Big Data Analysis

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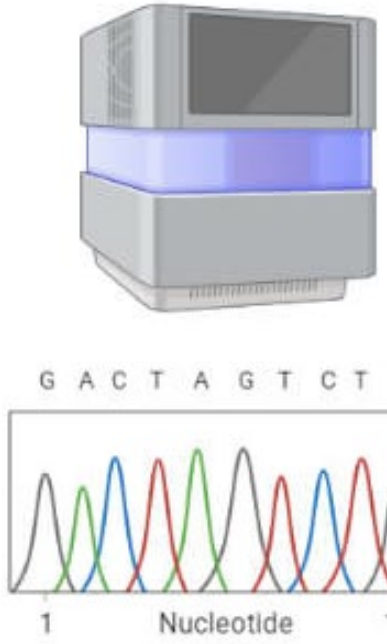
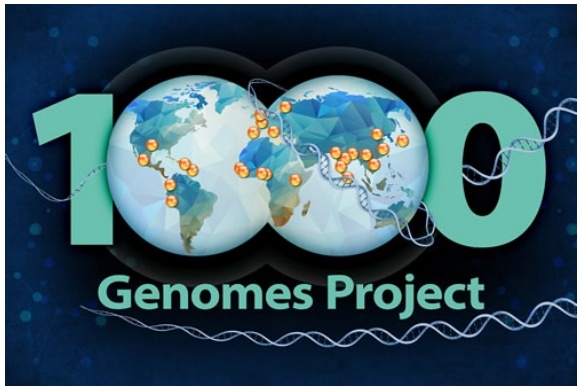
The promise of genomic medicine

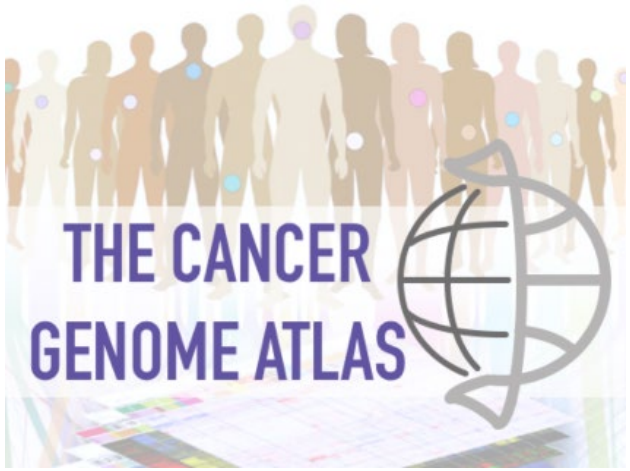


- Disease mechanisms
- New target genes
- New therapeutics
- Personalized medicine

