the Center for Scientific Review (CSR) of NIH, where she served as a Scientific Review Officer managing application reviews in the area of biomodelling and data analysis. Prior to moving to CSR, she was an American Association for the Advancement of Science (AAAS), Science and Technology Policy Fellow, in the Office of Data Science and Emerging Technologies at the National Institutes of Allergy and infectious Diseases (NIAID). There she contributed to establishing data science policy and the office's initial data science portfolio. Before joining NIH, she held several industry positions, including working as a bioinformatics scientist in research and product development, product marketing, community building, and publishing primarily in the computational toxicology field. Dr. Oki earned her PhD in bioinformatics from North Carolina State University where she worked on developing computational methods for detecting genetic susceptibility to disease. As a post-doctoral fellow at the National Health and Environmental Effects Research Lab of the Environmental Protection Agency (EPA), NC, her research focused on computational approaches to predicting adverse outcome pathways of relevance to human and environmental health outcomes.

Abimbola Oladayo, BDS, MPH, MS (University of Iowa)

Dr. Abimbola Oladayo is a Board Certified public health dentist with over four years of experience in clinical and public health dentistry in Nigeria and the United States. Dr. Oladayo's career began with an outstanding education at the College of Dentistry, the University of Ibadan, where she received her dental degree (Bachelor of Dental Surgery - B.D.S). Subsequently, she furthered her education with a Master's in Public Health degree at the University of Southern Mississippi, U.S.A, due to her passion for improving the public's health by applying evidence-based interventions to develop practical solutions for disease management and health promotion. She completed her advanced graduate training in Dental Public Health (DPH) at the College of Dentistry, University of Iowa, with a

research interest focused on improving oral health outcomes in vulnerable populations using Machine learning algorithms.

As an early career dentist passionate about contributing to the improvement of craniofacial genetics locally and globally, she is currently an NIH T90 Post-Doctoral Trainee at the Iowa Institute for Oral Health Research, where she leads the Ethics Legal and Social Implication (ELSI) of genomics research in the African population project at the Butali Lab.

In addition to her experience as a Dentist and a Public Health professional, she is passionate about engaging in cutting-edge research to discover new perspectives helpful in expanding the horizon of genetic research in the African population, the results of which improve the study of African health problems and allow for innovative solutions to be developed.

Jay Patel, BDS, MS, PhD (Temple University)

Dr. Jay Patel is an Assistant Professor of Health Informatics and Dentistry at the Temple University College of Public Health and School of Dentistry. Dr. Patel is a dentist, informaticist, and clinical scientist, and he holds a Master's and PhD in Informatics. Dr. Patel's research endeavors revolve around the strategic utilization of vast electronic health record data (EHR) and the application of advanced artificial intelligence (AI) methods to improve patient care and outcomes. His primary focus is developing prediction models that accurately assess the risk of initiation and progression of dental diseases. By identifying high-risk patients, Dr. Patel aims to enhance preventive measures and promote proactive dental healthcare practices. In addition to his expertise in EHR analysis, Dr. Patel also has expertise in phenotyping dental diagnoses through state-of-the-art informatics methods such as natural language processing and machine learning models through EHR data. This proficiency enables him to extract invaluable insights from EHR data, facilitating precise characterization of various dental conditions. Dr. Patel has also developed numerous clinical decision support and learning health systems. These cutting-edge tools are designed to foster data-driven practices, empowering healthcare professionals to make informed decisions and significantly elevate the quality of patient care. Dr. Patel's visionary approach has proven instrumental in bridging the gap between medical and dental care, improving health information exchange between providers, and facilitating the utilization of harmonized datasets for clinical research, patient care and quality improvement.

Laura Pearlman, Computer Scientist (USC)

Laura Pearlman is a Computer Scientist at USC's Information Sciences Institute and a member of the FaceBase Hub, the craniofacial research data hub for NIH/NIDCR and the Analysis, Technology, Leadership, Administration, and Science - Data to Knowledge (ATLAS-D2K) Center, a research hub devoted to mouse and human data for the kidney and lower urinary tract for NIH/NIDDK. She has worked with a number of large-scale grid computing projects, including the Biomedical Informatics Research Network (NIH/NCRR) and NEESgrid, the system integration component of the Network for Earthquake Engineering Simulation (NSF). She received her BS in Mathematics from MIT.

