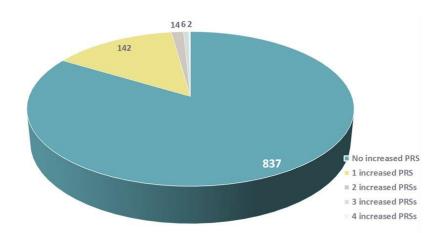## Data Analysis

Data analysis was performed via megSAP. Specifics and documentation are located at
https://github.com/imgag/megSAP

Calculated PRS scores on

- Diabetes type 1 and 2
- Hypercholesterolemia
- Coronary heart diseases
- Atrial fibrillation
- Macula degeneration
- Prostate cancer
- Colorectal cancer
- Breast cancer
- Depression
- Chronic airway disease

Based on 1000 healthy Caucasians

Suppl. Figure 1: Polygenic risks in a healthy population. Analysis of 10 different PRS in 1000 unrelated healthy Caucasians from our in-house data base indicating that more than 16% of the population are at higher risk for common polygenic diseases, some of them even for several diseases. The top 5% of the PRS scores were defined as "increased".
Applied PRS were used from the PGS catalogue as follows:
Diabetes mellitus Type 1: http://www.pgscatalog.org/publication/PGP000244/
Diabetes mellitus Type 2: http://www.pgscatalog.org/publication/PGP000100/
High cholesterol: http://www.pgscatalog.org/publication/PGP000244/
Coronary heart disease: http://www.pgscatalog.org/publication/PGP000100/
Atrial fibrillation: http://www.pgscatalog.org/publication/PGP000100/
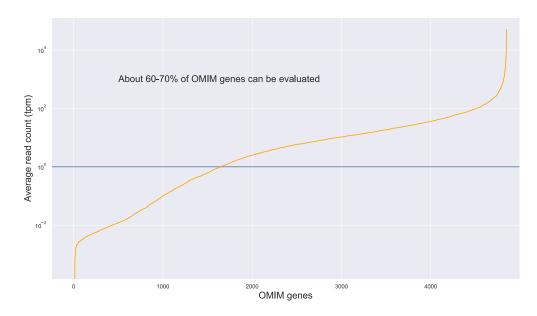Macular degeneration: http://www.pgscatalog.org/publication/PGP000263/
Prostate cancer: http://www.pgscatalog.org/publication/PGP000100/
Colorectal cancer: http://www.pgscatalog.org/publication/PGP000040/
Breast cancer: http://www.pgscatalog.org/publication/PGP000002/
Depression: http://www.pgscatalog.org/publication/PGP000068/
Chronic airway obstruction: http://www.pgscatalog.org/publication/PGP000244/

Suppl. Figure 2: Average gene expression of all OMIM genes in blood. For each OMIM gene, we counted the normalized number of reads using the tpm metric. (PAX-RNA samples), which pass QC (100M reads, housekeeping 20x coverage >65%) (Orange line) Blue line: Threshold expression for covered gene (>= 1 tpm)

Suppl. Figure 3: Patient information sheet associated with blood sampling for transcriptome analysis.

General information on the proband   Sticker with patient information here

Sample	☐ Pax- tube ☐ other RNA stabilizing tubes
Time of blood sampling (day and time)	
Other Tissue	
Infection last week?	☐ Yes ☐ No If yes, please specify:
Vaccination last month	☐ Yes ☐ No If yes, please specify:
Any drugs currently taken	☐ Yes ☐ No If yes, please specify type and amount:
Any chronic diseases?	☐ Yes ☐ No If yes, please specify:
Time of last meal	
Sport activity on the same day	☐ Yes ☐ No
Smoking	☐ Yes ☐ No If yes, how frequent?

Patient's name   Medical doctor's name
Signature   Signature