

## CURRICULUM VITAE

**Name:** Isabel Virella-Lowell

**Birth Date:** 04/24/69

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**Citizenship and/or Visa Information:** US Citizen

**Education** (Beginning with Baccalaureate Degree):

Institution/Location	Years	Degree/Date	Field of Study
Duke University, Durham, N.C.	1987- 1991	B.S./1991	Psychology
Medical Univ. of South Carolina, Charleston, S.C.	1991- 1995	M.D./1995	Medicine

**Internship:** (Place) (Dates)  
Pediatrics, University of Florida, Gainesville FL 07/01/95-06/31/96

**Residencies or Post Doctoral:** (Place) (Dates)  
Pediatrics, University of Florida, Gainesville FL 07/01/96-06/31/98  
Pediatric Pulmonology Fellowship, University of Florida, Gainesville FL 07/01/98-06/31/01

**Specialty/Board Certification:** Pediatrics Date: October 1998, recertified December 2005  
Pediatric Pulmonology Date: August 2004

**Licensure:** South Carolina 23946

**Military Service:** None

**Faculty Appointments** (Begin with initial appointment):

<i>Years</i>	<i>Rank</i>	<i>Institution</i>	<i>Department</i>
2001-2003	Assistant Professor	University of Florida	Pediatrics

2003-current Assistant Professor Medical University of South Carolina (MUSC) Pediatrics  
 2006-current Director, Ped. Cystic Fibrosis Center, MUSC Pediatrics

**Hospital Appointments/Privileges:**

<i>Years</i>	<i>Active/Inactive</i>	<i>Institution</i>
2001-2003	Inactive	Shands Teaching Hospital, Univ. of Florida
2003-current	Active	Medical University of South Carolina

**Other Experience:**

Years	Position	Institution	Department
5/1990-8/1990	Research Assistant	MUSC	Microbiology and Immunology
5/1991-8/1991	Research Assistant	MUSC	Microbiology and Immunology
5/1992-8/1992	Research Assistant	MUSC/VA	Psychiatry
4/1995-7/1995	Research Assistant	MUSC	Microbiology and Immunology

**Membership in professional/scientific societies (include offices held):**

National Societies

1995-ToDate	American Academy of Pediatrics
1998-To Date	American Thoracic Society
1998-2001	American College of Chest Physicians
2002-To Date	American Society for Gene Therapy
2006-To Date	Society for Pediatric Research

Local Societies

2003-To Date	South Carolina Medical Association
2005-To Date	Charleston County Medical Society

**Extramural Grants/award amount (current and past):**

**Current**

P01-HL51811- Project II- Terence Flotte (PI), NIH / Gene and Pharmacological Therapies for Cystic Fibrosis	4/01/04-3/31/09	NHLBI
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This project examines the ability of Adeno-associated viral vectors expressing different anti-proteases, glycosylation enzymes and other anti-inflammatory agents to modulate lung disease seen in cystic fibrosis.

Role: Co-investigator-subcontract to MUSC

CFRI New Horizons in CF Therapeutics Virella-Lowell, PI  
9/01/06-8/31/07 Loss of Acid Sphingomyelinase Induction by Pseudomonas Aeruginosa in Cystic Fibrosis

The specific aims of this project is to confirm the loss of ASM induction in vitro in CF cells, investigate the Internalization of PA in presence and absence of ASM and determine whether ASM gene transfer will result in less persistent infection and inflammation in CF mice.

Role: Principal Investigator

### Completed

VIRELL01AO Virella-Lowell (PI) 7/1/01-12/30/05  
Cystic Fibrosis Foundation  
Harry Shwachmann Clinical Investigator Award “AAT as an Anti-inflammatory Gene Therapy for Cystic Fibrosis”

This project is a clinical trial aimed at determining whether pre-treating cystic fibrosis patients with various anti-inflammatory medications including nebulized Alpha –1 antitrypsin (AAT) will increase gene expression following the delivery of nebulized AAV-CFTR.

