



# HIGH-THROUGHPUT TARGETED PLASMA PROTEOMICS SHOWS SYSTEMIC DYSREGULATION IN PLHIV ON ART

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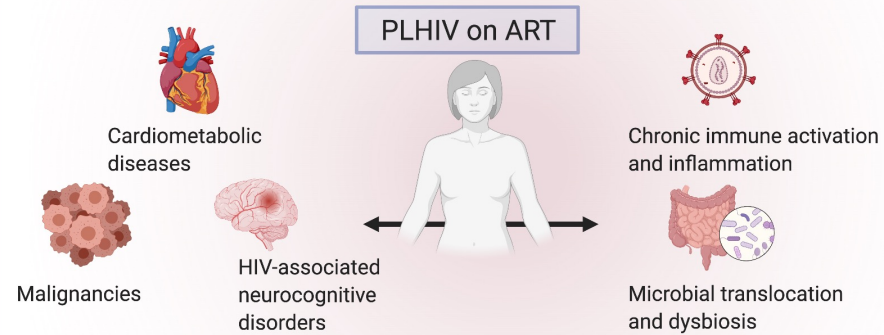


The 2000HIV Human Functional Genomics Partnership Program  
(2000HIV study) is supported by ViiV Healthcare

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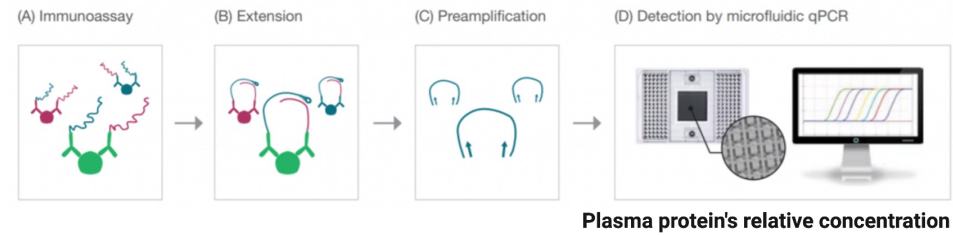
## Background

