

## S5 Relationship between odds ratios and frequencies for the simulated scenarios

In Supplementary Figure S-1 we plot an example of the relationship between the odds ratio and the frequency of the disease variant, assuming 20 disease variants with frequencies between 0.0001 and 0.01; the PAR at individual variants is taken to be the same at all variants, or randomly sampled from two possible distributions (Uniform and Exponential). The upper panel illustrates the case when the total PAR is 0.05, and the lower panel the case when the total PAR is 0.03.

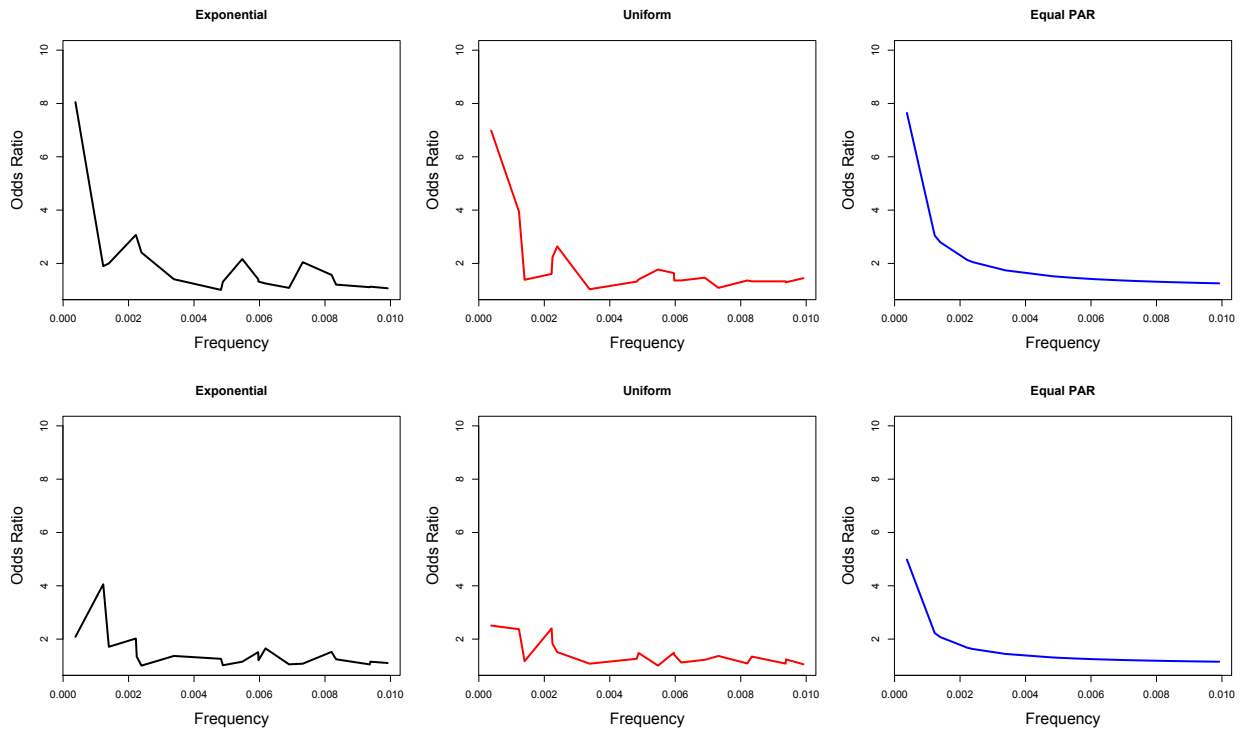


Figure S-1: Odds ratio vs. Frequency at 20 disease variants, when the individual variants' PAR are sampled from a uniform, or exponential distribution. Also shown is the case when the individual PARs are all equal to the total PAR divided by 20. The upper panel corresponds to a total PAR of 0.05, while the lower panel corresponds to a total PAR of 0.03.