Role: Principal Investigator

1 KO8 HL67260-01 Virella-Lowell (PI) 7/1/01-6/30/07  
NIH/NHLBI  
Anti-inflammatory Gene Therapy for Cystic Fibrosis

This project examines the ability of Adeno-associated Viral vectors expressing Interleukin-10 or Alpha-1 Antitrypsin to modulate the exaggerated inflammatory response seen in animal models of cystic fibrosis.

Role: Principal Investigator

### **Awards, Honors, Membership in Honorary Societies:**

2001 Henry A. Kokomoor Award for Outstanding Clinical Fellow in the Department of Pediatrics

2001 Harry Shwachmann Clinical Investigator Award

### **Major Teaching Responsibilities (Current):**

Undergraduate Medical Education: teaching summer students that rotate in lab about gene therapy, cystic fibrosis and basic molecular biology techniques.

Graduate Medical Education: Lectures, teaching rounds and one-on one-teaching of medical students, residents and fellows in pediatric pulmonary rotations. Teaching third year medical students and residents in pulmonary clinic about different lung diseases in children. Informal and formal lectures to medical students on a variety of pulmonary topics. Participation in the Pediatric Core lecture Series-giving lectures in Apnea and SIDS, complicated pneumonias and cystic fibrosis. Also teaching and supervision of post-doctoral candidates in laboratory.

**Major Clinical Interests and Responsibilities:** 3 ½ days clinic a week  
19 weeks of inpatient pediatric pulmonary attending and consults and one weekend call per month ( 66.5 % clinical effort)

**Submitted presentations (e.g., abstract or paper presentations)**

1. **Virella-Lowell, Isabel**, Liu, Barry, Foust, Kevin<sup>#</sup>, Loilier, Scott, Flotte, Terence R. Serotype 1-Encapsidated Recombinant AAV Vectors Mediate Robust Expression In The Murine Lung. Submitted to North American Cystic Fibrosis Conference, October 2003.
2. **I.Virella-Lowell**, B.Liu, M.C.Lopez, B.S., P.Cruz, Ph.D., C.Muller, B.S.<sup>#</sup>, H.V.Baker, Ph.D. and T.R.Flotte. Effects of CFTR, IL-10 and *Pseudomonas aeruginosa* On Gene Expression Profiles in a CF Bronchial Epithelial Cell Line. Presented at the American Thoracic Society Meeting, Seattle, Washington, May 2003.
3. **Isabel Virella-Lowell**, Barry Liu, Christian Muller<sup>#</sup>, Maria Cecilia Lopez, Henry V. Baker, Terence R. Flotte. Stable Expression of Normal CFTR Reprograms Gene Expression and the Response to *Pseudomonas aeruginosa* in a CF Bronchial Epithelial Cell Line. Presented at NACFC conference October 2002.
4. **Isabel Virella-Lowell**, Thomas Ferkol and Terence Flotte. Anti-Inflammatory Gene Therapy For Cystic Fibrosis. Presented at the American Thoracic Society Meeting, May 2002.
5. **Isabel Virella-Lowell**, Edward Mason, Thomas Ferkol, Terence R. Flotte. Anti-Inflammatory Gene Therapy for Cystic Fibrosis with rAAV-IL-10. Presented at the Society for Pediatric Research Meeting; May 2001; Baltimore, Maryland.
6. **I. Virella-Lowell**, E. Mason, T. Ferkol and T.R. Flotte. Anti-Inflammatory Gene Therapy For Cystic Fibrosis With a rAAV-IL-10 Vector. *Pediatric Pulmonology* 2000; Supplement 20; 231.
7. **Isabel Virella-Lowell**, Benjamin Zusman, Thomas Conlon<sup>#</sup>, Sihong Song, Michael Morgan, Terence Flotte. A CMV/Beta Actin hybrid Promoter Enhances rAAV Vector Expression *In Vivo* and *In Vitro*. Presented at the American Society for Gene Therapy Meeting in Denver Colorado June 2000.
8. **I. Virella-Lowell**, B. Zusman, T. Conlon<sup>#</sup>, S. Song, M. Morgan, T. Flotte. A CMV/Beta Actin Hybrid Promoter Improves rAAV Vector Expression *In Vitro* And *In Vivo*. *Am J Resp Crit Care Med* 2000; 161(3):A285.
9. **Virella-Lowell I**, Zuzman B, Conlon T<sup>#</sup>, Morgan M, Song S, Flotte TR. A CMV/beta actin hybrid promoter improves rAAV vector expression in vitro and in vivo. *Pediatric Research* 2000; 47:483A.
10. Scotty Morrow, Hong Yu, John Dong, Tom Ferkol, Terence Flotte, and **Isabel Virella-Lowell**. Intratracheal AAV5-IL-10 Significantly Reduces The Airway Pro-Inflammatory Response In *Pseudomonas*-Infected IL-10 Knockout Mice. Presented at the North American Cystic Fibrosis Conference, October 2005.

