Paul R. Reynolds, PhD

Conditions Treated:

Research Areas:

- *Cystic Fibrosis (CF)*
- *Immune Deficiency and Immune Dysregulation Disorders*
- *Genetic Testing*
- *Molecular Diagnostics*
- *Personalized Medicine*

Research Interests

National Jewish Health is strongly interested in Personalized Medicine as a means to improve all aspects of patient care. As Personalized Medicine requires a sophisticated and contemporary approach to molecular diagnostics, over the past several years I have developed a number of genetic tests relevant to the diseases frequently seen in the NJH clinic. These include but are not limited to Atopic Dermatitis and Immunodeficiency, the latter of which includes complement defects. I have also developed speciation and detection testing for a number of bacteria, particularly the genus Mycobacterium.

In close collaboration with the Advanced and Molecular Diagnostic Laboratories of National Jewish Health, I am spearheading our effort to use Next Generation Sequencing in CAP- and CLIA - approved clinical testing. At this stage we are testing NGS analysis of CFTR (mutated in Cystic Fibrosis) and the entire Complement Pathway (approximately 50 genes). In the near future we will be analyzing the Epidermal Differentiation Complex on Chromosome 1, for mutations that underlie Atopic Dermatitis and other diseases of the skin. We have also started to develop analysis of a panel of over 240 genes that are known to have mutations that may cause a Primary Immunodeficiency.

Education

1973 Rensselaer Polytechnic Institute, BS
1980 University of Virginia, PhD, Biochemistry

Publications

Reynolds SD, Shen H, Reynolds PR, Betsuyaku T, Pilewski JM, Gambelli F, DeGuiseppe M, Ortiz L, Stripp BR (2007) Molecular and functional properties of lung side population cells Amer J Physiol: Lung Cell Mol Physiol 292: L972-983.

Reynolds SD, Reynolds PR, Snyder JC, Whyte F, Paavola KJ, Stripp BR CCSP regulates cross-talk between secretory cells and both ciliated cells and macrophages of the conducting airway Journal name: Amer J Physiol: Lung Cell Mol Physiol (2007) 293: L114-123.

Cho J, Choi, K, Darden T, Reynolds PR, Petitte JN, Shears SB (2006) Avian multiple inositol polyphosphate phosphatase is an active phytase that can be engineered to help ameliorate the planet's "phosphate crisis". J. Biotechnology 126: 248-59

Chi H, Yang X, Kingsley PD, O'Keefe RJ, Puzas JE, Rosier RN, Shears SB, Reynolds PR (2000) Targeted deletion of Minpp1 provides new insight into the activity of multiple inositol polyphosphate phosphatase in vivo. Mol Cell Biol.20:6496-6507.

Romano, P. R., Wang, J., O'Keefe, R. J., Puzas, J. E., Rosier, R. N., Reynolds, P. R. (1998). HiPER1, a phosphatase of the endoplasmic reticulum with a role in chondrocyte maturation. J Cell Sci 111: 803-811.

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