

## **Damiano Angoli, PhD**

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Gainesville FL 32605  
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### **Education and Languages:**

2013-2018 Ph.D. in Experimental and Translational Medicine, University of Insubria, Italy.  
“Electrophysiological Techniques applied to Translational Medicine”.

Dec 2000-Sept 2005 Post-secondary Fellowship.  
Ion Channel Laboratory, School of Kinesiology, Simon Fraser University.  
Burnaby BC, Canada

1994-96 Post degree fellowship in cellular physiology funded by Italian Telethon. Dept. of Biochemistry and General Physiology, Electrophysiology Lab, University of Milan, Italy in collaboration with the Besta Neurological Institute. “Adhesion properties of human (Duchenne) and murine (mdx) dystrophic myotubes”.

1988-94 Laurea (Doctor in Biological Sciences, DS) with honor (110/110) in Biology at the Dept. of Biochemistry and General Physiology, Electrophysiology Laboratory, University of Milan, Italy. “Regulation of intracellular pH in human promyelocytic leukemia cells”.

1986-87 Diploma in Computer Program Development at Università’ del Sacro Cuore of Milan.

Languages: English (fluent), French (speaking and reading good), Italian (native).

### **Related Work Experience:**

June 2024-present, Research Assistant Professor, Department of Biomedical Engineering at The Engineering Center, Florida International University, 10555 West Flagler Street Miami, Florida 3317.

June 2022-present, Research Assistant Professor (courtesy position), Department of Pediatrics, College of Medicine, University of Florida.

Oct 2019-Jan 2024, Research Scientist, Entrinsic Bioscience, 12085 Research Drive Alachua, FL 32615

Jul 2017-Oct 2019, Research Associate, Department of Biomedical Engineering at The Engineering Center, Florida International University, 10555 West Flagler Street Miami, Florida 3317

Jun 2016-Jul 2017, Research Assistant Professor, Department of Drug Discovery and Biomedical Sciences, South Carolina College of Pharmacy, University of South Carolina 715 Sumter St., Columbia, SC 29208

Jun 2015-May 2016, Research Associate, UC Denver, Dept. of Physiology and Biophysics 12800 East 19th Avenue RC-1 North, Aurora, Colorado 80045

Dec 2014-Jun 2015, Research Visitor, Division of Biomedical Sciences School of Medicine, University of California Riverside 311 School of Medicine Research Building, 900 University Ave, Riverside, CA 92521

Jan 2013-Dec 2014, Research Visitor, Dept. of Neuroscience at the Brain Institute University of Florida 149 Newell Drive PO Box 100244 Gainesville, FL USA

Oct 2005-Dec 2012, Research Assistant Lab Manager, Dept. of Cellular & Physiological Sciences, Life Sciences Centre - 2350 Health Sciences Mall The University of British Columbia Vancouver, BC, Canada

1997-99 Worked at Pfizer Italiana as Healthcare Representative, responsible for calling on practicing physicians and hospitals to provide information about Pfizer's products such as Norvasc, Viagra, Feldene, Zoloft, and Diflucan.

**Other:** Acted as manuscript reviewer for the Journal of Molecular and Cellular Cardiology in 2009.

### **Experimental and Technical Skills:**

Strong cellular physiology skills: primary and cell lines culture, ion channel transfection techniques, immunocytochemistry, and imaging. Two years experience in working with human iPSCs in particular preparing neuronal precursors and differentiating them to dopaminergic neurons. Electrophysiological study of the differences between these cells and those derived from patients with Parkinson disease. Four years experience in working with Human Bronchial Epithelial Cells (HBEC) to evaluate the effect of proprietary Amino Acid formulations on ion channels/transporters. Patch clamp electrophysiology (whole cell or inside-out patch, perforated patch, including voltammetry) and analysis using the Axon/pClamp, Microcal Origin, Sigmaplot, Matlab. Axon 200B or HEKA amplifiers and associated hardware. Setting and utilization of Ussing chambers for electrophysiology recording in tissue or cells layer. Confocal Imaging using different microscope and associated imaging software.

Experience in animal handling and rodent surgery, isolation of smooth muscle single cells, brain slices preparation for electrophysiological experiments (whole cell or field recording). Skills in common Microsoft products, Macromedia products (for websites design/ implementation and animated presentations), Adobe programs for editing, publishing and analyzing data, word, excel, powerpoint, Photoshop, Illustrator, AutoCAD and other graphics software, and software for computer-driven tool machines.

