LAB 4 **Sensitivity Analysis and Interpretation**

**Programs:** leadihd-sens and leadIHD-mrpresso

We will do additional sensitivity analysis for lead on IHD

1. **Use the file of SNPs to lead and IHD you saved from lab1 (**leadihd21.csv**) as input throughout**
2. **Obtain weighted median and MR-Egger estimates**
   1. Use leadihd-sens to read in the file from lab1 and then give weighted median and MR-Egger estimates
   2. How do you interpret the following information for MR-Egger:
      1. The weighted median
      2. The MR-Egger estimate?
      3. The MR-Egger intercept?
      4. The Cochran Q
      5. The I2
   3. What analyses would you present?
3. **Use MR-PRESSO to find any outliers and the MR-PRESSO corrected estimate**
   1. Use leadihd-mrpresso to read in the file from lab1 and then give MR-PRESSO estimates
   2. How do you interpret the information from MR-PRESSO?
   3. Which SNP does MR-PRESSO identify as an outlier?
   4. What estimate would you use for the effect of lead on IHD?
   5. What estimate would you present now?
   6. How does this estimate you have now obtained from MR-PRESSO compare with what you would have obtained after “eyeballing” the forest plot in Lab1?
4. **MR-PRESSO Questions**
   1. Why does it take so long to run?
   2. Will it always give exactly the same answer?
5. **Extra**

Try any of the other estimating methods provided by the MendelianRandomization package, as documented here <https://pubmed.ncbi.nlm.nih.gov/32249995/> and explained here https://cran.r-project.org/web/packages/MendelianRandomization/MendelianRandomization.pdf