

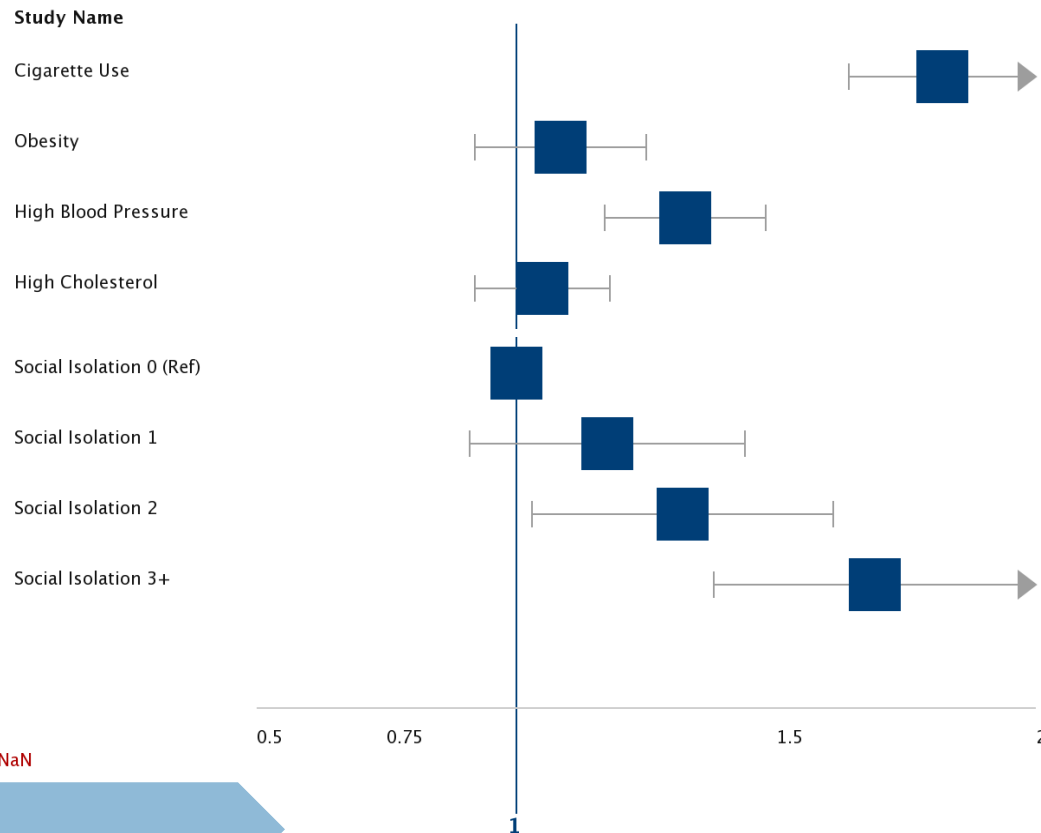
Lifecourse Social Integration and its Consequences for Gene Expression

