

HW2: Gene – gene interactions

Complete your homework 1 with a section about gene-gene interactions. Possible general routes you can take include:

- What are gene-gene interactions? What are different definitions of epistasis?
- Is it hard to detect epistasis?
- Can you discuss epistasis in the context of underlying genetic networks of which we know they exist (biological grounds) ?
- What does it take to increase your chances to detect gene-gene interactions? (design? methods? More people? More markers?)
- What have gene-environment and gene-gene interaction screening in common / not in common?

Specifically related to your homework 1, e.g., (depending on the topic you chose):

- o Has evidence been found of genetic factors modifying the effect of another genetic factor in obesity?
- o Is it important to look for gene-gene interactions when having personalized medicine in mind?
- o Is there a link between at one hand epigenetic findings that have consequences for protein output and at the other hand genetic effect modifiers (i.e., gene-gene interactions)?
- o Do evidences exist for gene-environment interactions that are modified by another gene? Hence, here we are talking about higher-order interactions, and a related question is: when it is already so hard to find and interpret two-way interactions, will we ever be able to find higher-order interactions?
- o Can the existence of gene-gene interactions influence the estimation of heritability?