11. H Yu, S Morrow Buff, J Baatz, and **I Virella-Lowell**. 2006. *Administration of Pseudomonas using aspiration challenge with surfactant: a promising alternative to Intratracheal Injection and Traditional Aspiration Models*. To be presented as poster presentation at the ATS International Conference.
12. S Morrow Buff, H Yu, T Ferkol, T Flotte, and **I Virella-Lowell**. 2006. *AAV5.CB-IL10 administration attenuates inflammation in pseudomonas-infected IL-10 knockout mice*. A722. To be presented as an oral presentation at a Mini Symposium session, C84 - Novel Approaches to the Assessment and Treatment of CF Lung Disease at the ATS International Conference.
13. H Yu, Y Zeidan, B Wu, Y Hannun, and **I Virella-Lowell**. 2006 Loss of induction of acid sphingomyelinase is associated with persistent *P. aeruginosa* infection in CF. To be presented as poster presentation at the North American Cystic Fibrosis conference. 2006 Denver.
14. **Isabel Virella-Lowell**, Michael Bowman, Carol Wagner and Bruce Hollis. The Effects of Vitamin D supplementation in Cystic Fibrosis. To be presented as poster presentation at the North American Cystic Fibrosis conference. 2006 Denver.
15. S Morrow Buff, S Caldwell, H Yu, J Baatz, T Ferkol, T Flotte, and **I Virella-Lowell** Delivery of IL-10 by an AAV vector to the lungs of CFTR knockout mice reduces inflammation upon chronic infection with *P. aeruginosa*. American Society for Gene Therapy Meeting. June 2007. Seattle.
16. Y. Zeidan, H. Yu, Y. Hannun and **I. Virella-Lowell**. Loss of Acid Sphingomyelinase Induction by *Pseudomonas aeruginosa* in Cystic Fibrosis. Oral Presentation at the European CF Conference, June 2007. Turkey.
17. S Caldwell, S Morrow Buff, H Yu, and **Isabel Virella-Lowell**.  $\alpha\beta\alpha$ : A Potential Anti-Inflammatory Therapeutic For Cystic Fibrosis. North American Cystic Fibrosis Conference. October 2007. Anaheim.
18. Hong Yu, Youssef H Zeidan, Yusuf A. Hannun, and **Isabel Virella-Lowell** Exaggerated IL-8 Response With *P. Aeruginosa* Infection In CF Is Associated With Defect Acid Sphingomyelinase Activity. North American Cystic Fibrosis Conference. October 2007. Anaheim.