Crystal Rogers, PhD (UC Davis)

Dr. Crystal Rogers obtained a B.S. in Organismal Biology, Ecology, and Evolution from UCLA and her PhD in Developmental Biology from Georgetown University under the mentorship of Dr. Elena Silva Casey. In 2015, she moved to a postdoctoral position at the California Institute of Technology in the Division of Biology and Biological Engineering in the lab of Dr. Marianne Bronner. After her postdoc, she became an Assistant Professor at California State University Northridge (CSUN) in the Biology Department where she created a thriving undergraduate research program in developmental biology. In 2019, Dr. Rogers moved to the UC Davis School of Veterinary Medicine and is now an Associate Professor in the Department of Anatomy, Physiology, and Cell Biology. Her lab studies the molecular mechanisms that drive neural crest cell development in chicken (Gallus gallus), quail (Coturnix japonica), peafowl (Pavo cristatus) and axolotl (Ambystoma mexicanum) embryos. The lab focuses on identifying and characterizing conserved and divergent genes and proteins involved in the specification, migration, and differentiation of neural crest cells across species.

Robert Schuler, PhD (USC)

Dr. Schuler is a Senior Computer Scientist, Research Lead at the USC Information Sciences Institute (ISI). Currently, he is the technical lead for the FaceBase Data Hub (www.facebase.org), the craniofacial research data hub for the NIH/NIDCR. Prior to FaceBase, he was a member of the leadership team of the Biomedical Informatics Research Network (NIH/NCRR) and led the development and deployment of large-scale research data Grids including a multi-site collaborative functional neuroimaging grid and a veterinary pathology network for the national primate research centers.

Prior to BIRN, he was a senior developer of the open source Globus project (NSF, DOE), developing Grid computing technology used widely throughout the "Big Sciences" of high energy physics, earth and climate research, serving the likes of Laser Interferometer Gravitational-Wave Observatory (LIGO). During that time, he was also a member of the architecture team for the Earth System Grid (DOE); the data hub that supported the Intergovernmental Panel on Climate Change (IPCC). He earned the B.S., M.S., and Ph.D. in Computer Science from the University of Southern California.

Ross Whitaker, PhD (University of Utah)

Ross Whitaker earned a B.S. degree in Electrical Engineering and Computer Science from Princeton University in 1986, and a PhD in Computer Science from the University of North Carolina in 1994. Since 2000 he has been at the University of Utah, where he is a Professor in the School of Computing and the Scientific Computing and Imaging Institute. He is a recipient of the NSF Career Award and an IEEE and AIMBE Fellow. He teaches discrete math, scientific visualization, probability and statistics, and image processing. He leads a research group in image analysis, geometry processing, and scientific computing, with a variety of projects supported by both federal agencies and industrial contracts. His published works have received over 17,000 citations.

Jin Xiao, DDS, PhD (Univ of Rochester)

Dr. Jin Xiao is an Associate Professor and Founding Director for Perinatal Oral Health at the University of Rochester Medical Center Eastman Institute for Oral Health. She leads the innovative Eastman Dental Specialty Care Pregnancy and Infant oral health program that provides oral health care services to pregnant women and their young children. Dr. Xiao obtained her DDS degree and completed her endodontic specialty training at the West China College of Stomatology, Sichuan University. She then pursued a joint PhD program in oral microbiology at the West China College of Stomatology and the University of Rochester's Eastman Institute for Oral Health. Additionally, she completed an Advanced Education in General Dentistry residency at the Eastman Institute for Oral Health and a General Practice residency at the Strong Memorial Hospital, University of Rochester Medical Center.

Dr. Xiao's research is primarily focused on perinatal oral health translational research. She has expertise in oral microbiology and microbiome studies, multi-species biofilm functional architecture, yeast-bacteria cross-kingdom interactions, as well as mHealth/mDentistry research. As the principal investigator for NIH-funded clinical and translational studies, she leads projects such as the Oral Microbiome in Early Infancy (OMEI), which aims to understand the role of oral Candida in the onset of early childhood caries and the maternal transmission of cariogenic oral microorganisms; AICaries project that utilizes an artificial intelligence-powered smartphone app and community engagement strategy to promote at-home early childhood caries detection among underserved and minoritized infants.

Moderators

Jifan Feng, PhD (USC)

Dr. Feng is a Research Associate at the Center for Craniofacial Molecular Biology, Herman Ostrow School of Dentistry, University of Southern California. Her research focuses on investigating the molecular mechanisms that regulate craniofacial mesenchyme development and mesenchymal stem cell biology using mouse models.