**Accepted invention at UF innovate:**

Select Amino Acids Increase Anion Secretion in Human Bronchial Epithelial Cells (HBEC) with F508del and Nonsense Mutations: Alternative Approach to Restoring Airway Anion Secretion in Cystic Fibrosis. INV-220189

Proprietary Amino Acids Improve Bronchial Epithelial ENaC Function Inhibited By Cytokines That Are Associated With ARDS or Allergic Rhinitis. INV-210192. **Published Patent number WO 2021/243183 A1**

**Manuscripts in preparation:**

Select Amino Acids increase anion secretion in Human Bronchial Epithelial Cells with class I and II mutations: alternative approach to restoring airway anion secretion in Cystic Fibrosis. Astrid Grosche, Xiaodong Xu, Damiano Angoli, Sreekala Prabhakaran, Sadasivan Vidyasagar.

**Published manuscripts**

Sasidharan A, Grosche A, Xu X, Kinane TB, **Angoli D**, Vidyasagar S.

Select amino acids recover cytokine-altered ENaC function in human bronchial epithelial cells. PLoS One. 2024 Jul 25;19(7):e0307809. doi: 10.1371/journal.pone.0307809. eCollection 2024.

**Angoli D**, Geramipour A, Danziger ZC.

Validation of an efficient and continuous urodynamics monitoring system for awake, unrestrained, chronic rodent studies

Am J Physiol Renal Physiol. 2020 Jan 1;318(1):F86-F95. Epub 2019 Nov 18.

Provence A, **Angoli D**, and Petkov GV.

K<sub>v</sub>7 Channel Activation by the Novel Activator ML213: Role for Heteromeric K<sub>v</sub>7.4/K<sub>v</sub>7.5 Channels in Guinea Pig Detrusor Smooth Muscle Function

Journal of Pharmacology and Experimental Therapeutics October 30, 2017, jpet.117.243162; DOI: <https://doi.org/10.1124/jpet.117.243162>

Macri V, **Angoli D**, Accili EA. Architecture of the HCN selectivity filter and control of cation permeation. *Sci Rep*. 2012;2:894. Epub 2012 Nov 27.

Hegle AP, Nazzari H, Roth A, **Angoli D**, Accili EA. Evolutionary emergence of N-glycosylation as a variable promoter of HCN channel surface expression. *Am J Physiol Cell Physiol*. 2010 May;298(5):C1066-76. Epub 2010 Feb 3.

Peters CJ, Chow SS, **Angoli D**, Nazzari H, Cayabyab FS, Morshedean A, Accili EA. In situ codistribution and functional interactions of SAP97 with sinoatrial isoforms of HCN channels. *J Mol Cell Cardiol*. 2009 May;46(5):636-43. Epub 2009 Jan 27.

Nazzari H, **Angoli D**, Chow SS, Whitaker G, Leclair L, McDonald E, Macri V, Zahynacz K, Walker V, Accili EA. Regulation of cell surface expression of functional pacemaker channels by a motif in the B-helix of the cyclic nucleotide-binding domain. *Am J Physiol Cell Physiol*. 2008 Sep;295(3):C642-52. Epub 2008 Jul 9.

Whitaker GM, **Angoli D**, Nazzari H, Shigemoto R, Accili EA. HCN2 and HCN4 isoforms self-assemble and co-assemble with equal preference to form functional pacemaker channels. *J Biol Chem*. 2007 Aug 3;282(31):22900-9. Epub 2007 Jun 6.

Macri V, Proenza C, Agranovich E, **Angoli D**, Accili EA. Separable gating mechanisms in a Mammalian pacemaker channel. *J Biol Chem*. 2002 Sep 27;277(39):35939-46.

Proenza C, Tran N, **Angoli D**, Zahynacz K, Balcar P, Accili EA. Different roles for the cyclic nucleotide binding domain and amino terminus in assembly and expression of hyperpolarization-activated, cyclic nucleotide-gated channels. *J Biol Chem*. 2002 Aug 16;277(33):29634-42.

Proenza C, **Angoli D**, Agranovich E, Macri V, Accili EA. Pacemaker channels produce an instantaneous current. *J Biol Chem*. 2002 Feb 15;277(7):5101-9

**Angoli D**, Corona P, Baresi R, Mora M, Wanke E. Laminin-alpha2 but not -alpha1-mediated adhesion of human (Duchenne) and murine (mdx) dystrophic myotubes is seriously defective. *FEBS Lett*. 1997 May 26;408(3):341-4.

**Angoli D**, Delia D, Wanke E. Early cytoplasmic acidification in retinamide-mediated apoptosis of human promyelocytic leukemia cells. *Biochem Biophys Res Commun*. 1996 Dec 13;229(2):681-5.

