**Figure 1. Multi-omic Analysis of Enterococcal Bacteremia Patient Plasma.**

1. Workflow for Enterococcal Bacteremia plasma analysis.
2. Distribution of values collected from selected clinical metadata fields across Enterococcal Bacteremia patients.
3. Unsupervised hierarchical clustering of proteomics data
4. Unsupervised hierarchical clustering of metabolomic data.

**Figure 2. Untargeted Proteomics Reveal Dramatic Differences Between Bacteremia Types and Healthy Plasma**

1. Volcano plot comparing log2 fold change and FDR adjusted p values of protein abundances observed when comparing infected to healthy.
2. Significantly enriched GO terms from plasma proteomics of patients suffering from Enterococcus, *E. faecalis*, *E. faecium*, and *Staphylococcus. aureus* bacteremia.
3. Top 2 performing protein biomarkers as ranked using ensemble feature selection.

**Figure 3. Untargeted Metabolomics Reveal Dramatic Differences Between Enterococcal Bacteremia and Healthy Plasma**

1. Volcano plot comparing log2 fold change and FDR adjusted p values of normalized metabolite abundances observed when comparing infected to healthy.
2. Description of the number of features identified in this study at the various steps of data normalization.
3. Enrichment analysis of putatively annotated metabolites found to be significantly different in infected patients relative to healthy.
4. Evaluation of top 2 performing metabolite biomarkers as ranked using ensemble feature selection for distinguishing enterococcal bacteremia patients from healthy.

**Figure 4. Untargeted Proteomics Reveals Differences Between *Enterococcus faecalis* and *Enterococcus faecium* Bacteremia.**

1. Volcano plot displaying differential protein abundances observed between Enterococcus faecalis and Enterococcal faecium infected patients.
2. GO Term enrichment analysis of the proteins found to be significantly enriched in proteins significantly more abundant in Enterococcus faecalis patients relative to Enterococcus faecium.
3. Immunoglobulin Abundances compared across patients with *E. faecalis* or *E. faecium* bacteremia and healthy volunteers.
4. GO Term enrichment analysis of the proteins found to be significantly enriched in proteins significantly more abundant in Enterococcus faecium patients relative to Enterococcus faecalis.
5. Top 2 performing protein biomarkers as ranked using ensemble feature selection for distinguishing patients infected with *Enterococcus faecalis* from those infected with *Enterococcus faecium*.

**Figure 5. Untargeted Metabolomics Reveals Differences Between *Enterococcus faecalis* and *Enterococcus faecium* Bacteremia.**

1. Volcano plot comparing metabolites observed between Enterococcus faecalis and Enterococcal faecium infected patients.
2. Evaluation of top 2 performing metabolite biomarkers as ranked using ensemble feature selection for distinguishing enterococcal bacteremia patients from healthy.

**Figure 6. Multi-omic discrimination of Mortality from Survival.**

1. Volcano plot comparing log2 fold change and FDR adjusted p values of protein abundances observed when comparing patients who suffered mortality during admission to those who survived.
2. GO Term enrichment analysis of the proteins found to be significantly enriched in mortality relative to survival.
3. GO Term enrichment analysis of the proteins found to be significantly enriched in survival relative to mortality.
4. Evaluation of top 2 performing protein biomarkers as ranked using ensemble feature selection for distinguishing mortality from survival.
5. Volcano plot comparing log2 fold change and FDR adjusted p values of normalized metabolite abundances observed when comparing patients who suffered mortality during admission to those who survived.
6. Evaluation of top 2 performing metabolite biomarkers as ranked using ensemble feature selection for distinguishing mortality from survival.

**Figure S1.** **Overview of Analysis Workflow.**

**Figure S2. Functional Networks of significantly different features.**

**Figure S3. Evaluation of Clinically Used Biomarkers**

**Figure S4. Top 10 Biomarkers for Distinguishing Healthy from Infected**

**Figure S5. Top 10 Biomarkers for Distinguishing Faecium from Faecalis**

**Figure S6. Top 10 Biomarkers for Distinguishing Mortality from Survival**

**Figure S7. Assessment of Top 10 Biomarkers for Potentially Confounding Variables**

**Figure S8. Cytokine Inference.**

**Figure S9. Clustering of Clinical Isolates of Enterococcus by Gene Content.**

**Figure S10. Assessment of Confounding Variable Effects**