Creation of Variant Catalogs



biobank uk



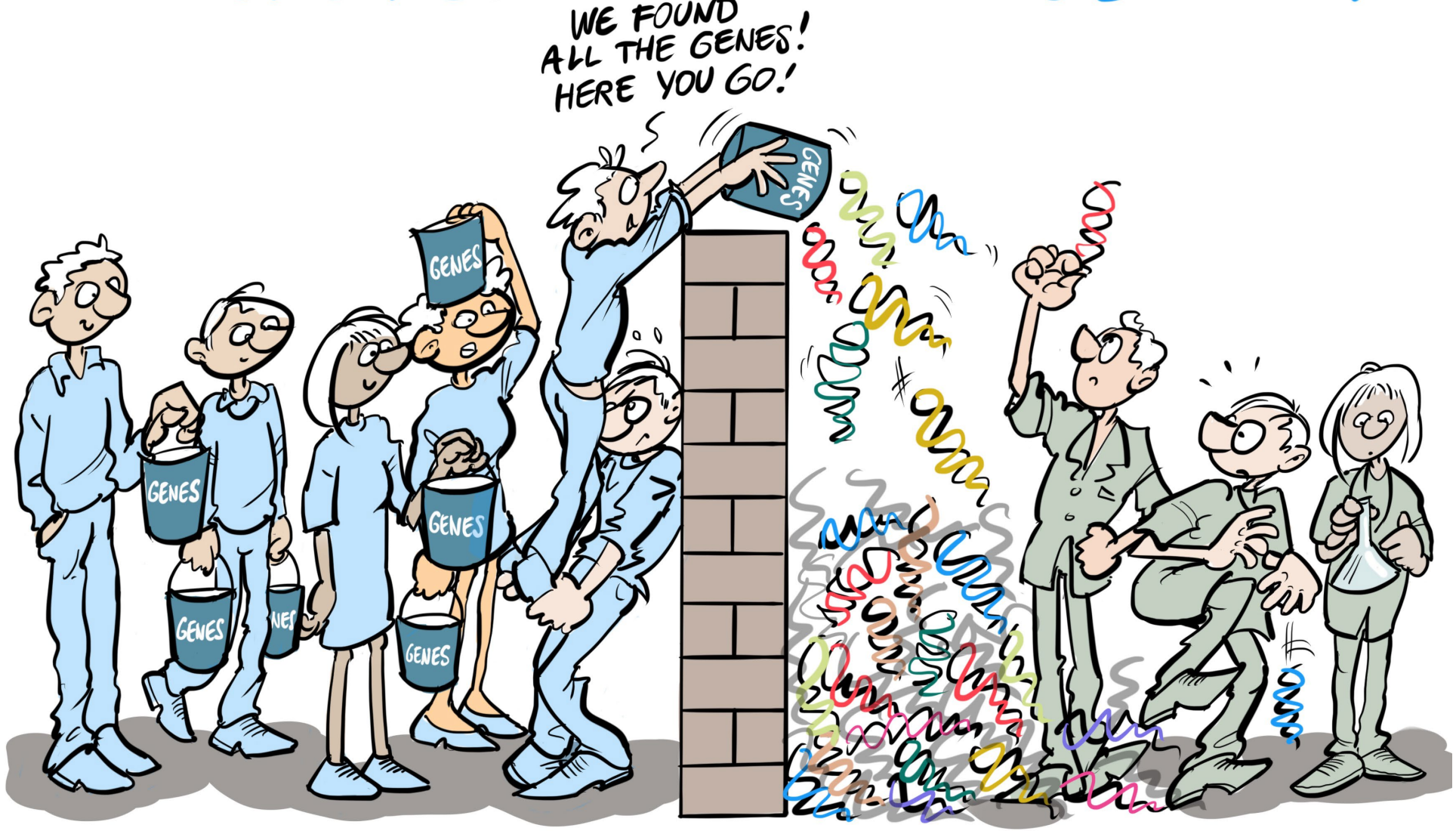
gnomAD

genome aggregation database

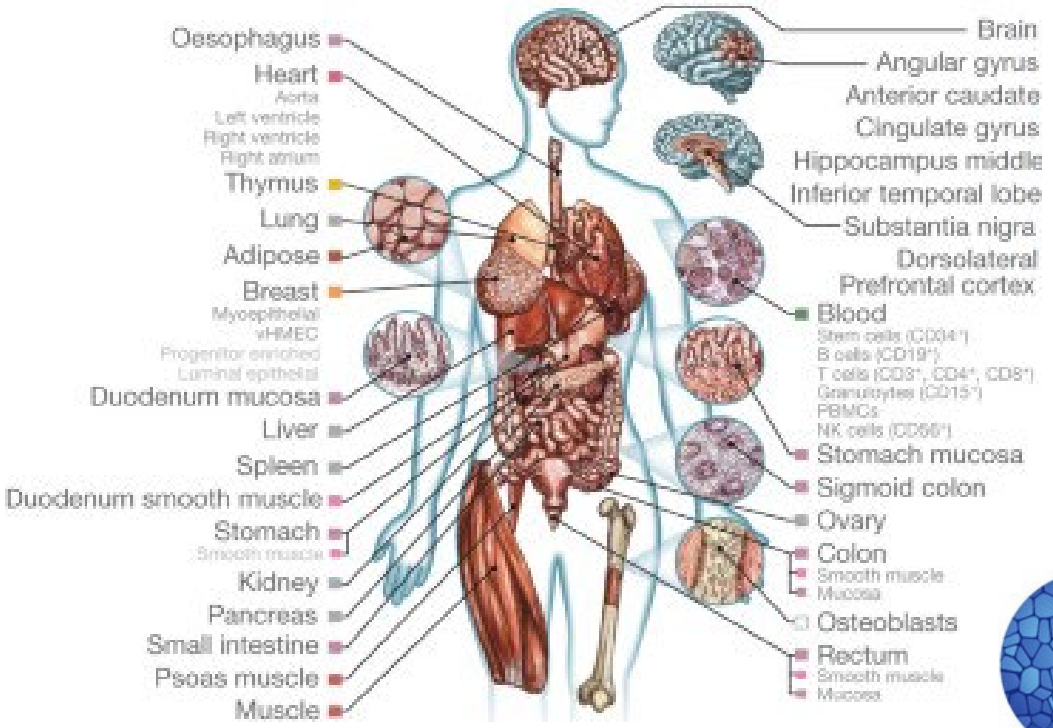
THE PRECISION MEDICINE INITIATIVE

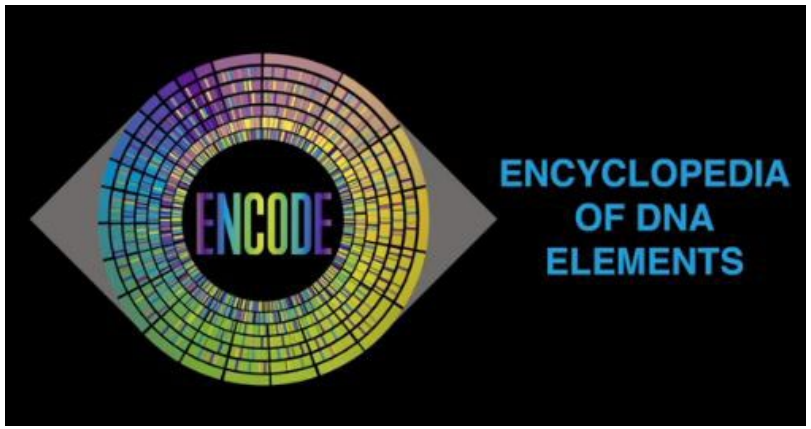
23andMe

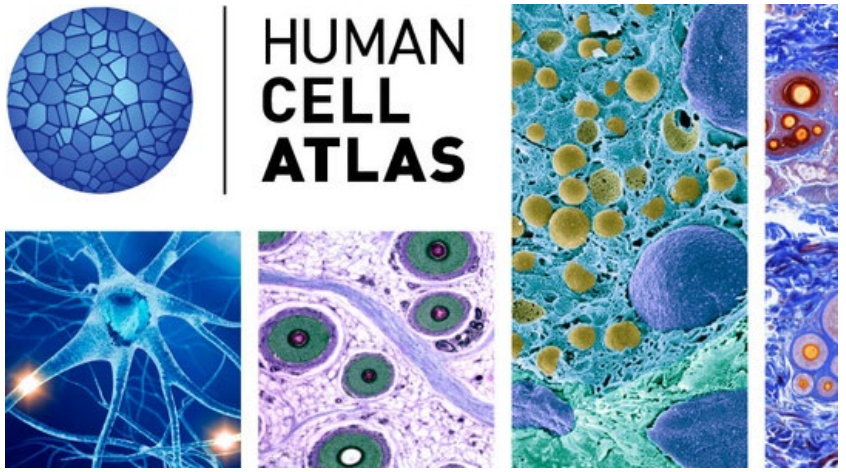
GENETICS NEUROBIOLOGY



Resources for Variant Interpretation







Big Data Analysis

- Lecture 1 (Gerard Bouland)
  - Linking variants to genes
  - Linking genes to functions
- Lecture 2 (Lieke Michielsen)
  - Using AI to model genomic sequences
  - Using AI models to predict variant effects?
- Lecture 3 (Ahmed Mahfouz)
  - Single cell genomics
  - Single cell data analysis
- Lecture 4 (Ahmed Mahfouz)
  - Functional genomics using single-cell sequencing

