

**21 PFASs concentration detection, quality control and preprocessing**

**Human serum qualified 13 PFASs accumulation**

**Genetic regulation**

- **Identifying genetic variants associated with PFASs accumulation**
  - Discovery sample
  - Replication sample
  - Total sample
  - Sensitivity analyses
- **Mapping genetic variants to genes**
  - Physical position
  - *Cis*-eQTL
- **Testing associations between genes expression and PFASs accumulation**
  - PFASs and gene expression
- **Identifying causal effects of genes on PFASs accumulation**
  - Gene expression → PFASs

**Neurotoxicity**

**1. Brain structural measures**

- **Observational analyses**
  - Discovery
    - Vertex-wise (CT and CSA)
    - Voxel-wise (FA and MD)
  - Sensitivity analyses
  - ROI wise replication
- **Causal analyses**
  - PFASs accumulation → brain structure

**2. Behavioural traits**

- **Observational analyses**
  - Discovery
    - Mental health, personality and cognition
  - Sensitivity analyses
  - Replication
- **Causal analyses**
  - PFASs accumulation → behaviour

**3. Pathway analyses**

- **Observational association**
- **Causal association**
  - PFASs accumulation → brain → behaviour