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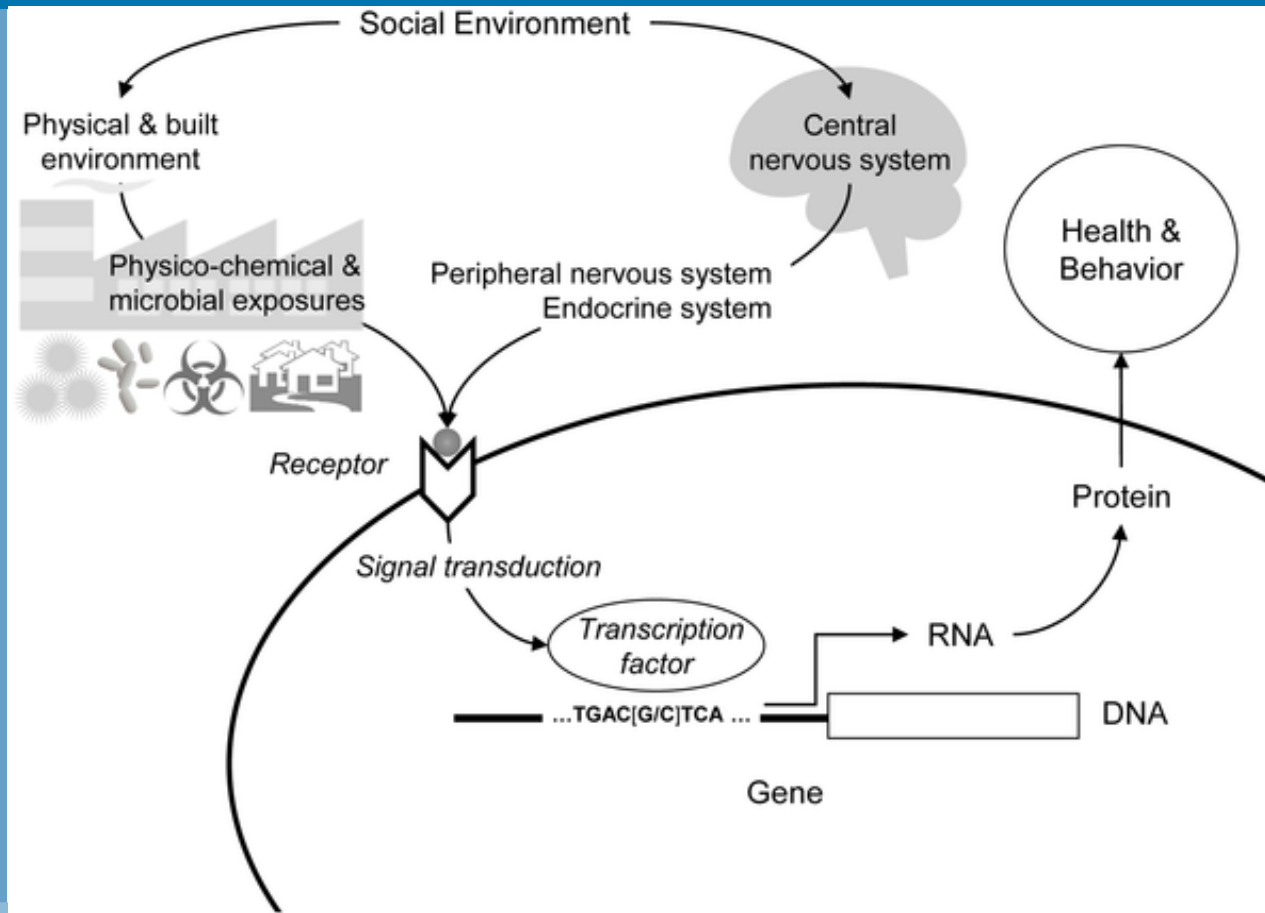
Social Isolation is a Health Risk Factor

Mortality Hazard Ratios



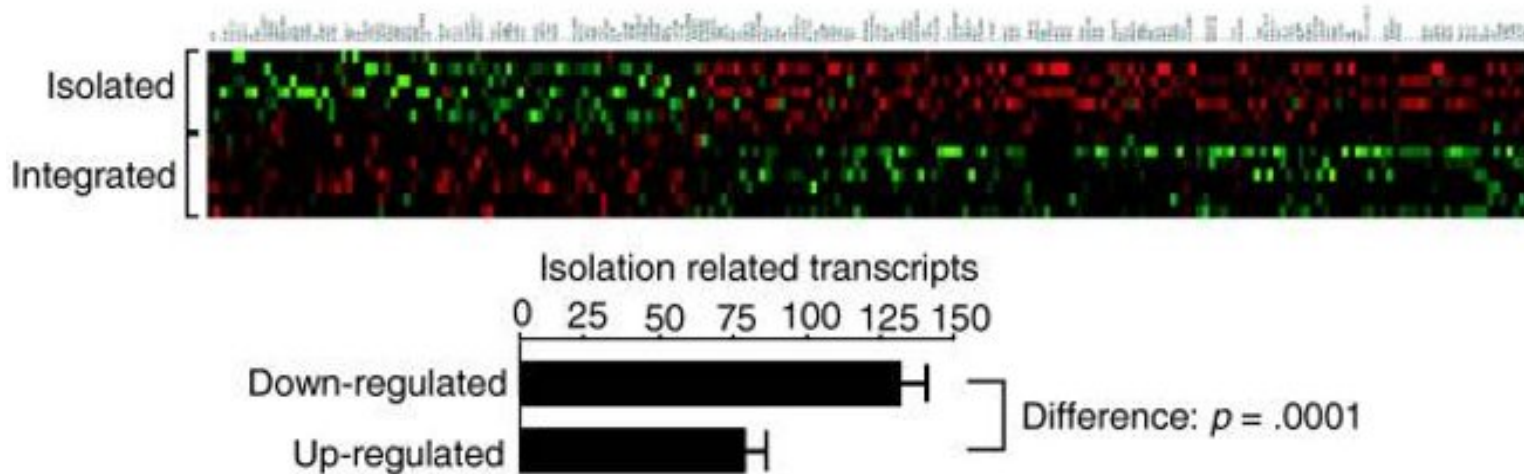
Pantell M, Rehkopf D, Jutte D, Syme SL, Balmes J, Adler N. Social isolation: a predictor of mortality comparable to traditional clinical risk factors. *Am J Public Health.* 2013;103(11):2056–2062.