## Published Abstracts:

FASEB Journal; Experimental Biology 2022.

Select Amino Acid Formulation Influenced Anion Secretion Induced by Th2 Cytokines in Human Bronchial Epithelial Cells (HBECs). Astrid Grosche, Damiano Angoli, Anusree Sasidhran, Xiaodong Xu, Sadasivan Vidyasagar

Select Amino Acids Increase Anion Secretion in Human Bronchial Epithelial Cells (HBEC) with F508del and Nonsense Mutations: Alternative Approach to Restoring Airway Anion Secretion in Cystic Fibrosis. Astrid Grosche, Xiaodong Xu, Damiano Angoli, Sreekala Prabhakaran, Sadasivan Vidyasagar

Society for Neuroscience; Nov 2018

Novel high resolution system for continuous urodynamic monitoring of bladder function in chronic rodent studies. Damiano Angoli, Arezoo Geramipour, Zachary C. Danziger. Dept. Of Biomed. Engin., Florida Intl. Univ., Miami, FL

The Journal of Urology. 197(4):e1353, Apr 2017

Kv7 channel pharmacological modulation in human detrusor: a promising two-way street for the potential treatment of overactive and underactive bladder. Aaron Provence, Damiano Angoli, Eric Rovner, Georgi V. Petkov.

Translational Andrology and Urology 5(S2) AB317, December 2016

Pharmacological activation of individual KCNQ channel subtypes in detrusor smooth muscle represents a promising novel approach for overactive bladder treatment. Aaron Provence, Damiano Angoli, Georgi V. Petkov.

Biophysical Society; Feb 2016

A novel interacting protein reduces the cAMP sensitivity of HCN4 channels.

Julie Juchno, Damiano Angoli, Keith Strand, Sarah Cook, Nathan Coffman, Yanmei Du, Lori Walker, and Catherine Proenza, University of Colorado School of Medicine

Society for Neuroscience; Nov 2013

Intracellular S(+)-Methamphetamine decreases dopamine-dependent inward current via dopamine transporter.

K. Saha<sup>1</sup>, S. Goodwin<sup>2</sup>, D. Angoli<sup>1</sup>, P. Davari<sup>1</sup>, L. Villarreal<sup>1</sup>, H. Khoshbouei<sup>1</sup>;  
<sup>1</sup>Dept. of Neurosci., Univ. of Florida, Gainesville, FL; <sup>2</sup>Dept. of Biomed. Sci., Meharry Med. Col., Nashville, TN

$\sigma$ -1 receptor regulates methamphetamine inhibition of substrate uptake via dopamine transporter.

D. O. Sambo<sup>1</sup>, M. Lin<sup>1</sup>, B. Blough<sup>2</sup>, D. Angoli<sup>1</sup>, H. Khoshbouei<sup>1</sup>;  
<sup>1</sup>Univ. of Florida, Gainesville, FL; <sup>2</sup>RTI Intl., Research Triangle Park, NC

Alpha-synuclein regulates trafficking of dopamine transporter.

B. R. Butler<sup>1</sup>, E. Cartier<sup>2</sup>, D. Angoli<sup>2</sup>, H. Khosbouei<sup>2</sup>;

<sup>1</sup>Univ. Of Florida, Gainesville, FL; <sup>2</sup>Neurosci., Univ. of Florida, Gainesville, FL

Voltage-dependent regulation of dopamine transporter trafficking.

B. D. Richardson<sup>1</sup>, E. Cartier<sup>1</sup>, J. Swant<sup>1</sup>, K. Saha<sup>1</sup>, D. Angoli<sup>1</sup>, M.-F. Zou<sup>2</sup>, A. H. Newman<sup>2</sup>,  
H. Khosbouei<sup>1</sup>;

<sup>1</sup>Dept. of Neurosci., Univ. of Florida, Gainesville, FL; <sup>2</sup>Medicinal Chem. Section, Natl. Inst. on  
Drug Abuse, Baltimore, MD

American Biophysical Society, 2009.

R Yip, D Angoli, C Ahern, EA Accili. Lidocaine Inhibition of Hyperpolarization-activated  
Cyclic Nucleotide-modulated Channel Isoform 1 (HCN1) is Fast, Voltage-dependent and  
Reversible.

American Biophysical Society, 2008.

R Yip, D Angoli, EA Accili. Lidocaine inhibits cloned Hyperpolarization-activated Cyclic  
Nucleotide-gated channel isoform 1 (HCN1).

American Biophysical Society, 2004.

D Angoli, G Whitaker, F Cayabyab, V Macri, EA Accili. A novel role for ion channel  
heteromerization.

