

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Piero Carletti

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Heed Fellowship

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of South Florida, Tampa, FL	B.S.	05/2015	Cell and Molecular Biology; Chemistry
Dr. Kiran C. Patel College of Allopathic Medicine Nova Southeastern University Fort Lauderdale, FL	M.D.	05/2023	Medicine
Jackson Memorial Hospital/University of Miami Hospital Miami, FL	Internship	06/2024	Internal Medicine
Bascom Palmer Eye Institute, Miami, FL	Residency	Ongoing – Predicted to complete by 07/2027	Ophthalmology

A. Personal Statement

My research interests began in childhood with an intense curiosity about the natural world. They first materialized as an undergraduate student working in drug discovery and innovation with Dr. Jim Leahy, where we aimed to optimize the efficacy and delivery of antimicrobials by modifying the molecular structure of known bioactive compounds. My thirst for research continued in medical school, where I discovered a passion for medical education and published on the benefits of peer-assisted learning in optimizing the medical school learning environment. I also took an additional year dedicated to clinical research, during which I worked with Dr. Guillermo Amescua and Dr. Audina Berrocal. With Dr. Amescua, I studied and published on various aspects of complex infectious keratitis, ocular graft-versus-host disease, immunobullous ocular surface diseases, and the management of complex limbal stem cell deficiency. With Dr. Berrocal, I developed an interest in retina and focused my studies on pediatric retinal diseases, their detection, and their manifestations on novel imaging techniques. With Dr. Berrocal, I also published potentially guideline-changing results on the retinal complications of different modes of obstetric delivery. I have worked with other mentors in ophthalmology to advance understanding of corneal, glaucomatous, and retinal diseases, including assessing types of neovascularization in diabetic retinopathy using the latest imaging technologies. I continue to engage in clinical research to address some of the many unanswered questions that make ophthalmology a field of continual advancement, yet always focused on improving patients' vision and quality of life. I look forward to a fellowship in vitreoretinal diseases and deeply believe the Heed Fellowship will allow me to continue important research that impacts the lives of our communities.

B. Positions, Scientific Appointments, and Honors

Positions:

2024-Present Ophthalmology Resident, Bascom Palmer Eye Institute, Miami, FL
2023 Internship, Internal Medicine, University of Miami/Jackson Health System
2021-2022 Research assistant, Bascom Palmer Eye Institute, Miami, FL

Honors:

2022-2023 Fostering Careers for Underrepresented Stars (FOCUS) Scholarship
Vit Buckle Society
2021-2022 Bay Area Ophthalmology Course Diversity Scholarship
Byers Eye Institute, Stanford University School of Medicine
2021 The International Association of Medical Science Educators (IAMSE) Aquifer scholarship
2020 Health Professions Division Curriculum Development Grant
Nova Southeastern University
2018-2022 Health Professions Division Chancellor's Scholarship
Nova Southeastern University
2015 Magna Cum Laude
University of South Florida
2015 Distinction within the Cell and Molecular Biology department
University of South Florida

C. Contributions to Science

Early career:

My early career contributions stem from my work in Dr. Jim Leahy's lab, where we aimed to optimize the efficacy and delivery of antimicrobials by modifying the molecular structure of known bioactive compounds.

- a. Kanwar A, Eduful BJ, Barbeta L, **Carletti P**, et al. Synthesis and Activity of a New Series of Antileishmanial Agents. *ACS Medicinal Chemistry Letters*. 2017;8(8).

Graduate Career:

My contributions as a doctoral student and an ophthalmology resident have focused on medical education as well as the study of corneal, glaucomatous, and retinal diseases.

- a. During medical school, I aimed to understand the impact of a peer-assisted learning group on the wellness and performance of medical students.
 - I. Williams CA, Vidal T, **Carletti P**, et al. Peer Assisted Learning (PAL): Perceptions and Wellness of First-Year Medical Students. *Medical Science Educator*. 2021.
- b. Under the supervision of Dr. Guillermo Amescua I studied the role of corneal biopsy in the detection of infectious keratitis. Our results demonstrated the importance of biopsy in cases of nondiagnostic microbiological cultures as well as the synergistic effect of microbiological and histopathological analysis of the biopsy specimen in determining the etiology of disease.
 - I. Hudson J, Al-kharsan H, **Carletti P**, Miller D, Dubovy SR, Amescua G. Role of corneal biopsy in the management of infectious keratitis. *Curr Opin Ophthalmol*. 2022;33(3).
- c. With Dr. Guillermo Amescua, Dr. Anat Galor, and the ocular surface diseases team, I studied the epidemiology, clinical characteristics, and outcomes of corneal ulcers in patients with ocular graft-versus-host disease. Our results demonstrated worse visual outcomes in infectious cases and showed that certain ocular surface protective strategies, such as supervised use of bandage contact lens were protective. These results highlight the importance of close ocular surface monitoring in patients undergoing bone marrow transplantation to help preserve vision and, therefore, quality of life.
 - I. Sepulveda-Beltran, PA, **Carletti, P**, Banda, V, Mulpuri, L, Levine, H, Amescua, G, Wang, TP, Galor, A, Tonk, R. Infectious and noninfectious corneal ulcers in ocular graft-versus-host

disease: epidemiology, clinical characteristics, and outcomes. *American Journal of Ophthalmology*. 2024.

