Review of the Phase 1 PsychENCODE capstone resource: Layers of distributed information

Material in the 3 capstones:

- AC - Wang et al. ('18)
- DC - Li et al. ('18)
- NC - Gandal et al. ('18)

Resource.psychencode.org
Development.psychencode.org
Base Data Layer

Organizing Metaphors

Future considerations

- New "Axes"?
- New sets to merge (GTEx v8, HCA)?
- Reference brain?
Pipeline Results

- ChIP-seq & Me
  - signal tracks & peaks
  - Differential H3K27ac & Me peaks
- Bulk RNA-seq quantifications
- Single-cell
  - Quantifications
  - Cell-type signatures & fractions
- Imputed genotypes
- Hi-C matrix & TADs

Future considerations

- ATAC-seq pipeline? sc-ATAC?
- More cell types
- WGS vs. imputed genotypes
Derived Results

- DEX genes & co-expr. modules
  - Across development, regions & conditions
  - Differential splicing
- PFC QTLs
  - cis-eQTLs - ~2M (sat’d)
  - fQTL, cQTLs
- Enhancers (init. PFC & CBC)

Future considerations

- Trans QTLs? More regions?
- Starr-seq enhancers?
Integrative Models

- Integ. Regulatory Networks
  - Activity+Hi-C+QTL
  - Double overlap high-conf. linkages (eg A+H)
- Init. disease prediction model (DSPN)

Future considerations

- Better networks? Single-cell?
- How to distribute models?