Social Exposures Modify Gene Expression



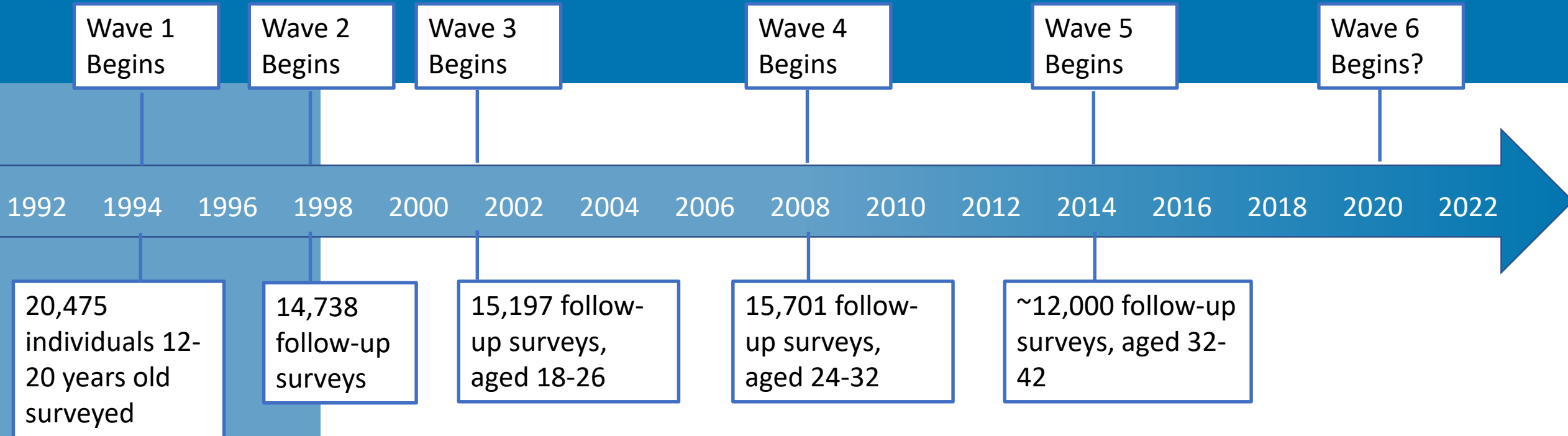
Cole SW (2014) Human Social Genomics. PLoS Genet 10(8): e1004601. <https://doi.org/10.1371/journal.pgen.1004601>