Disease



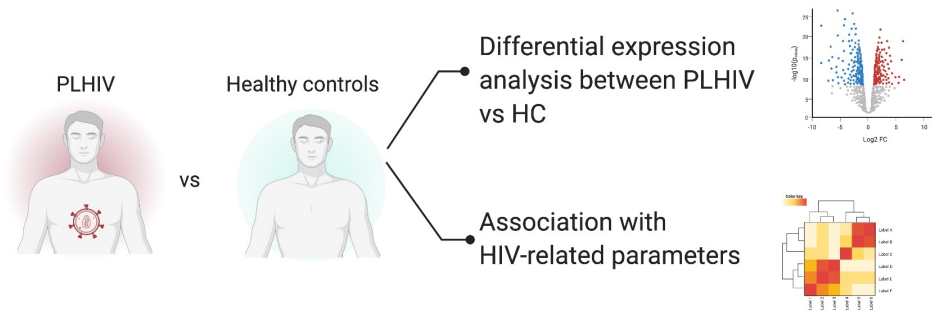
## Method

Targeted Proteomics:  
~1400 Proteins

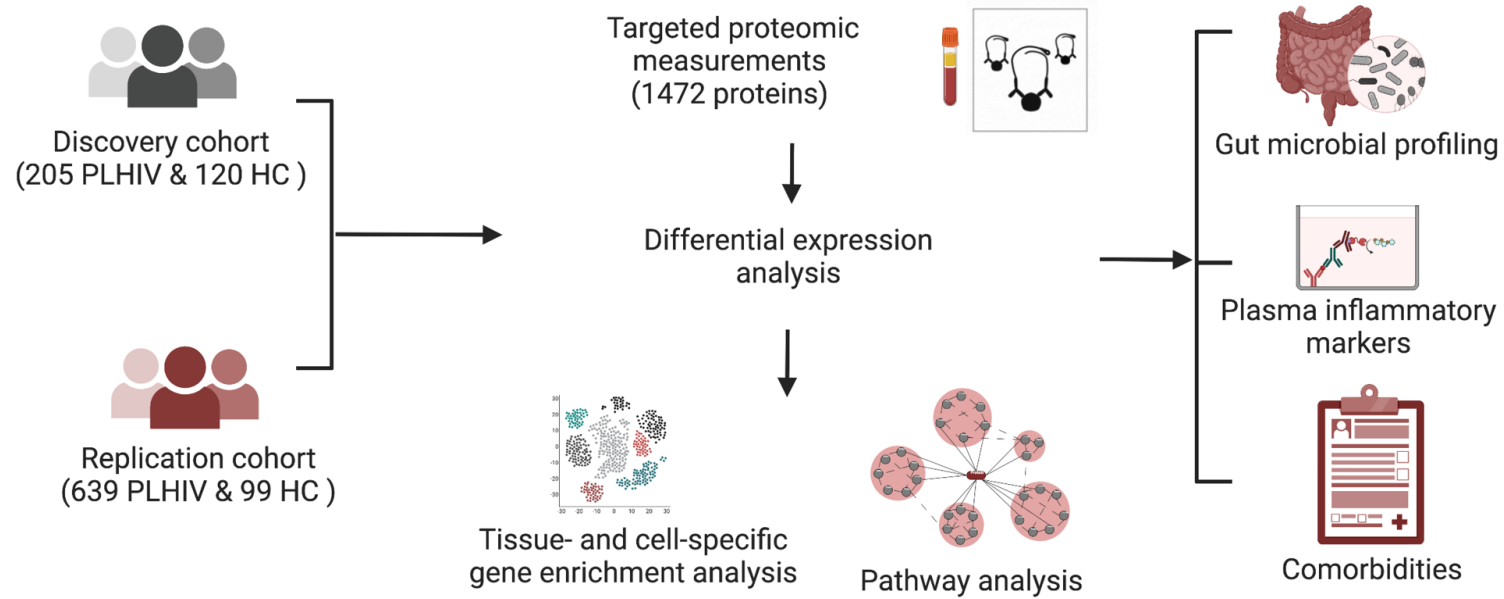


## General Objective

Proteomics profiling



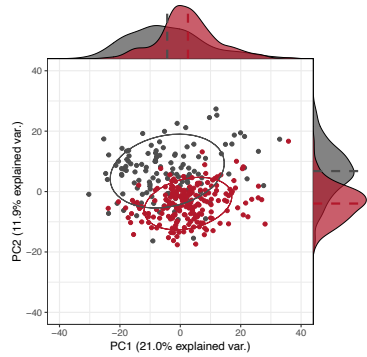
# Study overview



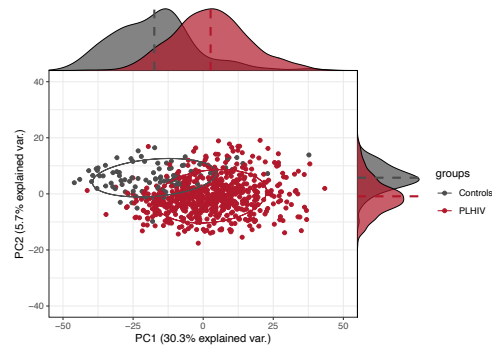
# Differential protein expression analysis in PLHIV vs. HCs



