1. On which chromosomes are SNPs which are significantly associated with Alzheimer's disease according to the Jansen et al 2019 paper? Use the first figure.

   Answer:

   Chromosome 1: Associated with ADAMTS4 and CR1 genes.

   Chromosome 2: Associated with BIN1 and INPP5D genes.

   Chromosome 3: Associated with HESX1 gene.

   Chromosome 4: Associated with CLNK and HS3ST1 genes.

   Chromosome 6: Associated with HLA-DRB1, TREM2, and CD2AP genes.

   Chromosome 7: Associated with ZCWPW1, EPHA1, and CNTNAP2 genes.

   Chromosome 8: Associated with CLU/PTK2B gene.

   Chromosome 10: Associated with ECHDC3 gene.

   Chromosome 11: Associated with MS4A6A, PICALM, SORL1 genes.

   Chromosome 14: Associated with SLC24A4 gene.

   Chromosome 15: Associated with ADAM10 and APH1B genes.

   Chromosome 16: Associated with KAT8 gene.

   Chromosome 17: Associated with SCIMP, ABI3, and BZRAP1-AS1 genes.

   Chromosome 18: Associated with SUZ12P1 and ALPK2 genes.

   Chromosome 19: Associated with ABCA7, APOE, AC074212.3, and CD33 genes.

   Chromosome 20: Associated with CASS4 gene.

2. Look up table 1 in the Jansen et al paper.

Find the following genes: ***ADAMTS4, INPPD5, TREM2, SLC24A4*** in their table 1, and see on which chromosome they are. Then annotate the Manhattan plot

with the approximate location of these gene names (the right chromosome is precise enough).

Answer:

ADAMTS4 is on Chromosome 1.

INPP5D is on Chromosome 2.

TREM2 is on Chromosome 6.

SLC24A4 is on Chromosome 14.

3. Look at the second figure (it comes from this paper https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0049782).Links to an external site.On which chromosomes are there SNPs that are significantly associated with hip displacement in Bernese mountain dogs?

   Answer:

   Chromosomes 2, 4, 7, 8, 11, 17, 18, 19.

4. How many chromosomes do dogs have based on this figure?

   Answer:

   According to the Manhattan plot in the figure, dogs possess 39 chromosomes, as indicated by the chromosome numbers displayed on the x-axis of the plot.