Do it yourself: mini-project

Schedule

Monday 15 January

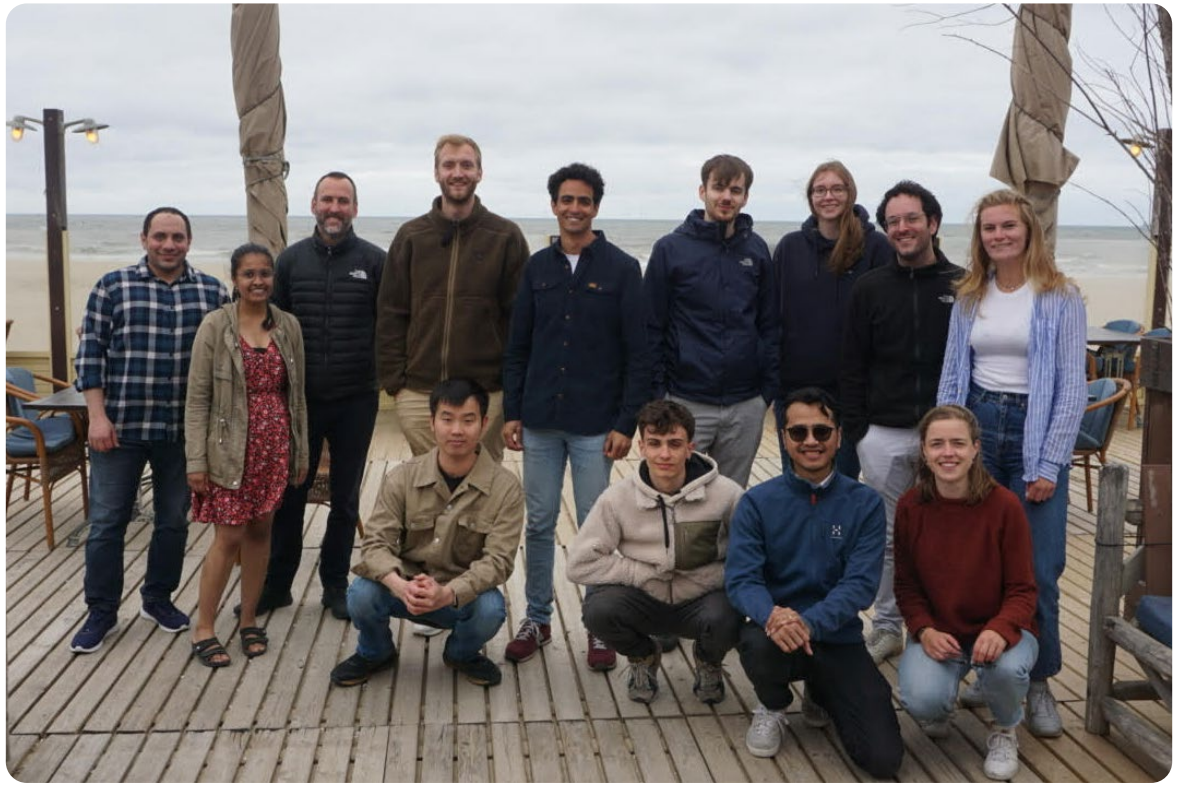
9:15 – 9:30	Introduction	Ahmed Mahfouz
9:30 – 10:15	Linking variants to genes and variant effect prediction	Gerard Bouland
10:15 – 10:30	Break	
10:30 – 11:15	AI for genomics	Lieke Michielsen
11:15 – 12:30	Assignment: variant effect prediction	Gerard & Lieke
12:30 – 13:30	Lunch	
13:30 – 17:30	Work on mini-project	Gerard & Lieke

Tuesday 16 January

9:15 –10:15	Single-cell genomics	Ahmed Mahfouz
10:15 – 10:30	Break	
10:30 –11:30	Functional genomics using single-cell RNA-seq	Ahmed Mahfouz
11:30 – 12:30	Finish mini-project, work on slides	
12:30 – 13:30	lunch	
13:30 – 15:30	Flash talks	Gerard & Lieke & Ahmed

Thank You!

Mahfouz Lab
Mo Charrout
Lieke Michielsen
Laura Heezen
Mostafa Eltager
Mikhael Manurung
Claudio Novella Rausell
Gerard Bouland
Dongxu Zheng
Qirong Mao
Jari Berkhout
Kirti Bihari
Benedetta Manzato



Internships available!

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