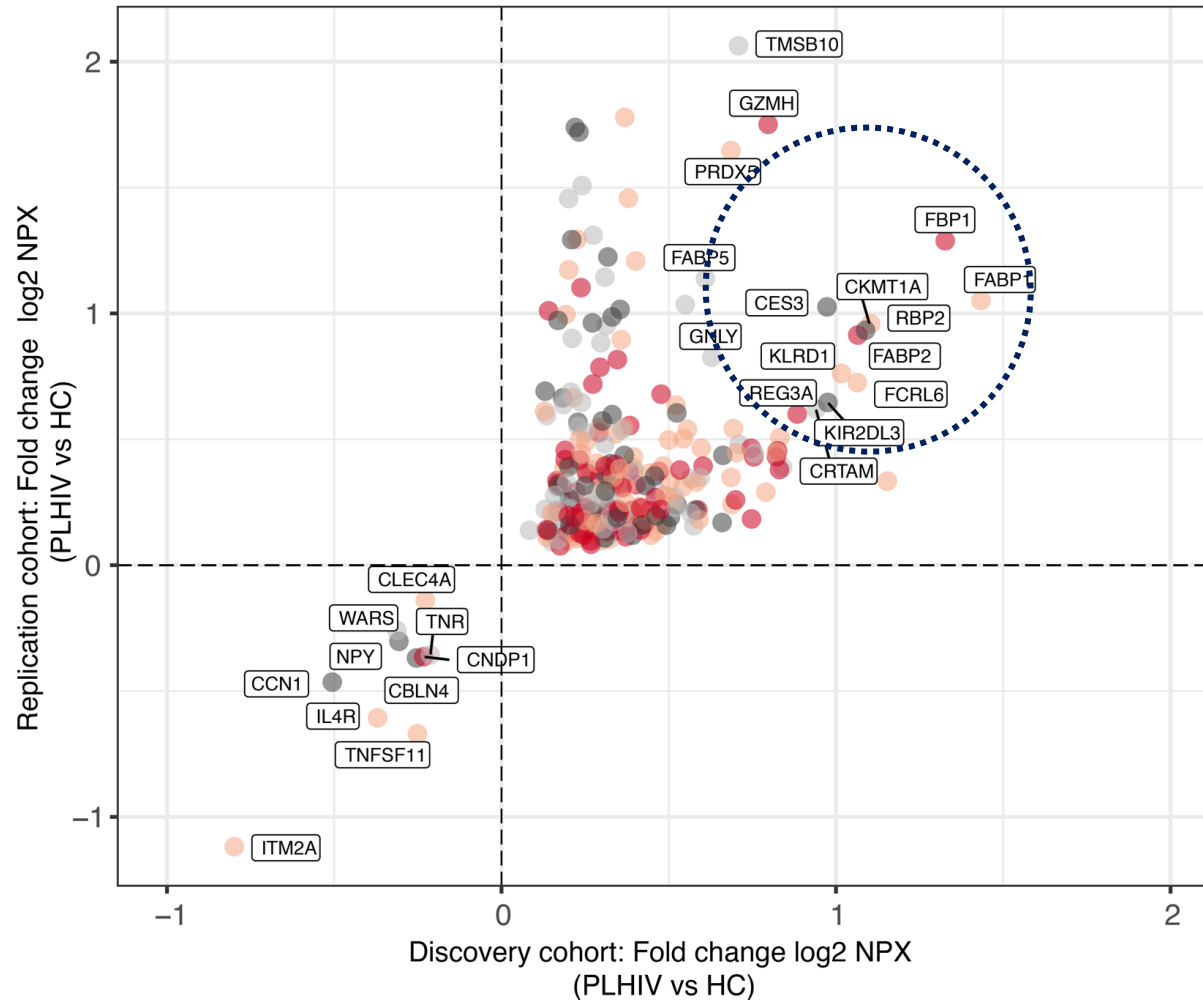
● Cardiometabolic ● Inflammation ● Neurology ● Oncology



