

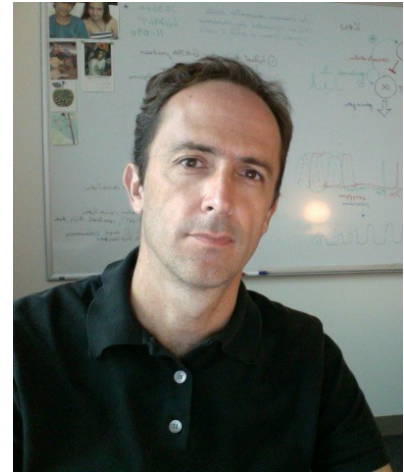


REVISITING THE BIOLOGY OF THE HUMAN ISLET OF LANGERHANS

Dr. ALEJANDRO CAICEDO
RESEARCH ASSOCIATE PROFESSOR
DEPARTMENT OF MEDICINE
UNIVERSITY OF MIAMI

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LECTURE: 9:00 AM - 10:00 AM

ENGINEERING CENTER
ROOM EC 1112
10555 WEST FLAGLER STREET
MIAMI, FL 33174



Abstract: The pancreatic islet secretes the hormones insulin and glucagon to regulate glucose metabolism. To generate an adequate secretory response, islet endocrine cells must receive multiple regulatory signals relaying information about changes in the internal and external environments. Islet cells also need to be made aware about the functional status of neighboring cells through paracrine interactions. All this information is used to orchestrate a hormonal response that contributes to glucose homeostasis. Several neurotransmitters have been proposed to work as paracrine signals in the islet. Most of these, however, have yet to meet the criteria to be considered bona fide paracrine signals, in particular in human islets. We are deploying a battery of techniques to show which molecules are released from human endocrine cells to activate neighboring cells and alter hormone secretion. Our recent work is not only defining new roles for known paracrine signals but is also identifying unexpected signaling molecules. We are further moving our in vitro findings into real time, in vivo physiology by using an animal model that allows manipulating and visualizing human islet function non-invasively. Our results are showing an increasingly complex picture of paracrine interactions in the human islet. While it is too early to provide a synthesis, the field of islet research is defining the paracrine and autocrine components that will be used to generate models about how islet function is regulated. Meanwhile, the signaling pathways we are identifying can be proposed as therapeutic targets for treating diabetes, a devastating disease affecting millions worldwide.

Biography: Dr. Caicedo received his undergraduate degree in animal physiology in 1991 from the University of Tubingen, Germany. In 1997 he completed his doctoral studies in neurobiology at the University of Montpellier I, France. From 1997 to 2000, Dr. Caicedo pursued his postdoctoral training with Dr. Stephen Roper at the Miller School of Medicine, University of Miami, where he later joined the faculty. For the first part of his career he worked on the neurobiology of different senses such as hearing, vision and taste, while in the last years he has focused on the regulation of insulin secretion in the pancreas. Dr. Caicedo has published several articles in high-impact journals such as PNAS, Cell Metabolism, Nature Medicine and Science and has also received recognition for his work in form of the Stanley Glaser Researcher Award in 2001, and the Selection for Presidential Early Career Award for Scientists and Engineers (PECASE) by the US department of Health and Human Services 2010.

Contact: bmeinfo@fiu.edu; 305-348-6717

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