

Table 1: Principal and co-investigators on our project team.

Person / role	Description
Brooke Anderson Principal Investigator <i>Assistant Professor, Dept of Environmental & Radiological Health Sciences</i>	Dr. Anderson is an expert in R programming and has created and published several open-source R packages, in particular to facilitate environmental epidemiological research. She has experience creating R programs to work with large data, including climate model output and large weather datasets, as well as programs that interface with open web-based datasets. She is the co-instructor of a series of Massive Open Online Courses on <i>Mastering Software Development in R</i> through Coursera and an associated open online book.
Michael Lyons Co-Investigator <i>Assistant Professor, Dept. of Microbiology, Immunology & Pathology</i>	Dr. Lyons works on the computational biology and pharmacology of tuberculosis infection and treatment in experimental animal models and tuberculosis patients. Prior to joining CSU full-time in 2011, he was a software engineer in the computer industry for 12 years, and prior to that, a theoretical physicist. Through a K25 award, he obtained significant classroom and hands-on training and exposure to laboratory methods related to drug and vaccine development for tuberculosis, providing him with a solid understanding of how preclinical and clinical data are used for evidence-based decision making in the biomedical sciences. He is highly attuned to the problems that this project aims to address, and he has a clear understanding of the practical limitations and challenges for both the laboratory scientist and data analyst. He uses R daily in his academic research
Mercedes Gonzalez-Juarrero Co-Investigator <i>Associate Professor, Dept. of Microbiology, Immunology & Pathology</i>	Dr. Gonzalez-Juarrero studies the basic nature of the cell mediated immune response to mycobacteria infections. During the last ten years, her research group has undertaken studies to investigate the emergence of immunosuppression during pulmonary tuberculosis, with the primary goal of learning how and where to target the latently infected host to fully recover the antimicrobial activity of the infected cell, and how to use this information in the context of current chemotherapeutic and multidrug resistant tuberculosis infections. Dr. Gonzalez-Juarrero became particularly interested in how to improve the reproducibility, transparency, and efficiency of experimental data recording within her research projects when she attended Dr. Anderson's CSU course on <i>R Programming for Research</i> in Fall 2017 and learned about the principles of structured data formats, including the "tidy" data format now popular with statisticians, and she has begun implementing these principles in her research laboratory.
Marcela Henao-Tamayo Co-Investigator <i>Assistant Professor, Dept. of Microbiology, Immunology & Pathology, Co-Director of CSU-Flow Cytometry Facility</i>	Dr. Henao-Tamayo studies the immunopathogenesis of tuberculosis using animal models to evaluate the role of different types of T cells and myeloid-derived cells in tuberculosis and Bacille Calmette Guerin vaccination. She has tested numerous vaccine candidates evaluating the immune response they elicit in association with protection against tuberculosis disease. She is interested in how existing tools for computational reproducibility can be applied to data recording and pre-processing in her own research laboratory, and she and Dr. Anderson (PI) co-advise a graduate student who is integrating open-source R software into the regular practice of Dr. Henao-Tamayo's research work, including through implementation of reproducible automated gating of flow cytometry data.
Gregory Robertson Co-Investigator <i>Assistant Professor, Dept. of Microbiology, Immunology & Pathology</i>	Dr. Robertson has more than 20 years of classical and clinical microbiology experience, with an emphasis in antibacterial discovery and mode-of-action studies for novel and existing classes of antimicrobials. This includes efforts in academia, and also with larger pharmaceutical corporations (Eli Lilly and Co) and smaller bio-pharmaceutical groups (Cumbre Pharmaceuticals). His current research is focused on <i>Mycobacterium tuberculosis</i> host-pathogen interactions and the development and application of novel preclinical animal models to further anti-tuberculosis drug development and evaluate drug resistance. In the context of improving reproducibility in biomedical research, Dr. Robertson is particularly passionate about the perils of using spreadsheets with embedded formulas as a tool for recording and analyzing experimental data.