Discovery



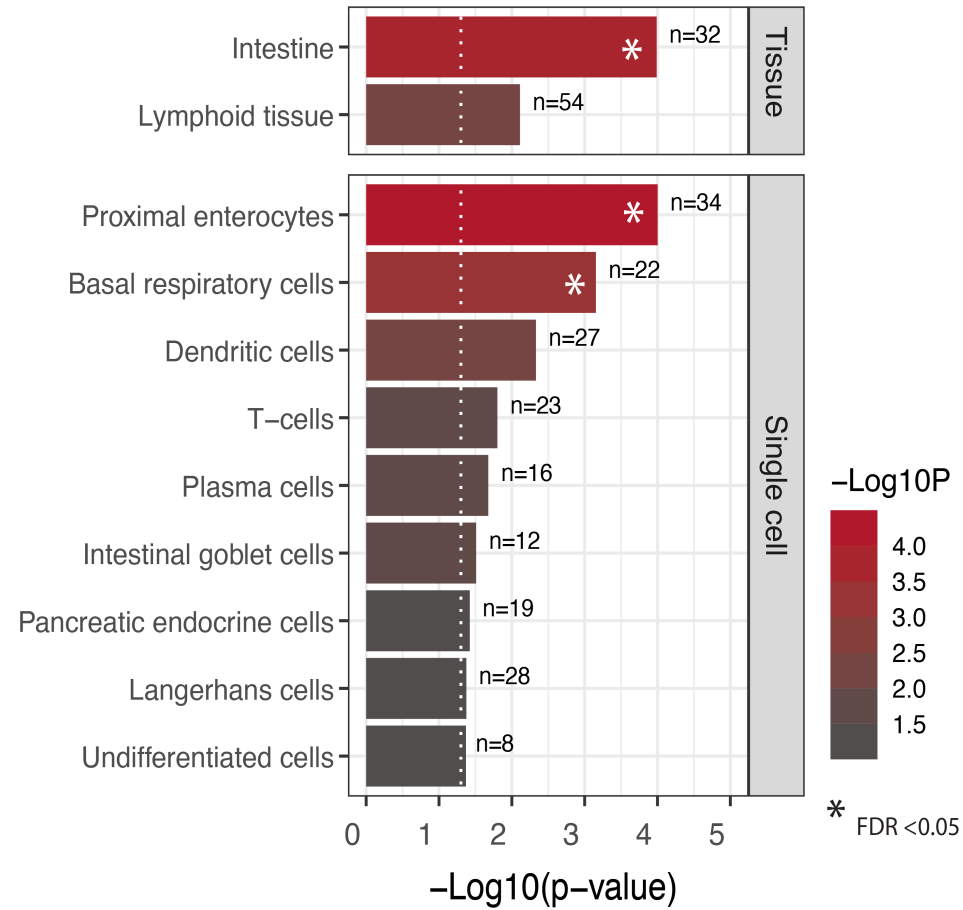
Replication



276 proteins overlapped

266 Upregulated  
10 Downregulated

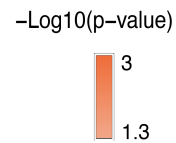
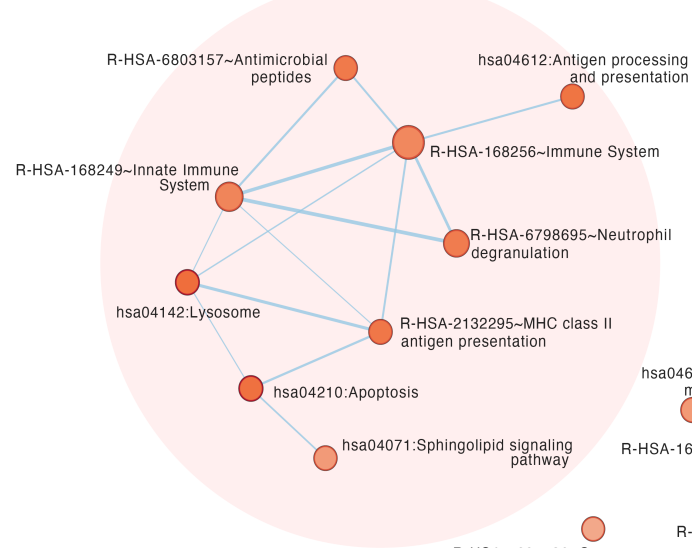
# Differentially expressed proteins are enriched in intestine and lymphoid tissues



