

Figure S1. Distribution of the causal SNPs in our simulation. In each locus, we sampled the causal SNPs with a prior probability  $\pi$  and a constraint that at least one SNP must be picked. For our simulations, we choose  $\pi = 0.005$ . We show (a) the distribution of total number of causal SNPs used for each simulation, and (b) the distribution of causal SNPs in each locus averaged over all simulations.