Dr. Feng obtained her Bachelor of Medicine degree in Dentistry from Nanchang University, where she developed a strong interest in craniofacial biology research. She subsequently completed her Ph.D. in Cell Biology at the Centre for Craniofacial & Regenerative Biology, King's College London, under the supervision of Prof. Paul Sharpe. During her doctoral studies, Dr. Feng conducted in-depth investigations into the perivascular identity of mesenchymal stem cells and explored the epigenetic regulation of the mesenchymal stem cell niche, employing the mouse incisor as a model. After completing her Ph.D., Dr. Feng joined Prof. Yang Chai's lab as a postdoctoral researcher at the Center for Craniofacial Molecular Biology, University of Southern California. Since then, she has been investigating the molecular mechanisms that govern tooth root development and palate development, employing a combination of mouse genetic studies and cutting-edge next-generation sequencing techniques. Dr. Feng also continues to actively contribute to projects exploring the biology of mesenchymal stem cells in the incisor, suture, and other craniofacial structures.

Joseph G. Hacia, PhD (USC)

Joe Hacia is a medical geneticist in the Department of Biochemistry and Molecular Medicine at the Keck School of Medicine of the University of Southern California. The Hacia laboratory focuses on developing therapies for genetic disorders caused by impaired peroxisome assembly, structure, and function. His group focuses on peroxisome biogenesis disorders (PBDs), which include Zellweger spectrum disorder (ZSD) and rhizomelic chondrodysplasia punctata (RCDP), and adult Refsum disease (ARD). Peroxisomal disorders can affect the functions of numerous organ systems and depending on the subtype can frequently result in progressive vision and hearing loss, impaired neurological and liver functions, and skeletal and enamel defects.

The Hacia laboratory is involved in screening small molecule libraries for candidate therapies for peroxisomal disorders as well as gene augmentation and gene editing projects in mouse models of disease. By working closely with physician-scientists and patient advocacy groups including the Global Foundation for Peroxisomal Disorders (GFPD) (https://www.thegfpd.org/), RhizoKids International (https://www.rhizokids.com/), United Leukodystrophy Foundation (https:/ulf.org), and Global DARE Foundation (https://www.defeatadultrefsumeverywhere.org/) they seek to translate their research into improved treatments in the near future.

The Hacia laboratory has also used comparative genomic and lipidomic approaches to uncover evidence that peroxisomal metabolic activities has been strongly influenced by diet in primate lineages. They wish to use the knowledge gained from these projects to benefit the health of captive non-human primates and people affected by peroxisomal disorders.

Jimmy Hu, PhD (UCLA)

Jimmy joined the UCLA School of Dentistry as an Assistant Professor in 2019, and his research focuses on craniofacial morphogenesis and regeneration. He received his B.Sc. in Biomedical Sciences from University of Auckland, New Zealand and completed his Ph.D. degree in Genetics in Dr. Cliff Tabin's laboratory at Harvard University, where he studied vertebrate limb development. He then carried out his postdoctoral training in Dr. Ophir Klein's laboratory at UCSF, where he used the mouse dentition as a model system to study the genetic and signaling regulation of tooth development and regeneration. He continues to investigate these areas in his own lab.

Stacy Nguyen, PhD Candidate (Boston College)

Stacy is currently a PhD candidate in Dr. Sarah McMenamin's lab at Boston College, where her research focuses on using microCT technology to study the role of thyroid hormone on zebrafish craniofacial development. She received her B.Sc. in Biology at California State University, Dominguez Hills, where she got her start in research in Dr. Fang Wang's lab, studying zebrafish skin development. This fall, Stacy will be starting a new position as a Professor of the Practice in Biology at Wheaton College.

Pedro A. Sanchez-Lara, MD, MSCE, FAAP, FACMG (Cedars-Sinai)

Dr. Sanchez is the Director of Pediatric Clinical Genetics at Cedars-Sinai Medical Center and Associate Clinical Professor of Pediatrics at the David Geffen School of Medicine, UCLA. He is also an adjunct professor at the Center for Craniofacial and Molecular Biology in the Ostrow School of Dentistry, USC.

His research interest is in the developmental pathogenesis of birth defects and is currently the co-chair of ClinGen Craniofacial Malformations Gene Curation Expert Panel. He has written over 80 peer-reviewed scientific articles, a book "Smith's Recognizable Patterns of Human Deformation" and has received funding from the National Institutes of Health, Robert Wood Johnson Foundation and March of Dimes. He is actively involved in clinical and translational research and enjoys mentoring and training students at all levels.

Emile R. Vieta-Ferrer, MD (UCLA)

Dr. Vieta-Ferrer studied Chemistry at the University of Puerto Rico. After graduating from the San Juan Bautista School of Medicine in Puerto Rico, he undertook a post-doctoral fellowship at the Pediatric, Developmental, and Genetic Ophthalmology Section at the National Eye Institute, where he studied the murine model of optic fissure closure and coloboma. He is currently a resident at UCLA, and as the first UCLA EyeSTAR Genetics trainee, he is the first to train in a combined Ophthalmology and Medical Genetics residency program.