

Comparison of different linear models

1. Original model

Intercept + T2D + OB + T2D:OB + **time** + **sex** + **age**

Number of significant ($q < 0.05$) genes for each factor: 2073 1425 825 5600 364 107

2. Without duplicateCorrelation

Intercept + T2D + OB + T2D:OB + **time** + **sex** + **age**

7580 6718 5710 1860 3471 1605

3. Without gender and age

Intercept + T2D + OB + T2D:OB + **time**

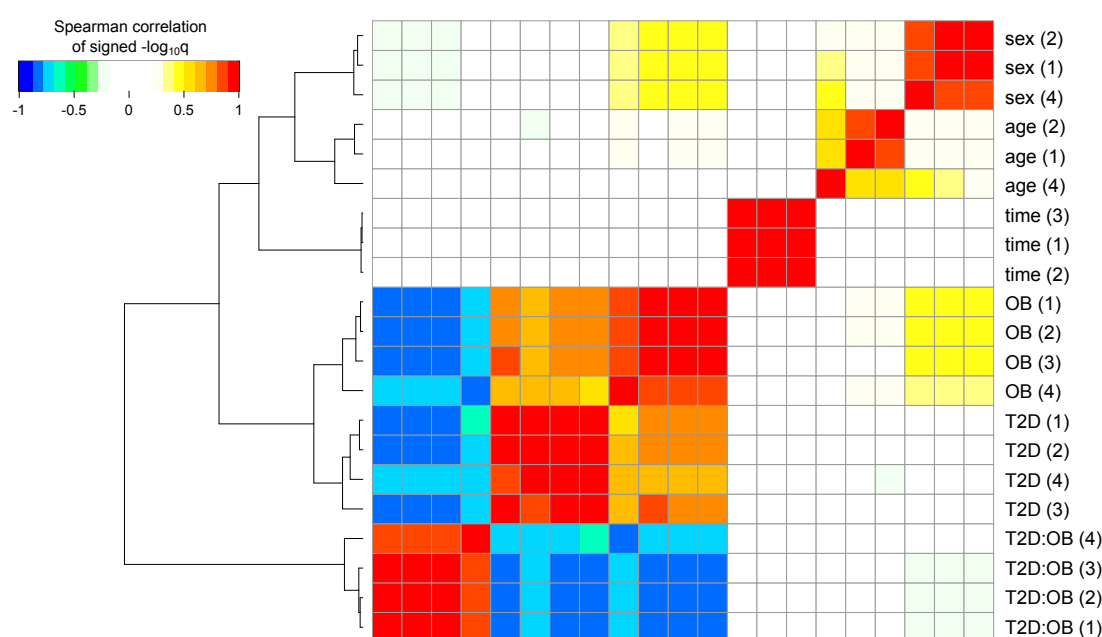
2332 1032 636 5539

4. 24 baseline samples only

Intercept + T2D + OB + T2D:OB + **sex** + **age**

0 1 0 32 0

Spearman correlation of the significance of the factors in the 4 different models



Testing interactions between insulin (time) and T2D and OB

Intercept + T2D + OB + T2D:OB + **time** + **time:T2D** + **time:OB** + **time:T2D:OB** + **sex** + **age**

1627 884 346 778 0 0 0 318 98

Intercept + T2D + OB + T2D:OB + **time** + **time:T2D** + **time:OB** + **time:T2D:OB**

1815 535 231 768 0 0 0

Intercept + T2D + OB + T2D:OB + **time** + **time:T2D** + **time:OB**

2178 809 604 1190 0 0

No significant interactions between insulin and T2D or OB!

Figure S1. Four different linear models are shown with varying factors included. The number of significant genes are shown for each factor. The handling of correlation of samples from the same subjects (original model) reduces the number of significant genes for most factors, compared to model 2. The inclusion or exclusion of sex and age does not drastically change the number of significant genes. The use of baseline (time = 0h) samples only does not give enough power to detect any significant genes. Nevertheless, gene-level q -values of the same factors across the different models have high correlation, as shown in the heatmap, meaning that the biological conclusions are robust to variations in the linear model structure. The inclusion of different combinations of interaction terms involving time (insulin) did not result in any significance, thus the effect of insulin on transcription in the four different groups can be explained by a single factor.