National Jewish Health
Breathing Science is Life.

Hara Levy, MD, MMSc

- *Associate Professor*
- *Head, Division of Pediatric Pulmonary Medicine*
- *Department of Pediatrics*

Conditions Treated:

- *Bronchopulmonary Dysplasia*
- *Childhood Interstitial Lung Disease*
- *Congenital Anomalies of the Respiratory System*
- *Chronic Cough*
- *Cystic Fibrosis (CF)*

Research Areas:

- *Genetics & Genomics of Cystic Fibrosis Lung Disease*
- *Cystic Fibrosis (CF)*

Programs & Services:

- *Primary Ciliary Dyskinesia (PCD) Program*
- *Division of Pediatric Pulmonary Medicine*
- *Department of Pediatrics*
- *Bronchiectasis Treatment Program*

Combining our work with our pulmonary patients with cutting-edge laboratory technologies facilitates our ability to achieve our vision of patient-centered care for children with cystic fibrosis (CF) as well as other pediatric pulmonary diseases.

We are using blood samples from patients sampled over time to generate dynamic genome-wide expression profiles with RNA quantitation/sequencing technologies. These measurements enable us to correlate clinical characteristics (such as P. aeruginosa infection and lung function) with gene expression in each unique patient. Additional molecular and cellular assays allow us to refine the mechanisms that underpin these changes in expression, and we are in the process of developing strategies to examine the expression of miRNAs and genes associated with single-nucleotide polymorphisms and/or copy-number variants. We anticipate that these investigations will highlight genes/proteins that define a patient's clinical course and treatment response. Our clinical interests include establishing molecular definitions of disorders of the CF spectrum, such as CFTR-related diseases and CFTR-related metabolic syndrome , as well as exploring the impact of CFTR mutations on gene expression, predictors of lung-disease severity, newborn screening, and therapeutic responsiveness.

Taken together, our quantitative investigations will help us to identify and characterize non-CFTR genes that may better define and predict the severity of CF lung disease and account for the phenotypic heterogeneity that challenges physicians on a daily basis. Our pursuit of large-scale, epidemiological data from clinical cohorts allows us to evaluate the effect and impact of differential gene expression and the clinical relevance of these changes over the course of each patient's life. My laboratory performs translational research where graduate students, clinical fellows, postdoctoral fellows and faculty can work collaboratively to advance our fundamental knowledge about genetics and genomics of CF lung disease.

Board Certification

Pediatric Pulmonary

Pediatrics

Education

2001 - 2003	Harvard Medical School, Boston, MA, MMSc
1981 - 1986	Medical College of Wisconsin, Milwaukee, WI, MD
1981 - 1986	Stanford University, Palo Alto, CA , BS and MS

Residency

1992 - 1996	Medical College of Wisconsin Affiliated Hospitals, Internal Medicine and Pediatrics

Fellowship

1999 - 2001	Children's Hospital, Boston, MA, Pulmonary Medicine
1997 - 2000	Harvard Medical School, Boston, MA, Pediatric Scientist Development Training Program
1996 - 1997	Children's Hospital of Philadelphia, PA, Pediatric Cardiology

Affiliations with the University of Colorado Denver

Associate Professor of Pediatrics

Professional Memberships

American Thoracic Society
Society for Pediatric Research

Awards & Recognition

2010-2015: NIH Director's Innovator Grant Awardee
2017-2019: ATS Chair Pediatric Pulmonology Planning Committee

Publications

Levy H, Jia S, Pan A, Zhang X, Johnson K, Kaldunski M, Nugent ML, Reske M, Feliciano RA, Renda MM, Woods KA, Verbsky J, Das T, Quasney MW, Dahmer MK, Avner E, McColley S, Farrell PM, Jacob HJ, Simpson P, Hessner M. Identification of molecular signatures in cystic fibrosis using plasma-based functional genomics. Physiol Genomics. 2019;51(1):27-41. Physiolgenomics. PMID: 30540547; PMCID: PMC6383551

Ideozu, JE, Zhang X, McColley SM and Levy H. Transcriptome profiling and molecular therapeutic advances in cystic fibrosis: recent insights. Genes 2019; 10, 180; PMID: 30813620; PMCID: PMC6383551

Audrey Tluczek A, Levy H, Rock MJ, Ondoma C, and Brown RL, Impact of Intermediate Cystic Fibrosis Classification on Parents' Perceptions of Child Vulnerability and Protectiveness. J Fam Nurs. 2019 May;25(2):287-313. doi: 10.1177/1074840719842834. Epub 2019 Apr 26. PMID: 31027440

Zhang, X, Pan A, Shuang J, Ideozu J, Woods K, Murkowski K, Hessner M, Simpson P, Levy H. Cystic fibrosis plasma induces blunted immune response associated with bacterial infection. Am J Respir Cell Mol Biol. 2019 Sep;61(3):301-311. doi: 10.1165/rcmb.2018-0114OC. PMID:30848661

Ideozu JE, Rangaraj V, Abdala-Valencia H, Zhang X, Kandpal M, Sala MA, Davuluri RV, and Levy H. Transcriptional consequences of impaired immune cell responses induced by cystic fibrosis plasma characterized via dual RNA Sequencing. BMC Med Genomics. 2019; 12: 66. Published online 2019 May 22. doi: 10.1186/s12920-019-0529-0; PMCID: PMC6532208

Doctor's Contact Information

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Locations

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