The CTDL Host Response laboratory focus is managed by Jason Stevens, Senior Research Analyst and medical technologist. He has extensive expertise in development and implementation of assays for host responses, as well as managing large numbers of samples for multi-institutional projects. In this capacity, he interfaces directly with the leadership of the CCTS BAL to determine the most effective methods for supporting clinical and translational research investigations across UK. The CTDL had been performing a broad array of analyses for host response biomolecules in varied biological fluids for different investigators.

Host Response Services:

- Examples of analytes that have been quantified in serum from patients include an array of cytokines (eg. IL-1β, IL-6, IL-10, TGFβ, TNFα etc.) and chemokines (eg. IL-8, MCP-1, MIP-1α, Eotaxin, etc.), matrix metalloproteinases, acute phase proteins (eg. CRP, SAA, SAP etc.), adipokines (eg. Leptin, Adiponectin, etc.), prostanoids (eg. PGE2, Isoprostane, LTB4, etc.), immunoglobulins (IgG, IgA), and antibodies to numerous bacteria
- Various analytes in saliva, focusing on the potential diagnostic use of this fluid in both oral and systemic disorders (ie. CVD, adverse pregnancy outcomes), including array of molecules similar to serum, as well as cortisol and cotinine levels in saliva
- Biomolecules have in dental plaque, gingival crevicular fluid and cervico-vaginal fluid
- Analyses on biological specimens (ie. fluids, tissue homogenates) from mouse, rat and nonhuman primate models of oral and systemic diseases.
- The CTDL host response personnel with consultation from Dr. Ebersole, CTDL Director, interacts with investigators at the initiation of their project design. Support is provided in evaluating different assays for their targeted analytes, as well as critical issues of sample management. This information is then integrated to provide the investigator an estimated budget for the assays. Once the study has initiated, the CTDL personnel work directly with the investigators support staff to develop schedules for sample assay and direct management of the samples for assessment

Laboratory Equipment

- A Luminex 100IS and Luminex 1000IS System. This technology is ideal for developing single and multi-analyte assays, particular with limited volumes of sample. The laboratory is equipped to perform both standard and magnetic beadlyte assays. We have designed specific templates for both commercial and specialty multiplex kits. The system has fully integrated graphing and data regression capabilities. This system has enabled quantitative, reproducible measures of analyte profiles, particularly in low volume samples for numerous projects across UK
● A SpectraMax M2 ELISA reader and an LMAX 2 384 combined fluorimeter/luminometer, (Molecular Devices) to support the needs of various assays formats for the investigators
● A ELx808 (Cambrex BIO TEK) ELISA system for quantitative measures of endotoxin in biological specimens is utilized and available as a service for research projects across the UK campus.
● Multiple large liquid N₂ cell storage vessels and -80°C freezers

Cell Biology Support:
The laboratory houses 3 biosafety hoods for cell culture and stratifies these hoods related to the types of cells being cultured and any type of infectious agent that may be used in the particular studies. Additionally, this facility houses 4 CO₂ incubators for cell growth. There is personnel expertise for cultivating a wide array of cell types, eg. epithelial, fibroblast, macrophage, T cell, including both cell lines and primary cultures. While much of this activity is directly related to individual investigator staff accessing the facility and maintaining their own cultures and performing the cell biology studies, CTDL provide support when requested.