Biophysical Journal, Mar 2002.

D Angoli, G Nalewajek, V Macri, F Cayabyab, EA Accili. HCN2 and HCN4 form  
heteromultimers in CHO cells. Role of the N-terminus. Biophysical Journal, Mar 2003. K  
Zahynacz, D Angoli, C Proenza, V Macri, EA Accili. A conserved region of the CNBD is  
required for functional expression of HCN channels.

Biophysical Journal, Feb 2002.

C Proenza, N Tran, D Angoli, K Zahynacz, EA Accili. Role of the cyclic nucleotide-binding  
domain (CNBD) in functional expression of HCN channels.

C Proenza, D Angoli, EA Accili. Pacemaker channels induce a cAMP sensitive background  
current.

Pflugers Archives 434, 1997.

Angoli, L. Faravelli, E Wanke. Integrin-independent adhesion of normal and mdx myotubes on  
D laminin-coated substrates.

Pflugers Archives 431, 1996.

D Angoli, D Delia, E Wanke. Cytoplasmic acidification is an early event of retinoid-induced apoptosis in human malignant leukemic cells.

### **Presentations:**

D Angoli (invited speaker). Electrophysiological Techniques applied to Translational Research. South Carolina College of Pharmacy, Dept. of Drug Discovery and Biomedical Sciences, 2016

D Angoli, G Whitaker, F Cayabyab, V Macri, EA Accili. A novel role for ion channel heteromerization. Poster for the American Biophysical Society, Long Beach CA, 2004.

D Angoli, G Nalewajek, V Macri, F Cayabyab, EA Accili. HCN2 and HCN4 form heteromultimers in CHO cells. Role of the N-terminus. Poster for the American Biophysical Society, San Antonio Texas, Mar 2003.

K Zahynacz, D Angoli, C Proenza, V Macri, EA Accili. A conserved region of the CNBD is required for functional expression of HCN channels. Poster for the American Biophysical Society, San Francisco, CA Mar 2002.

D Angoli, L. Faravelli, E Wanke. Integrin-independent adhesion of normal and mdx myotubes on laminin-coated substrates. Oral presentation, Italian Physiological Society, Florence, Italy, 1996.

D Angoli, D Delia, E Wanke. Cytoplasmic acidification is an early event of retinoid-induced apoptosis in human malignant leukemic cells. Oral presentation, Italian Physiological Society, Florence, Italy, 1995.

### **In the Acknowledgments:**

Sasidharan, A., Peethambar, B.A., Kumar, K.S. *et al.* Advancing peristalsis deciphering in mouse small intestine by multi-parameter tracking. *Commun Biol* **6**, 1237 (2023). <https://doi.org/10.1038/s42003-023-05631-2>

Hristov KL, Parajuli SP, Provence A, Petkov GV. Testosterone decreases urinary bladder smooth muscle excitability via novel signaling mechanism involving direct activation of the BK channels. *Am J Physiol Renal Physiol*. 2016 Dec 1;311(6):F1253-F1259. doi: 10.1152/ajprenal.00238.2016. Epub 2016 Sep 7. PMID: 27605581; PMCID: PMC5210203.

Provence A, Rovner ES, Petkov GV. Regulation of transient receptor potential melastatin 4 channel by sarcoplasmic reticulum inositol trisphosphate receptors: Role in human detrusor

smooth muscle function. *Channels (Austin)*. 2017 Sep 3;11(5):459-466. doi: 10.1080/19336950.2017.1341023. Epub 2017 Jun 23. PMID: 28644055; PMCID: PMC5626371.

Macri V, Accili EA. Structural elements of instantaneous and slow gating in hyperpolarization-activated cyclic nucleotide-gated channels. *J Biol Chem*. 2004 Apr 16;279(16):16832-46. doi: 10.1074/jbc.M400518200. Epub 2004 Jan 29. PMID: 14752094.

Peters CJ, Werry D, Gill HS, Accili EA, Fedida D. Mechanism of accelerated current decay caused by an episodic ataxia type-1-associated mutant in a potassium channel pore. *J Neurosci*. 2011 Nov 30;31(48):17449-59. doi: 10.1523/JNEUROSCI.2940-11.2011. PMID: 22131406; PMCID: PMC6623802.

Tran N, Proenza C, Macri V, Petigara F, Sloan E, Samler S, Accili EA. A conserved domain in the NH2 terminus important for assembly and functional expression of pacemaker channels. *J Biol Chem*. 2002 Nov 15;277(46):43588-92. doi: 10.1074/jbc.M208477200. Epub 2002 Aug 21. PMID: 12193608.