

Exercise 1

Using the LDlink tool **LD Matrix** (<https://ldlink.nci.nih.gov/?tab=home>) – how many of the following SNPs do we need to genotype to cover all linkage disequilibrium blocks? Justify your choice. Compare your choice with the results obtained from the SNPclip tool.

rs699947

rs3025030

rs1413711

rs2146323

rs3025039

rs10434

rs25648

rs3025035

Exercise 2

Using the GWAS catalog browser (<https://www.ebi.ac.uk/gwas/>) - how many **independent** loci have been identified as being associated with vitamin B12 measurement? Justify your choice. What is the largest/smallest effect size that has been measured? Explain your reasoning.

Exercise 3

Using the GTEX portal (<https://gtexportal.org/home/>) QTL browser tool, the expression of which gene implicated in vitamin B12 metabolism is affected by SNP rs492602 in the colon (transverse)? What are the effects for each allele (decrease/increase of gene expression)?