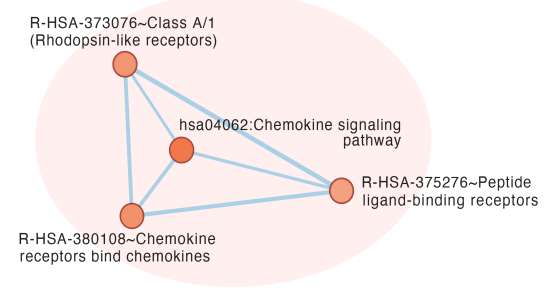
# Differentially expressed proteins are enriched in immune and lipid-related pathways



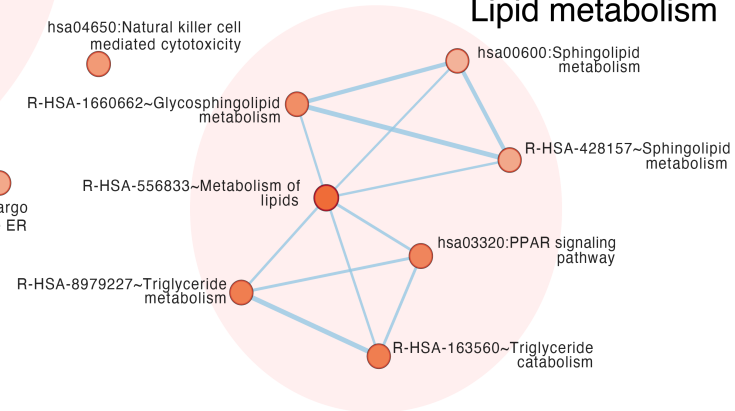
## Antigen presentation- innate immune system