Isolation Modifies Immune Gene Expression

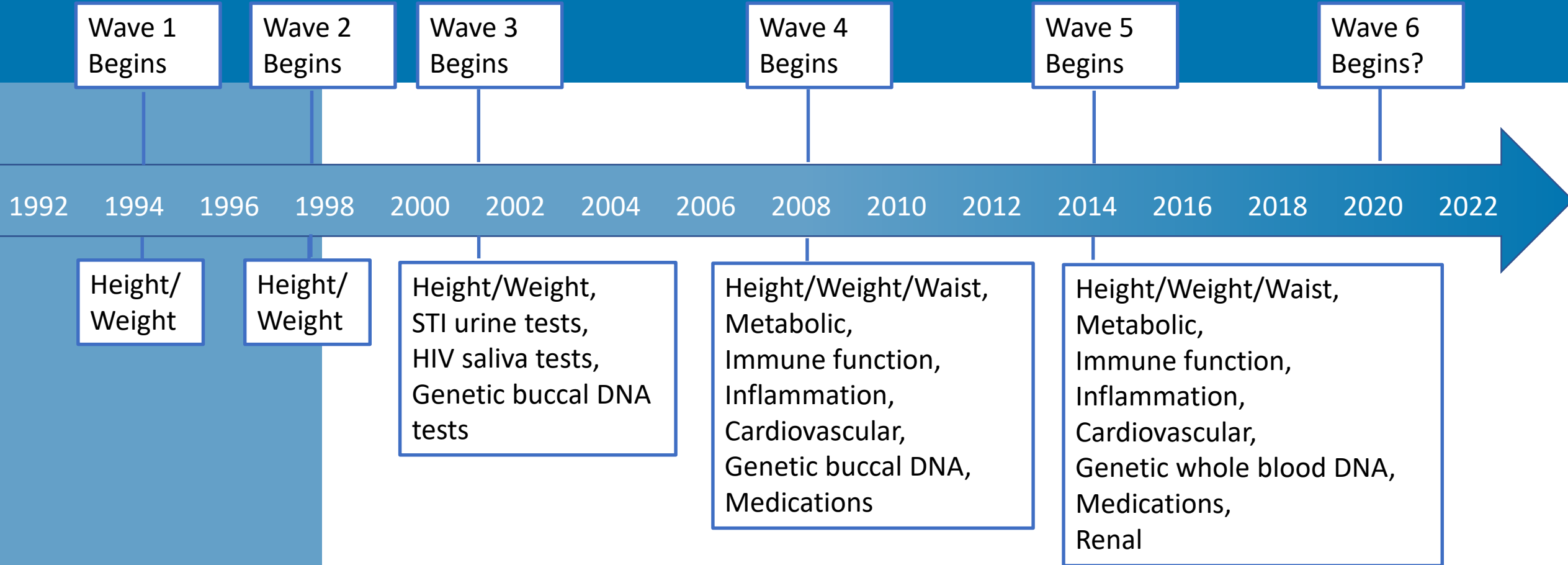


Cole SW, Hawkley LC, Arevalo JM, Sung CY, Rose RM, Cacioppo JT. Social regulation of gene expression in human leukocytes. *Genome Biol.* 2007;8(9):R189. doi:10.1186/gb-2007-8-9-r189

