Name Mitchell Drumm		**Position Title** Associate Professor	
Education/Training			
Institution and Location	Degree	Year(s)	Field of Study
The Ohio State University University of Michigan University of Michigan	B.S. Ph.D. Postdoc	1979-1983 1984-1990 1990-1992	Genetics Human Genetics Human Genetics

- **Research and Professional Experience.**

1992 **Research Investigator**, Department of Internal Medicine, University of Michigan
1992-1999 **Assistant Professor**, Departments of Pediatrics and Genetics, Case
1992-2000 **Assistant Professor**, Department of Genetics, Case Western Reserve University
1999-present **Associate Professor**, Department of Pediatrics, Case Western Reserve University
2000-present **Associate Professor**, Department of Genetics, Case Western Reserve University

- **Professional Publications.**

1. F.S. Collins, M.L. Drumm, J.L. Cole, W.K. Lockwood, G.F. Vande Woude and M.C. Iannuzzi. Construction of a General Human Chromosome Jumping Library, with Application to Cystic Fibrosis. Science 235, 1046 (1987).
2. M.L. Drumm, C.L. Smith, M. Dean, J.L. Cole, M.C. Iannuzzi and F.S. Collins. Physical Mapping of the Cystic Fibrosis Region by Pulsed Field Gel Electrophoresis. Genomics 2, 346 (1988).
3. J.E. Richards, T.C. Gilliam, J.L. Cole, M.L. Drumm, J.J. Wasmuth, J.F. Gusella, F.S. Collins. Chromosome Jumping from D4S10 (G8) toward the Huntington Disease Gene. Proc. Natl. Acad. Sci. USA 85, 6437 (1988).
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5. M.C. Iannuzzi, M. Dean, M.L. Drumm, N. Hidaka, J.L. Cole, A. Perry, C. Stewart, B. Gerrard, F.S. Collins. Isolation of Additional Polymorphic Clones from the Cystic Fibrosis Region, using Chromosome Jumping from D7S8. Am. J. Hum. Genet. 44, 695 (1989).
6. J.M. Rommens, M.C. Iannuzzi, B. Kerem, M.L. Drumm, G. Melmer, M. Dean, R. Rozmahel, J.L. Cole, D. Kennedy, N. Hidaka, et al. Identification of the Cystic Fibrosis Gene: Chromosome Walking and Jumping. Science 245, 1059 (1989).
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9. M. Dean, C. Stewart, A. Perry, B. Gerrard, T. Beck, U. Rapp, M. Drumm. M. Iannuzzi, F. Collins and S.O'Brien. Genetic Markers for Oncogenes, Growth Factors, and Cystic Fibrosis in *Modern Trends in Human Leukemia VIII*, Springer-Verlag 1989. p 360-365.
10. M.C. Iannuzzi, R.C. Stern, F.S. Collins, C. Tom Han, N. Hidaka, T.V. Strong, L. Becker, M.L. Drumm, M.B. White, B. Gerrard and M. Dean. Two Frameshift mutations in the Cystic Fibrosis gene associated with mild disease. Am. J. Hum. Genet. 48, 227 (1991).
11. M.L. Drumm, H.A. Pope, W.H. Cliff, J.M. Rommens, S.A. Marvin, L.-C. Tsui, F.S. Collins, R.A. Frizzell and J.M. Wilson. Corection of the Cystic Fibrosis Defect In Vitro by Retrovirus-Mediated Gene Transfer. Cell 62, 1227 (1990).
12. D. Marchuk, M. Drumm, A. Saulino and F.S. Collins. Construction of T-vectors, a rapid and general system for direct cloning of unmodified PCR products. Nucleic Acids Res. 19, 1154 (1991).

13. B. Kluve-Beckerman, M.L. Drumm and M.D. Benson. Nonexpression of the human serumamyloid A three (SAA3) gene. DNA and Cell Biology 10, 651 (1991)
14. M.L. Drumm, D.J. Wilkinson, L.S. Smit, R.T. Worrell, T.V.Strong, R.A. Frizzell, D.C. Dawson and F.S. Collins. Chloride Conductance Expressed by □F508 and Other Mutant CFTRs in *Xenopus* Oocytes. Science 254, 1797 (1991).
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17. J.L. Overholt, A. Saulino, M.L. Drumm, R.D. Harvey. Rectification of whole-cell CFTR chloride current. Am. J. Physiol. 268, C636-C646 (1995).
18. R.C. Stern, C.F. Doershuk and M.L. Drumm. 3849+10kb C->T mutation and disease serverity in cystic fibrosis. Lancet 346:274-276 (1995).

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23. T.J. Kelley, L. Al-Nakkash, C.U. Cotton and M.L. Drumm. Activation of Endogenous ΔF508 CFTR by Phosphodiesterase Inhibition. J. Clin. Invest. 98, 513-520 (1996).
24. J. Zhao, B Zerhusen, J. Xie, M.L. Drumm, P.B. Davis and J. Ma. Rectification of CFTR chloride channels mediated by extracellular divalent cations Biophysical J. 71, 2458-2466 (1996).
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26. T.J. Kelley, L. Al-Nakkash and M.L. Drumm. C-natriuretic peptide increases chloride permeability in normal and CF airway cells. Am. J . Resp. Cell Mol. Biol. 16, 464-470 (1997).
27. T.J. Kelley, K.R. Thomas, Laura J.H. Milgram and M.L. Drumm. *In vivo* activation of ΔF508 CFTR in murine nasal epithelium. Proc. Natl. Acad. Sci. U.S.A. 94, 2604-2608 (1997).
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35. J.F. Chmiel, M.L. Drumm, M.W. Konstan, T.W. Ferkol, and C.M. Kercsmar. Pitfall in the use of genotype analysis as the sole diagnostic criterion for cystic fibrosis. Pediatrics 103, 823-826 (1999).
36. W.K. Steagall and M.L. Drumm. Stimulation of cystic fibrosis transmembrane conductance regulator-dependent short circuit currents across □F508 murine intestines. Gastroenterology, 116, 1379-1388 (1999).
37. K. G. Brady, T. J. Kelley, and M. L. Drumm. Examining basal chloride transport using the nasal potential difference response in a murine model. Am. J. Phys. 281, L1173-L1179 (2001)
38. L.M. Ulatowski, K.L. Whitmore, T. Romigh, A.S. VanderWyden, S.M. Satinoverand M.L. Drumm. Strain-specific variants of the mouse Cftr promoter region reveal transcriptional regulatory elements. Hum. Mol. Genet. *in press*
39. A.M. van Heeckeren, M.D. Schluchter, M.L. Drumm, and P.B. Davis. Role of *Cftr* Genotype in the Response to Chronic *Pseudomonas aeruginosa* Lung Infection in Mice *Am J Physiol Lung Cell Mol Physiol. in press*
40. Drumm ML and Davis PB. Some like it hot: curcumin and CFTR. Trends in Molecular Medicine, 2004 In press.

- **Expertise Summary**

Dr. Drumm's areas of expertise are in genetics and molecular genetics. Over the past 20 years, he has been applying this expertise to cystic fibrosis. In addition to genetics, his expertise has expanded to the use of mouse models to study human genetic disease, focusing on the genetic regulation of ion transport and endocrine processes in cystic fibrosis.