**Publications:** Number and list in chronological order publications under the following headings in the order shown.

Peer Reviewed Journal Articles:

1. G. Virella, K. Fourspring\*, B. Hyman, R. Haskill-Stroud, L. Long, **I. Virella\***, M. LaVia, A.J. Gross, M. Lopes-Virella. Immunosuppressive effects of fish oil in normal human volunteers: correlation with the in vitro effects of eicosapentanoic acid on human lymphocytes. *Clinical Immunology and Immunopathology*, 61: 161-176, 1991.
2. G. Virella, **Isabel Virella\***, R.B. Leman, M.B. Pryor\*, and Maria F. Lopes-Virella. Anti-oxidized low-density lipoprotein antibodies in patients with coronary heart disease and normal healthy volunteers. *Int. J. Clin. Lab. Res.*, 23: 95-101, 1993.
3. Marina Mironova, G. Virella, **Isabel Virella-Lowell**<sup>+</sup> and Maria F. Lopes-Virella. Anti-modified LDL antibodies and LDL-containing immune complexes in well-

controlled IDDM patients and healthy controls. Clin Immuno Immunopath.1997; 85:73-82.

4. **Isabel Virella-Lowell**<sup>+</sup>, Amy Poirier, Kye A. Chesnut, Mark Brantly, and Terence R. Flotte. Inhibition of Recombinant Adeno-associated Virus (rAAV) Transduction by Bronchial Secretions From Cystic Fibrosis Patients. Gene Ther 2000. 7(20)1783-1789.
5. **Isabel Virella-Lowell** , Barry Liu , Cecilia Lopez , Pedro Cruz , Chris Muller, Henry V. Baker, and Terence R. Flotte. Effects of CFTR, Interleukin-10 (IL-10), and *Pseudomonas aeruginosa* On Gene Expression Profiles in a CF Bronchial Epithelial Cell Line. Mol Ther 2004. 10(3) 562-73.
6. Flume PA, Gray S, Bowman CM, Kerrigan C, Lester M, **Virella-Lowell I**. Hurricane preparedness for the patient with cystic fibrosis. Am J Nurs 2005; 105: 68-72.
7. **Isabel Virella-Lowell**, Benjamin Zusman, Kevin Foust, Scott Loiler, Thomas Conlon, Sihong Song, Kye A. Chesnut, Thomas Ferkol and Terence R. Flotte Enhancing rAAV Vector Expression In The Lung. J Gene Med. 2005 Apr 19.
8. **Isabel Virella-Lowell**, Benjamin Zusman, Kevin Foust, Scott Loiler, Thomas Conlon, Sihong Song, Kye A. Chesnut, Thomas Ferkol and Terence R. Flotte Enhancing rAAV Vector Expression In The Lung.J Gene Med. 2005 Apr 19.
9. H. Yu, S Morrow Buff, J Baatz, and **I Virella-Lowell**. Oral Instillation with Surfactant Phospholipid: A Reliable Alternative to Intra-tracheal Injection in Mice Studies. (Submitted)
10. Scotty M Buff, Hong Yu, Jenna N McCall, Scarlett M Caldwell, Thomas W Ferkol, Terence R Flotte, and **Isabel L Virella-Lowell**. IL-10 delivery by adeno-associated vector attenuates inflammation in mice with *Pseudomonas pneumonia*. (Submitted)
11. **H Yu**, Y Zeidan, B Wu, T Flotte, Y Hannun, and I Virella-Lowell. Loss of induction of acid sphingomyelinase in cystic fibrosis. (In Press)

#### Chapters in Scholarly Books and Monographs

1. Terence R. Flotte, **Isabel Virella-Lowell**, Kye A. Chesnut. Adeno-Associated Vectors for CF Gene Therapy. 2001. Methods in Molecular Medicine, vol. 70: Cystic Fibrosis Methods and Protocols. W.R.Skach, editor.
2. Terence R Flotte, **Isabel Virella-Lowell**. Cystic Fibrosis, Gene Therapy In. Encyclopedia of the Human Genome. Macmillan Publishers, Ltd, Naure Publishing Group. 2003. 749:1-4.

#### Non-Peer Reviewed Electronic Publications:

1. Sherman JM and **I Virella-Lowell**<sup>+</sup>. Pneumonia. [eMedicine Web site]. June 21, 2000. Available at: <http://www.emedicine.com/ped/topic1833.htm>.