Manuel Alejandro Semán Senderos

EDUCATION

Johns Hopkins University School of Medicine; Baltimore MD 2014-2021
Ph.D. in Cellular and Molecular Medicine
Thesis: *Targeting the collagen secretome in fibrotic disease*
Mentor: Harry C. Dietz III, M.D.

UNAM School of Medicine; Mexico City, Mexico 2008-2012
B.Sc. in Basic Biomedical Research
Thesis: *Novel mitochondrial targeting sequences: OXA1 and its mRNA*
Mentor: Soledad Funes, Ph.D.

RESEARCH EXPERIENCE

Johns Hopkins University School of Medicine; Baltimore, MD 2015-2021
Thesis research conducted in the laboratory of Dr. Harry C. Dietz, III

Dr. Dietz studies fibrotic diseases, which are characterized by organ dysfunction and failure precipitated by excessive collagen deposition. For my Ph.D. thesis, I focused on targeting the collagen biosynthesis pathway, specifically its secretion, as a way to induce apoptosis and clearance of collagen-producing cells in fibrotic tissue. We targeted the collagen secretion regulator Cullin3, in vitro and in vivo, but saw no apoptosis induction or protection in mouse models of fibrosis.

UNAM School of Medicine; Mexico City, Mexico 2009-2012
Thesis research conducted in the laboratory of Dr. Soledad Funes

Dr. Funes studies co-translational import of proteins into the mitochondria, using Saccharomyces cerevisae as her model. My work focused on targeted deletion of both mRNA and protein signals that were thought to regulate the import of the mitochondrial protein OXA1. We were able to show that there is important information in both OXA1 mRNA and protein, therefore supporting a co-translational import model.

PUBLICATIONS

Gould R, Aziz H, Woods CE, **Semán-Senderos MA** *et al. ROBO4* variants predispose individuals to bicuspid aortic valve and thoracic aortic aneurysm. (2019) *Nature Genetics* **51**: 42-50.

Beckett JD, Kim D, Nagpal V, **Semán-Senderos MA** *et al.* Calpain 9 as a Novel Therapeutic Target in TGFβ-Induced Mesenchymal Transition and Fibrosis. (2019) *Science Translational Medicine* **11**(501): 1-15.

Herrera I, Rodriguez-Correa E, Vazquez-Salazar A and **Semán-Senderos MA**

Funciones Novedosas de los Lipidos Nucleares[1]. (2010) *Revista de Educacion Bioquimica*[2] **29** (2):63-64.

PRESENTATIONS

A New Mechanism and Vulnerability for Fibrosis
ASHG Annual Meeting, San Diego (2018). Poster.

When protein synthesis and import meet: a mitochondrial tale.
18th Meeting of the Bioenergetics Branch of the Mexican Society of Biochemistry. Queretaro, Mexico. (2013). Talk.

Novel mitochondrial targeting sequences: OXA1 and its mRNA.
39th National Congress of Biochemistry, Oaxaca, Mexico (2012). Short Talk.

TEACHING EXPERIENCE

Johns Hopkins University; Baltimore, MD Summer 2019
Lecturer, "Miracles of Modern Medicine" Course (high school level)

National Youth Leadership Forum (NYLF) Visit at Johns Hopkins University, School of Medicine; Baltimore, MD Summer 2017
Research laboratory instructor (high school level)

Universidad Panamericana Preparatoria; Mexico City, Mexico Winter 2016
Visiting lecturer, "Select Topics in Biology" Course (high school level)
Gave a lecture on model organisms in biomedical research.

Johns Hopkins University, School of Medicine; Baltimore, MD Fall 2016-2020
Tutor, Oral board exams (graduate level)
Led small group tutoring sessions to prepare students for their oral board examination.

Johns Hopkins University, School of Medicine; Baltimore, MD Spring 2016
Teaching assistant, "Genetics" Course (graduate level)
Helped modify the course design based on student feedback, and tutored students.

UNAM, Instituto de Fisiología Celular; Mexico City, Mexico 2012
Teaching assistant, "Human Physiology" Course (college level)
Contributed to course design and summative assessments.

UNAM, Instituto de Fisiología Celular; Mexico City, Mexico 2012
Teaching assistant, "Topics in mRNA" Course (college level)

[1] Novel Functions of Nuclear Lipids

[2] *REB* is a peer-reviewed journal focused on comments and reviews on emerging biochemistry topics. Edited and published by the Mexican Society of Biochemistry Teachers.

Designed a longitudinal curriculum for a novel course, which included lesson plans, homework assignments, and summative assessments throughout the semester. Also recruited the lecturers.

MENTORING EXPERIENCE

Johns Hopkins University, School of Medicine; Baltimore, MD 2018-2021
Mentored junior graduate students and rotation students in the Dietz laboratory. Introduced them to techniques, assisted in experimental design, and discussed possible projects and their aims alongside our PI.

ACADEMIC HONORS

Pollard Scholar[3] in Genetics, CMM Program, JHU School of Medicine 2016
Academic Excellence Diploma, UNAM School of Medicine 2011-2012

PROFESSIONAL MEMBERSHIPS AND LEADERSHIP ROLES

Member of the American Society for Human Genetics 2018-Present
Member of the Mexican Society of Biochemistry 2010-Present
Student Representative for the *Basic Biomedical Research* Majors 2010-2012

[3] Top performing students in graduate courses, chosen to tutor the incoming class.