"The Oregon nontuberculous mycobacteria (NTM) cohort; immune correlates of pulmonary NTM disease progression

PI – Kevin Winthrop

ABSTRACT:

This application seeks to develop a biorepository for a cohort of patients with pulmonary nontuberculous mycobacterial (NTM) infection, and leverages an existing NIH-funded project evaluating the natural history of this chronic and debilitating disease. NTM are ubiquitous within municipal water systems and soil, and our epidemiologic work has documented NTM disease rates to be rapidly increasing, particularly among older adults without recognized immune deficits. While our work has elucidated certain risk factors for disease, there has been little evaluation of the host response to exposure and infection, and currently, the pathogenesis of pulmonary NTM disease is unexplained. Our NIH-funded project supports the longitudinal follow-up of a population-based cohort of patients with pulmonary NTM infection (n=371) identified in 2005-6, and the ongoing expansion of this cohort with newly infected individuals (n=180/year). From our 2005-6 cohort, we know that some have progressed to active disease (cases) while others have not (non-cases), allowing us to evaluate various host factors that potentially serve as biomarkers for disease progression. Our epidemiologic and clinical observations to date suggest the possibility that adipokines (e.g. adiponectin) and/or differential T lymphocyte responses are important to disease pathogenesis. OCTRI support (anticipated start date 2/2013) will allow us to collect/store blood from these patients, and to evaluate these hypotheses from a subset (n=100) of our cohort. With this preliminary data, and the biorepository which will store samples from newly infected individuals, we will submit an R01 application (anticipated 2/2014) that seeks to prospectively identify predictors of disease development and progression.