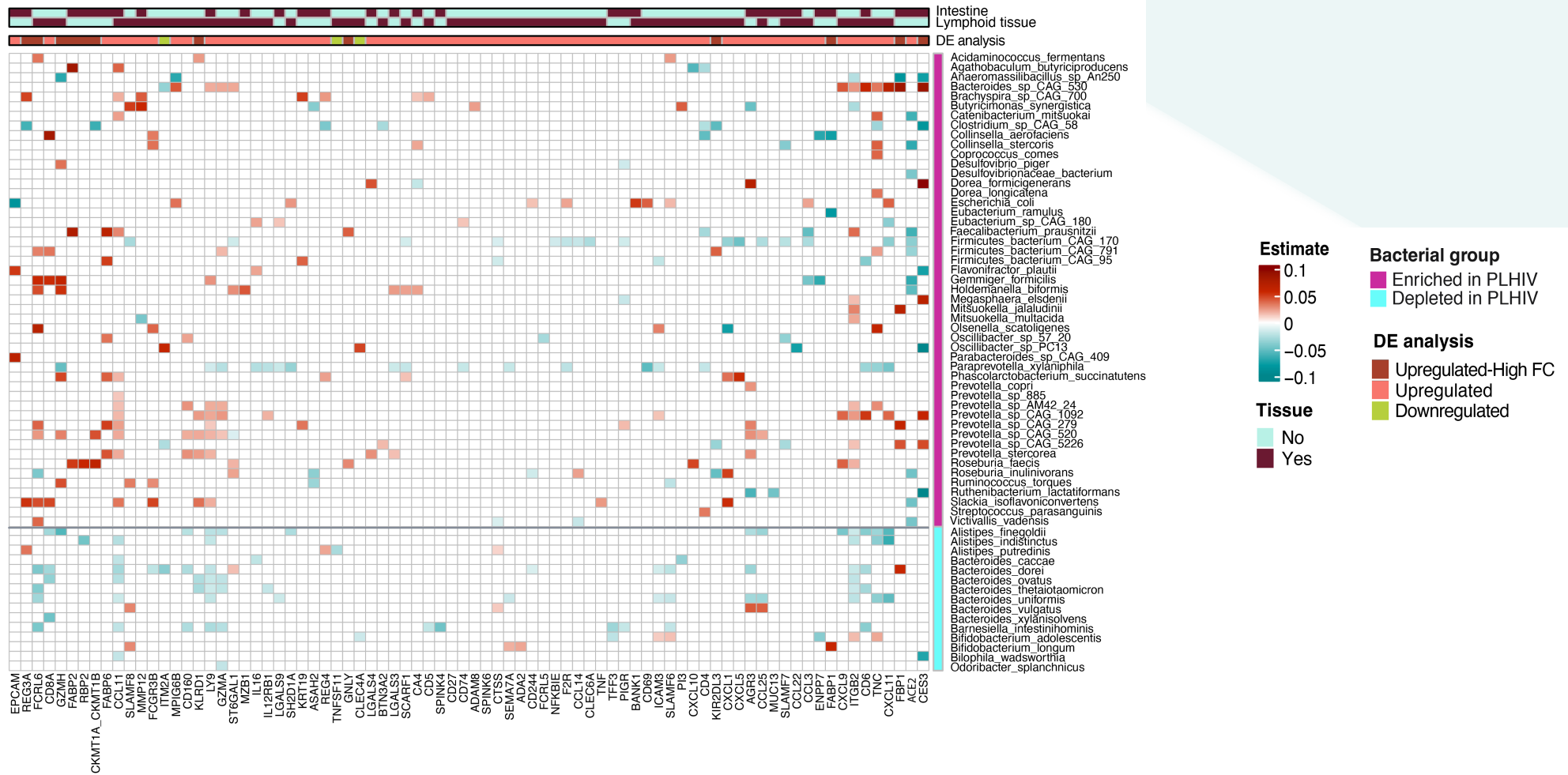
## Chemokine receptor interaction



## Lipid metabolism

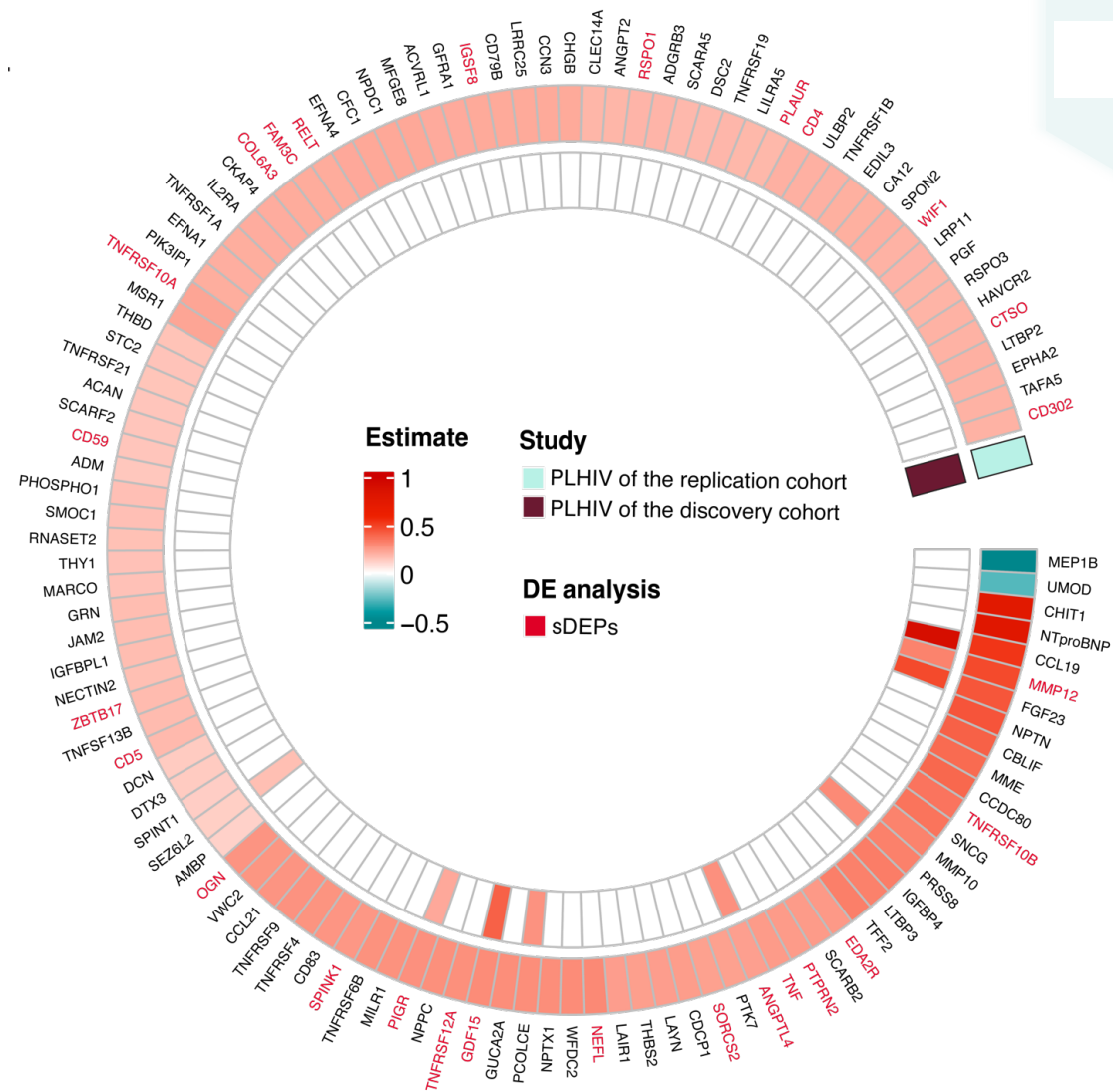


# Gut bacterial species influence on intestine and lymph nodes-specific DEP

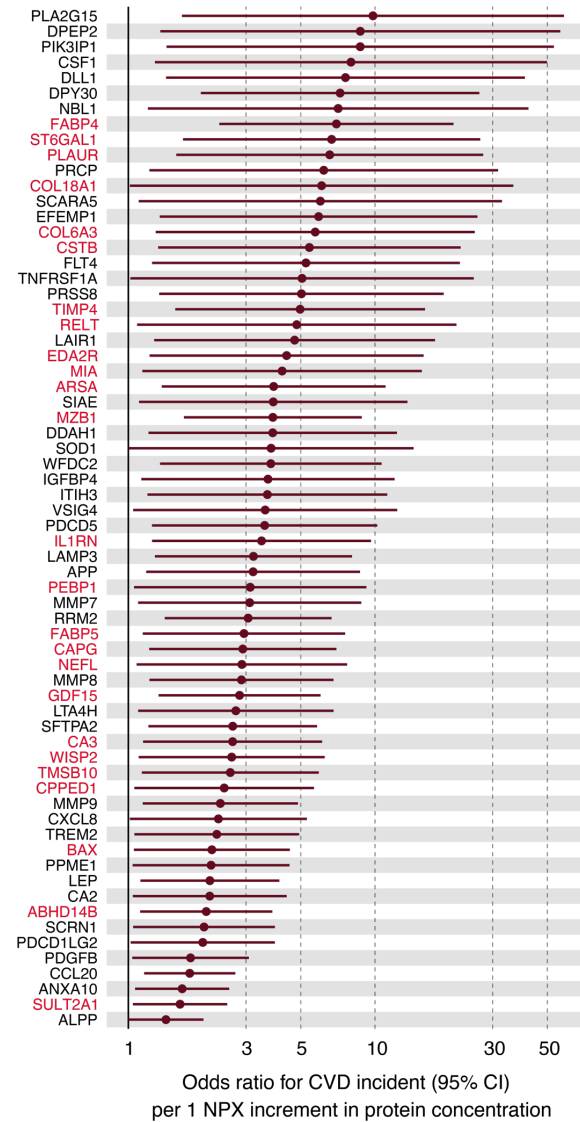




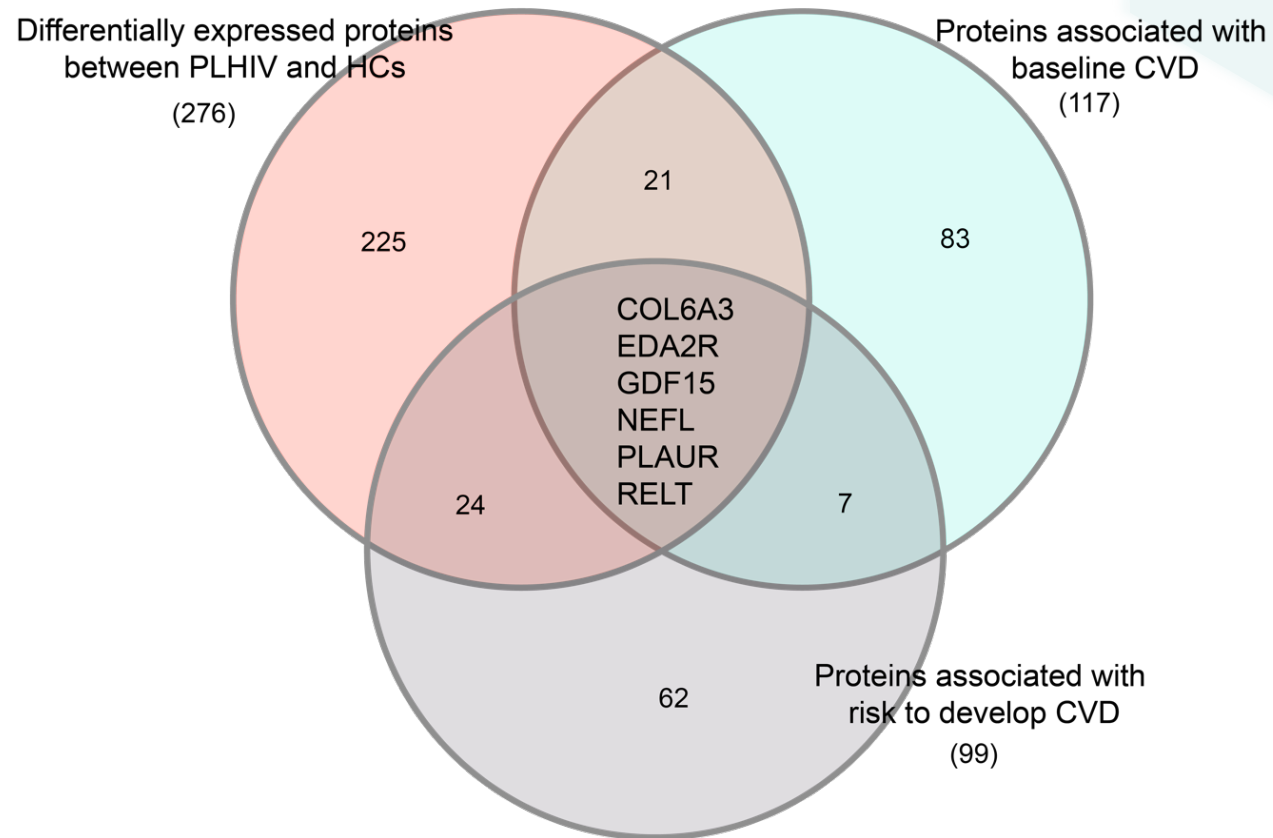
# Associations between protein concentrations and CVD history in PLHIV



# Differentially expressed proteins as predictors to CVD events using 5-year follow up data



# Six upregulated proteins are associated with CVD in PLHIV





1. PLHIV on ART displayed **systemic dysregulation** of protein concentrations compared to HCs
  2. Most of the DEPs originated from the **intestine and lymphoid tissues**
  3. The DEPs are enriched in **immune- and lipid** metabolism-related pathways
  4. DEPs originating from the intestine were associated with specific **gut bacterial species**
  5. Six upregulated proteins in PLHIV (**GDF15, PLAUR, RELT, NEFL, COL6A3, and EDA2R**) are associated with the presence and risk of developing **CVD** in a 5-year follow-up study
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Our findings suggest a systemic dysregulation of protein concentrations in PLHIV, of which some proteins were associated with CVD development. Most of DEPs originated from the gut and were related to specific gut bacterial species.

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