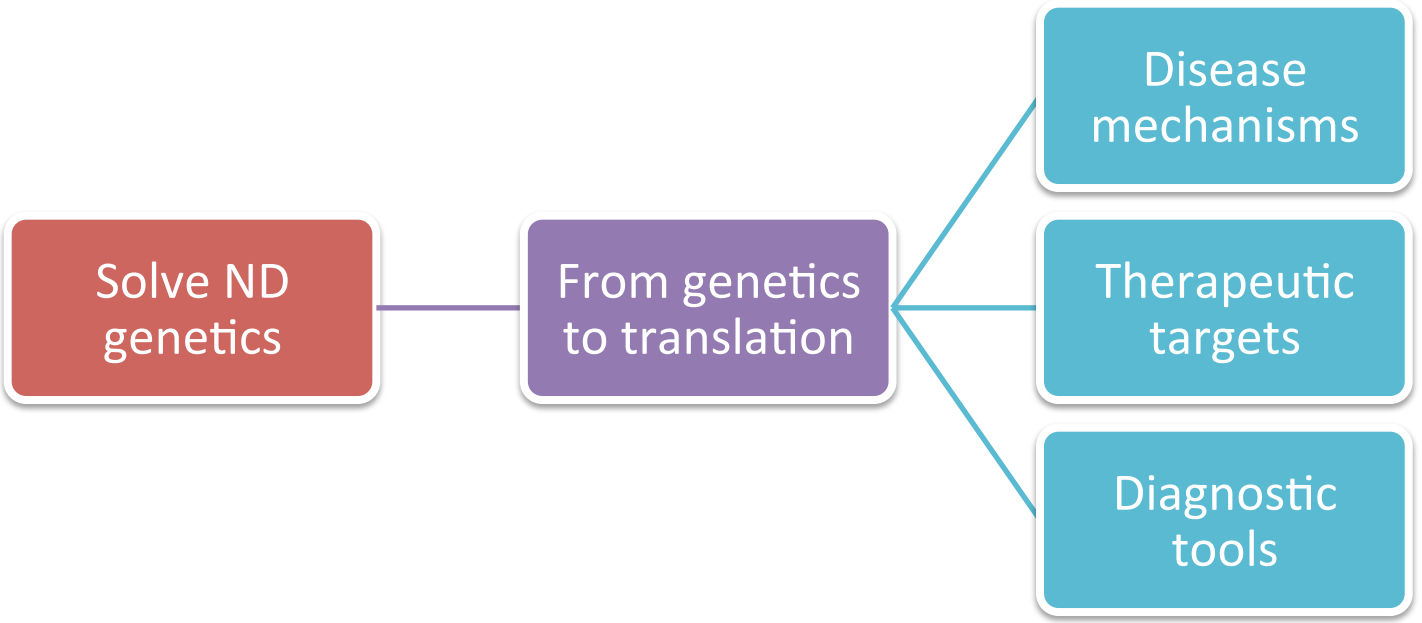
Introduction to Penn Neurodegeneration Genomics Center (PNGC)

Gerard Schellenberg / Li-San Wang

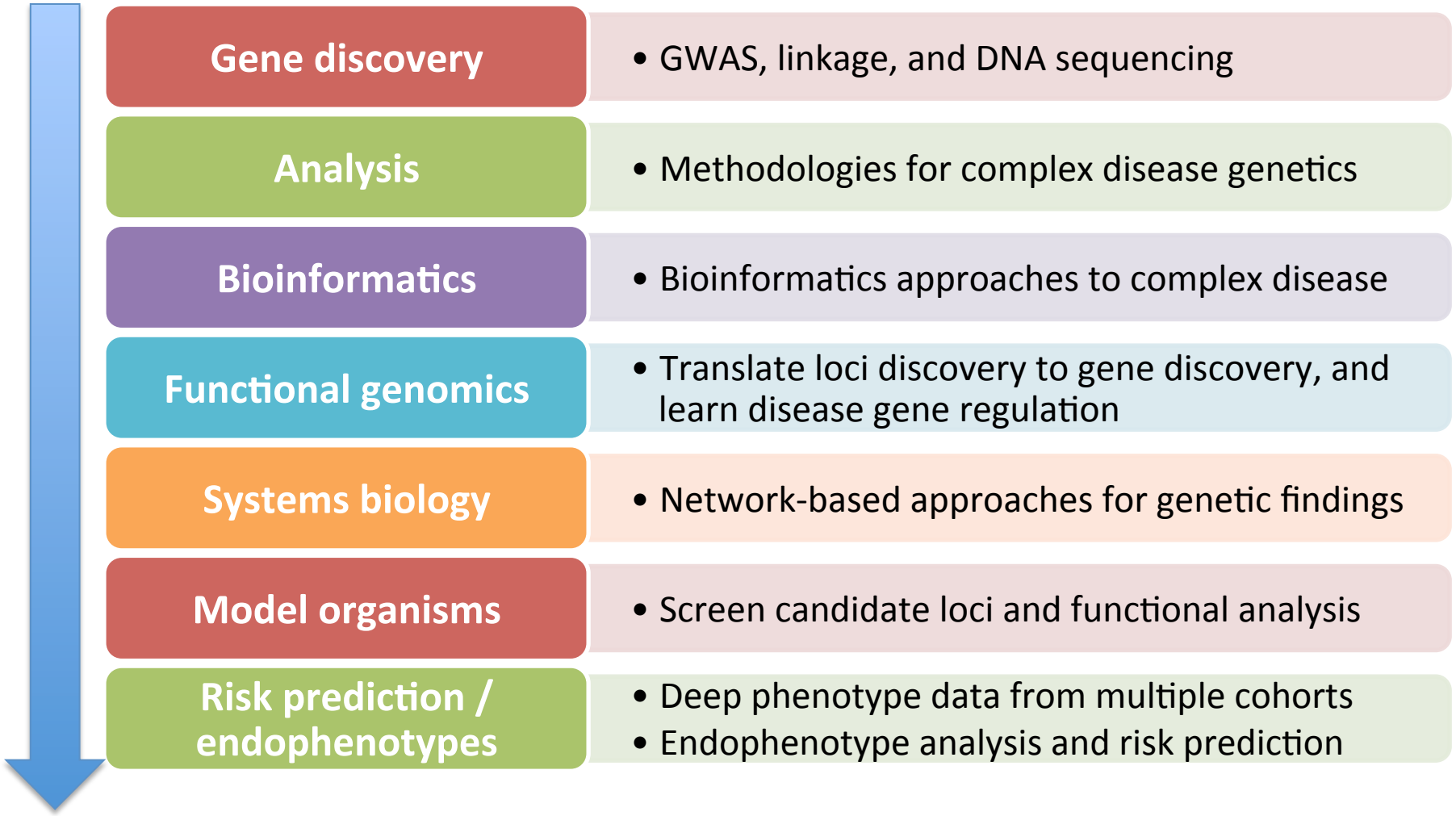
Department of Pathology and Lab Medicine

