An association study

In genetics, association studies are primarily used to **reveal genetic predisposition to multifactorial diseases**, i.e. genes (more precisely, genotypes composed of different allele of given genes) that increase or decrease the risk of disease. Such genotypes are relatively easy to recognize - they occur significantly more often or, on the contrary, significantly less often in the group of sick (cases) compared to the group of healthy (in the sense of not suffering from the given disease) controls.

Variants

There are two main variants of conducting an association study:

- **a study of the type case-control (case-control)**
  - In the classic variant, we monitor the occurrence of different genotypes of a pre-selected candidate gene in groups of cases and controls.
  - If we do not know or cannot even imagine the preselected candidate gene, we can perform a ``genome-wide association study *(English genome-wide association study, GWAS (https://en.wikipedia.org/wiki/Genome-wide_association_study)). In this case, we determine the genotype for a large number of polymorphic locus on all chromosomes at the same time in both groups of people, today most often using DNA microarrays, which can determine up to approximately 1.8 million genotypes in each individual, e.g. Genome-Wide Human SNP Array 6.0 (http://www.affymetrix.com/estore/browse/products.jsp?productId=131533&categoryId=35642&productName=Genome-Wide-Human-SNP-Array-6.0#1_1).*
- **family-based association study**

Links

A regularly updated catalog of genome-wide association studies published so far is available on the website of the European Molecular Biology Laboratory-European Bioinformatics Institute (EMBL-EBI)([1] (https://www.ebi.ac.uk/gwas/)).

Related articles

- Analytical studies