Per- and polyfluoroalkyl substances (PFAS) are synthetic compounds that are extremely resistant to degradation and have additional physical-chemical properties that make them useful as surfactant processing aids and as surface protectants to confer oil, stain, and water resistance. However, many of the same physical-chemical features that have led to their widespread use across many industries has led to their widespread presence in the environment, including living organisms. A growing body of scientific evidence concerning PFAS indicates that while many individuals in this class of over 5,000 compounds also are multisystem toxicants, the mechanisms by which PFAS induce toxicity remain elusive, especially for PFAS that have been phased out of production here in the U.S. Many industries that produce and use PFAS have switched to “replacement” compounds that are now being discovered, like the phased out compounds, in drinking water sources. The presence of these replacement PFAS in drinking water has created challenges for regulatory agencies, public interest and advocacy organizations, local/regional water quality specialists, concerned citizens, and even basic research scientists, due to the paucity of toxicity-related information for these replacement compounds. Further, the lack of toxicological mechanisms have made it challenging to develop rapid assays by which additional PFAS can be evaluated for prioritization or site-specific management. Using the immune system as an example, this presentation will discuss existing data and the need for additional descriptive and mechanistic toxicity data for PFAS.

Host: Dr. Jennifer Freeman