

## Genetic association analysis

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# Introduction: Course Aims

This is a course on statistical methods and software for genetic association studies of complex traits. We aim to cover:

- ▶ Lecture 1: Association Tests and Whole-Genome Regression
- ▶ Lecture 2: Rare Variant Analysis: Collapsing Tests, Kernel (Variance Component) Tests and Omnibus Tests
- ▶ Lecture 3:
  - ▶ Leveraging local ancestry with admixture mapping
  - ▶ Population structure inference & Admixed populations

## Introduction: About Andrey



- ▶ Manager in Statistical Genetics and Machine Learning,  
The Regeneron Genetics Center
- ▶ Research in:  
Genetic association studies  
Statistical software for data analysis  
Mixed models for structured data

## Introduction: About Tim



- ▶ Senior Director  
in Statistical Genetics,  
The Regeneron Genetics Center
- ▶ Research in:  
Genetic Association Studies  
Correlated Genetic Data  
Inferring Genetic Ancestry  
Relatedness Estimation  
Pharmacogenomics

## Introduction: Course Structure

- ▶ Material available on the workshop website,  
[https://github.com/variani/Workshop\\_UNAM](https://github.com/variani/Workshop_UNAM)
- ▶ 3 sessions, 60-90 minutes each
- ▶ What to expect in a typical session:
  - ▶ 45 mins teaching/lecture
  - ▶ 30 mins hands-on exercises
  - ▶ 15 mins summary/discussion

## Special Thanks

- ▶ Joelle Mbatchou and Loic Yengo: for sharing the material on Summer Institute in Statistical Genetics 2022,  
[https://github.com/joellembatchou/SISG2022\\_Association\\_Mapping](https://github.com/joellembatchou/SISG2022_Association_Mapping)
- ▶ Fernando Rivas and Paulina Baca: for helping with the workshop logistics
- ▶ Fernando Rivas: for serving a teaching assistant today