## How to design your genetics experiment for genetic association studies

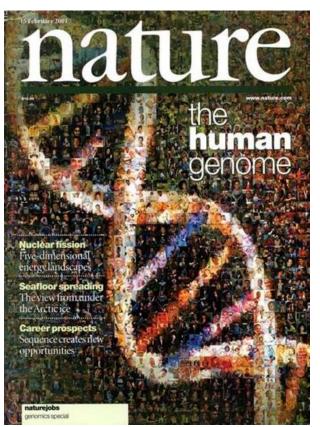
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**February 2001.** International Human Genome Sequencing Consortium announced they had a map of the human genome.

Interested in variations which make us different to each other (differently predispose us to a disease)





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## Genetic Association studies

a Data collection

Principal component 2 Your data African .... -Asian Step 1 American European Principal component 1 e Association testing d Imputation SNP1 SNP2 SNP3 SNP4 SNP5 SNP6 80-G G Т Person 1 T A A Step 2 -log<sub>10</sub>(P) 60 C C С Person 2 G Т Т 40-Person 3 C G C C A A C C C C Person 4 A Т 20 0-11 13 15 1719 23 7 9 Chromosome f Meta-analysis g Replication h Post-GWAS analyses Cohort A +--+ Cohort B +--+ Cohort C Step 3

**b** Genotyping

c Quality control

## Data preparation