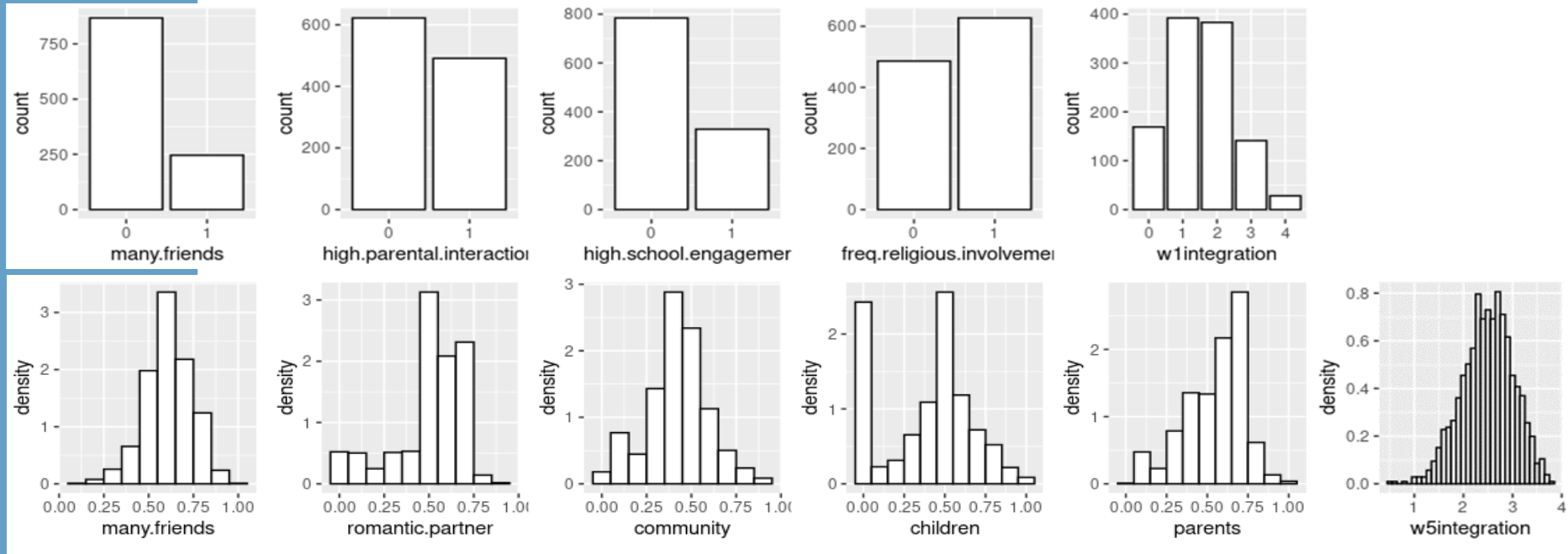
AddHealth Study



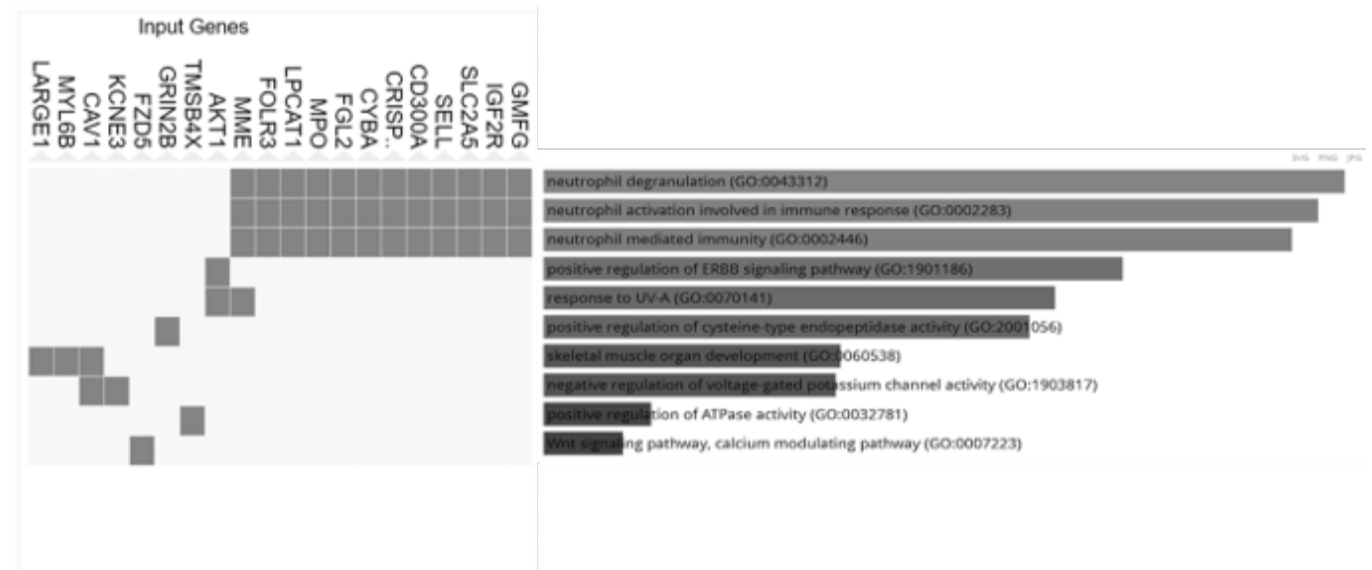
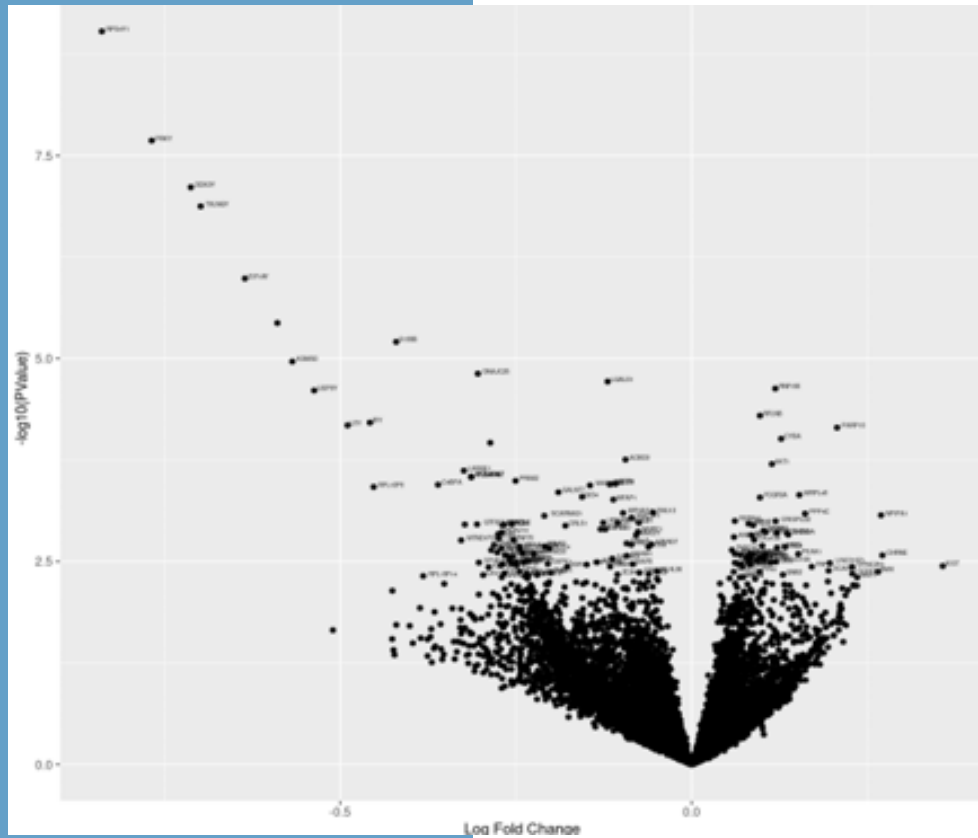
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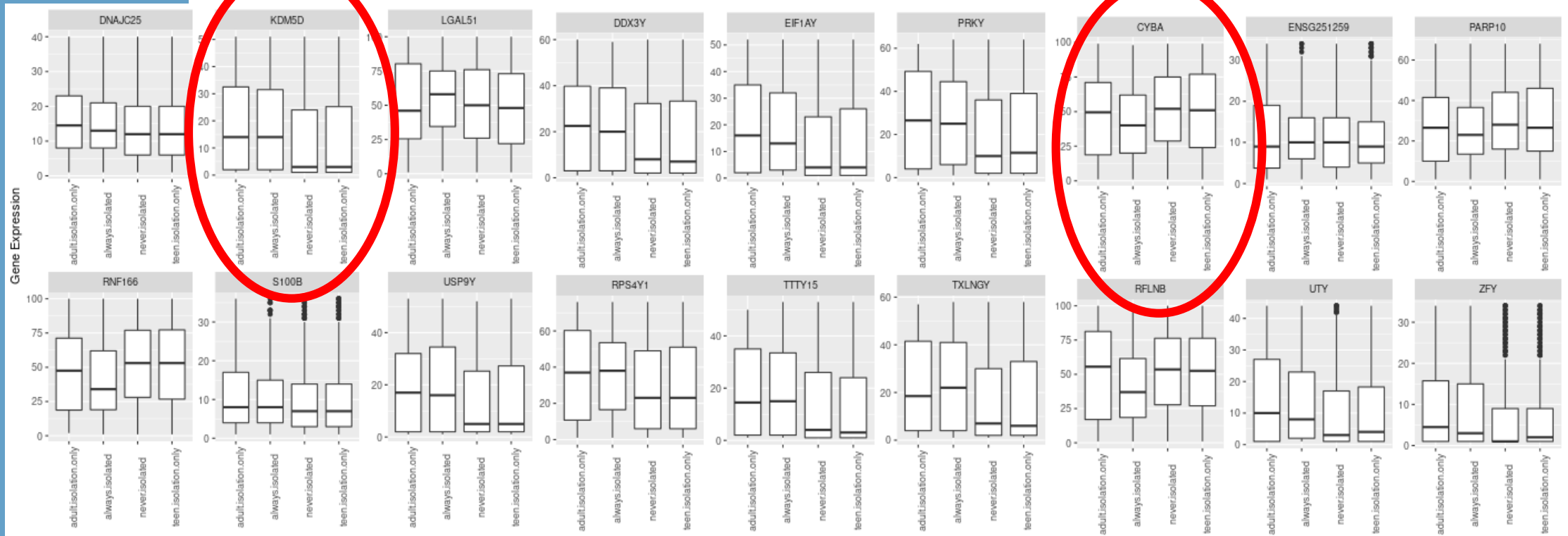
Social Isolation Scores at Two Points in Time



Differential Gene Expression and Pathway Enrichment Analysis



Timing of Isolation Modifies Immune Gene Expression



Conclusions

- Social isolation impairs health outcomes by modifying gene expression
- Immune genes are differentially expressed in isolated individuals
- Some of those genes only become differentially expressed after lifelong isolation