- d. In collaboration with uveitis and retina specialists from multiple institutions, I published on the various uveitic ophthalmic manifestations of COVID-19. We brought attention to the wide spectrum of manifestations, which can vary from mild to rapidly progressing and permanently vision-impairing, and some may even require long-term immunomodulatory therapy.
 - I. **Carletti P**, Shah A, Bair C, Curran C, Mai A, Patel R, Moorthy R, Villate N, Davis JL, Vitale A, Shakoor A, Hassman L. The Spectrum of COVID-19-associated Chorioretinal Vasculopathy. *American Journal of Ophthalmology Case Reports*. 2023.
- e. During my time as research assistant at the Bascom Palmer Eye Institute, I collaborated with the pediatric retina service to describe the utility of optical coherence tomography angiography (OCTA) in the detection and management of persistent fetal vasculature. Our results showed higher sensitivity for detecting blood flow in the stalk with OCTA versus fluorescein angiography, which is the current gold standard.
 - I. Da Cruz, NFS, Sengillo, JD, Hudson, JL, **Carletti, P**, De Oliveira, G, Negron, CI, Felder, MB, Berrocal, AM. Intraoperative OCT angiography in pediatric patients with persistent fetal vasculature. *Ophthalmology Retina*. 2023.
- f. With the help of ultra-widefield fluorescein angiography and in collaboration with several members of the retina services at the Bascom Palmer Eye Institute and the University of Iowa, I studied the diabetic retinal circulation and assessed neo vessels to determine their arterial versus venous origin. Our study showed arterial origin for neovascularization in diabetic retinopathy is more prominent than previously thought, which supports the hypothesis that neovascularization may arise from intraretinal microvascular abnormalities.
 - I. Lin, BR, **Carletti, P**, Yi, J, Rosenfeld, PJ, Russell, JF. Reassessment of arterial versus venous perfusion of diabetic retinal neovascularization using ultrawide-field fluorescein angiography. *Graefes archive for clinical and experimental ophthalmology*. 2024.
- g. During my time as research assistant at the Bascom Palmer Eye Institute and under the supervision of Dr. Audina Berrocal and Dr. Ta Chen Chang, I studied which pediatric eyes that undergo scleral buckling are at risk for needing a glaucoma drainage device, and vice versa, as implanting one after the other has been previously implanted requires a complex surgical technique that may interfere with the functioning of the already existing implant. We found that pediatric eyes with a history of trauma as well as eyes under treatment with multiple glaucoma drops were at high risk for requiring both scleral buckling and glaucoma drainage device. Knowing this can aid in pre-operative planning and counseling for either surgery.
 - I. Abi Karam, M, Sharma, A, Lopez-Canizares, A, **Carletti, P**, Vanner, EA, Berrocal, AM, Chang TC. Risk factors for receiving both scleral buckle and glaucoma drainage device in children. *Nature: Scientific Reports*. 2024.

Selected Presentations/Non-peer reviewed publications:

- a. Clinical Characteristics, Treatment Modalities, and Visual Outcomes in Exogenous Fusarium Endophthalmitis. **Carletti, P**, Kang, S, Albin, TA, Yannuzzi, NA, Sengillo, JD, Miller, D, Yoo, SH, Amescua, G, Flynn, HW. Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting (Denver, CO, 2026).
- b. Fusarium keratitis in South Florida: a clinico-microbiological correlation. **Carletti, P**, Sepulveda-Beltran, P, Durkee, H, Leviste, KD, Banda, V, Parel, JM, Amescua, G, Miller, D. Ocular Microbiology and Immunology Group Annual Meeting (Chicago, IL, 2022)
- c. Prevalence of Retinal Microvascular Changes in COVID-19 Patients: A Systematic Review of The Literature. **Carletti P**, Shah A, Bair C, Curran C, Moorthy R, Villate N, Davis JL, Vitale AT, Shakoor A, Patel R, Mai A. American Uveitis Society Spring Meeting (Virtual, 2022)
- d. Rose Bengal Photodynamic Antimicrobial Therapy (RB-PDT): The Bascom Palmer Experience. **Carletti P**, Sepulveda-Beltran PA, Parel JM, Amescua G. American Academy of Ophthalmology ONE Network.

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/piero.carletti.1/bibliography/public/>