Scientific Mission

Use genetics from GWAS and next generation sequencing studies to understand neurodegenerative diseases and identify therapeutic targets



Areas of research



PNGC is the national hub of AD genetics

- *AD Genetics Consortium*
- >35,000 subjects
- Found ~20 new AD genes

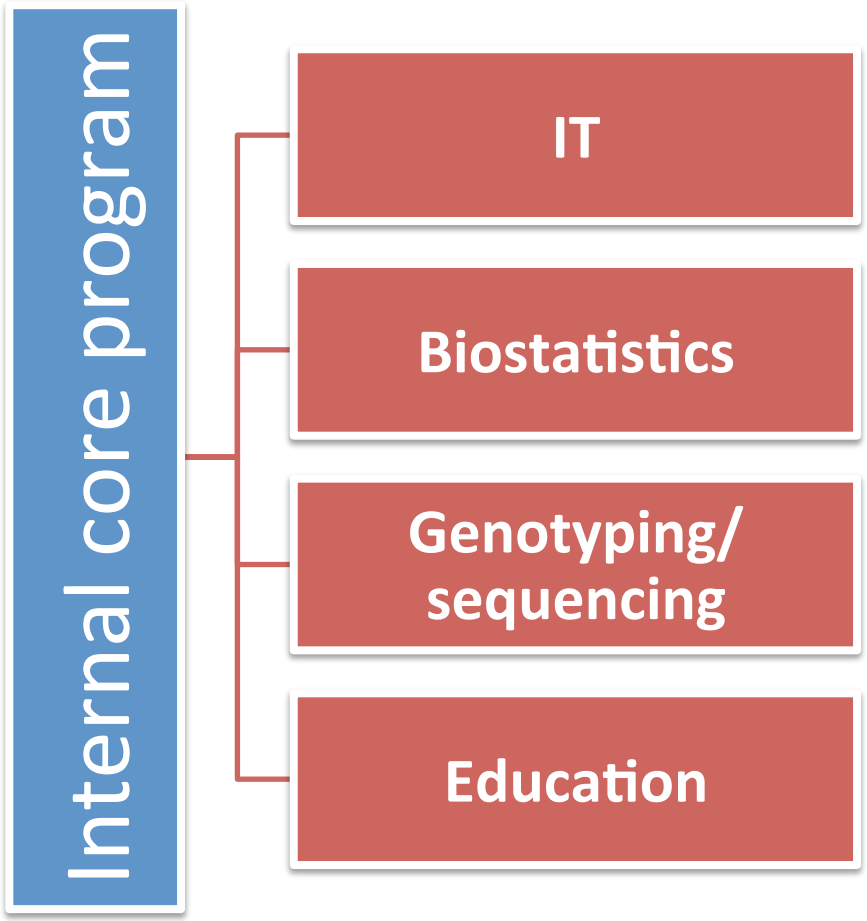
- *Consortium for AD Sequence Analysis*
- Largest ADSP analysis team

- *Center for Genetics/ Genomics of AD*
- Analyze data nationwide

- *NIA genetics of AD data storage site*
- National repository for AD genetics data

- PNGC programs form the national hub for AD genetics and drive the Alzheimer's Disease Sequencing Project (ADSP), a White House/NIH initiative
- NIH committed ~$70M to these projects to build new cohorts, coordinate analysis, and disseminate data

Resources



- Computing capacity
  - Genomics database
  - Expertise and capacity for Amazon Cloud
  - 2PB storage (tape/hd)
- AD genomics data
  - AD GWAS (n=36,000)
  - WES (n=12,000)
  - WGS (n=4,000; 2017)

Center members

- Penn faculty with research interests relevant to the scientific mission of the center are welcome to join
- Members attend seminars/meetings, collaborate on research, contribute to internal core program, participate in training
- Currently 12 members/6 departments
  - Pathology (Brad Johnson / Virginia Lee / Gerard Schellenberg / John Trojanowski / Li-San Wang)
  - Biostat & Epidemiology (Mingyao Li / Adam Naj)
  - Genetics (Casey Brown / Chris Stoeckert)
  - Statistics (Nancy Zhang)
  - Pharmacology (Ben Voight)
  - Radiology (Christos Davatzikos)
- Website: www.med.upenn.edu/pngc (soon to be released)