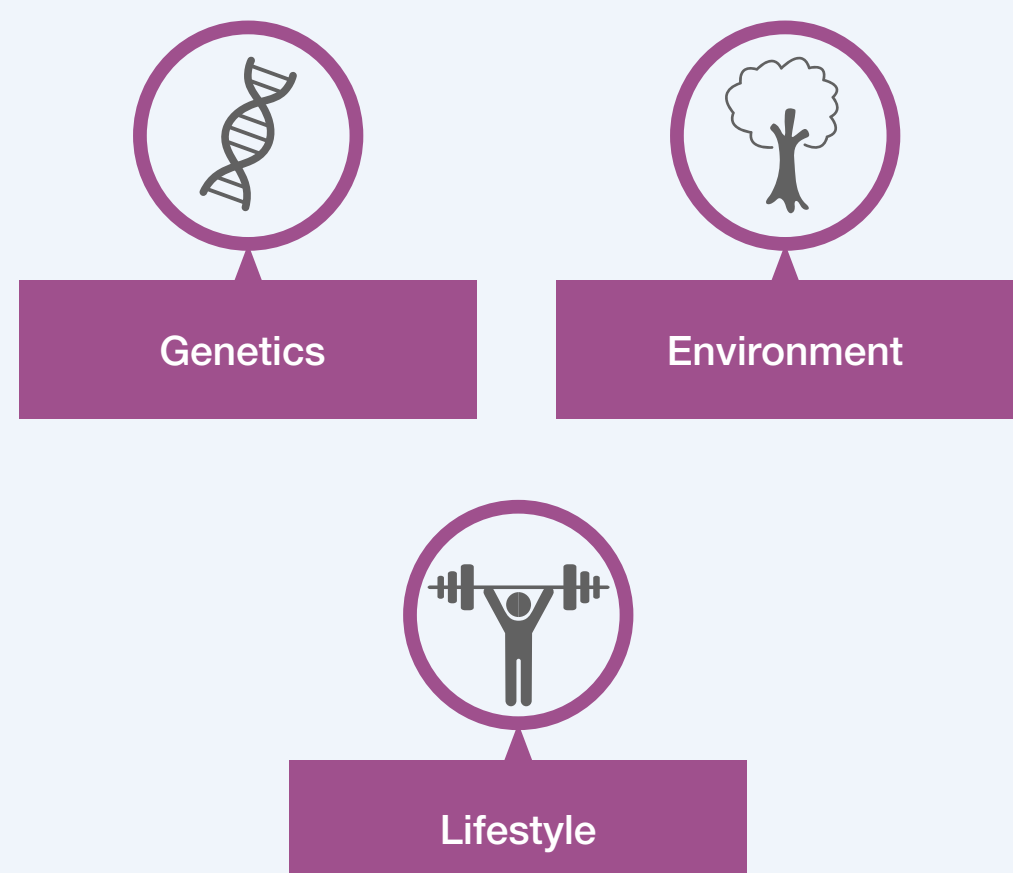


Polygenic Risk Scores

Causes of most common diseases



Risk prediction today



What's missing?

- No risk prediction for neurological and psychiatric disorders despite proof of strong genetic heritability
- Lack of screening for individuals with no family history of complex diseases (e.g. cardiovascular disorders)

Genetic risk prediction

GCTACGAGTAGTGCTACCGTCGTAGT
 ACGTACGTCAGTACGTCAGTAG
 GCTACGTCAGTCTCCTACGTCAGTAT
 GCGTACGTCAGTAGTCCGTACGTCAG
 ATCGTACGTACCGTCTAGTACTACAG

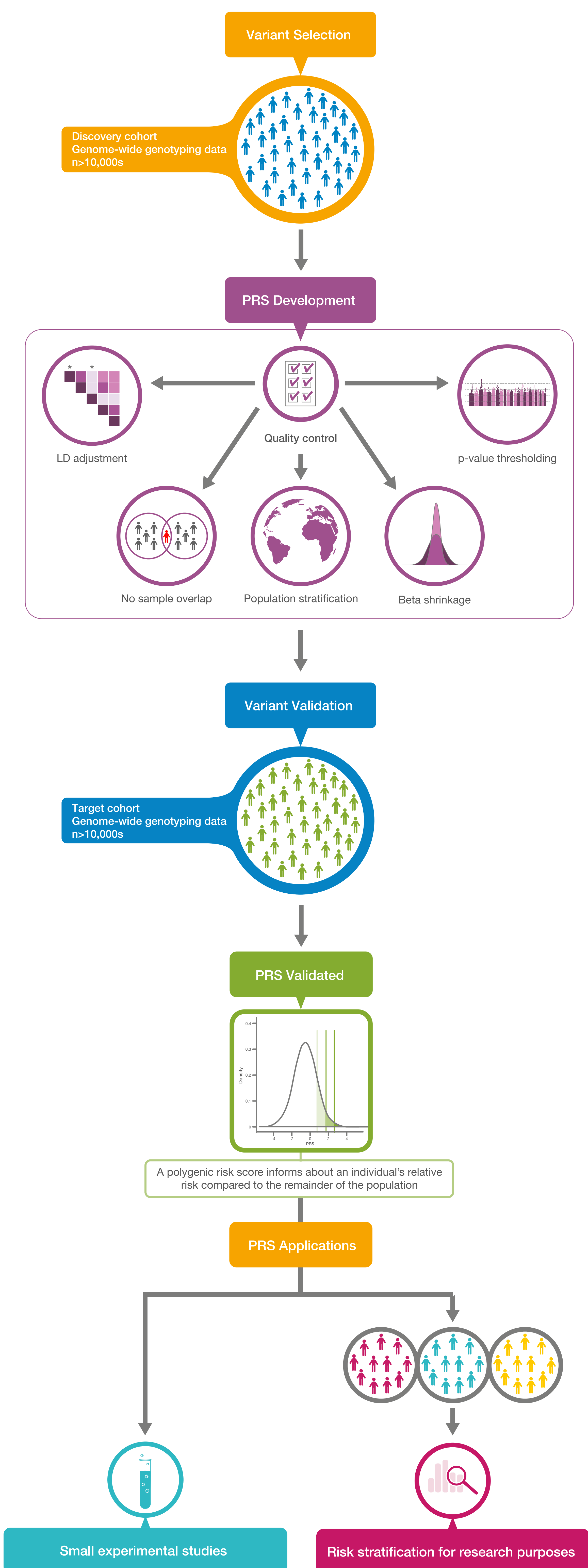
- Some variants increase individual's disease susceptibility
- Some variants are protective and lower individual's disease risk



Early in the GWAS era (2009), researchers recognised that insufficient sample sizes in early studies produced few robust associations (reaching statistical significance), but the aggregation of many loci below the genome-wide significance threshold could significantly predict disease risk in new studies.

Polygenic Risk Scores (PRS)

Polygenic risk scores (PRS) summarise genome-wide genotype data into a single number that represents genetic liability to a trait.



Risk Stratification

