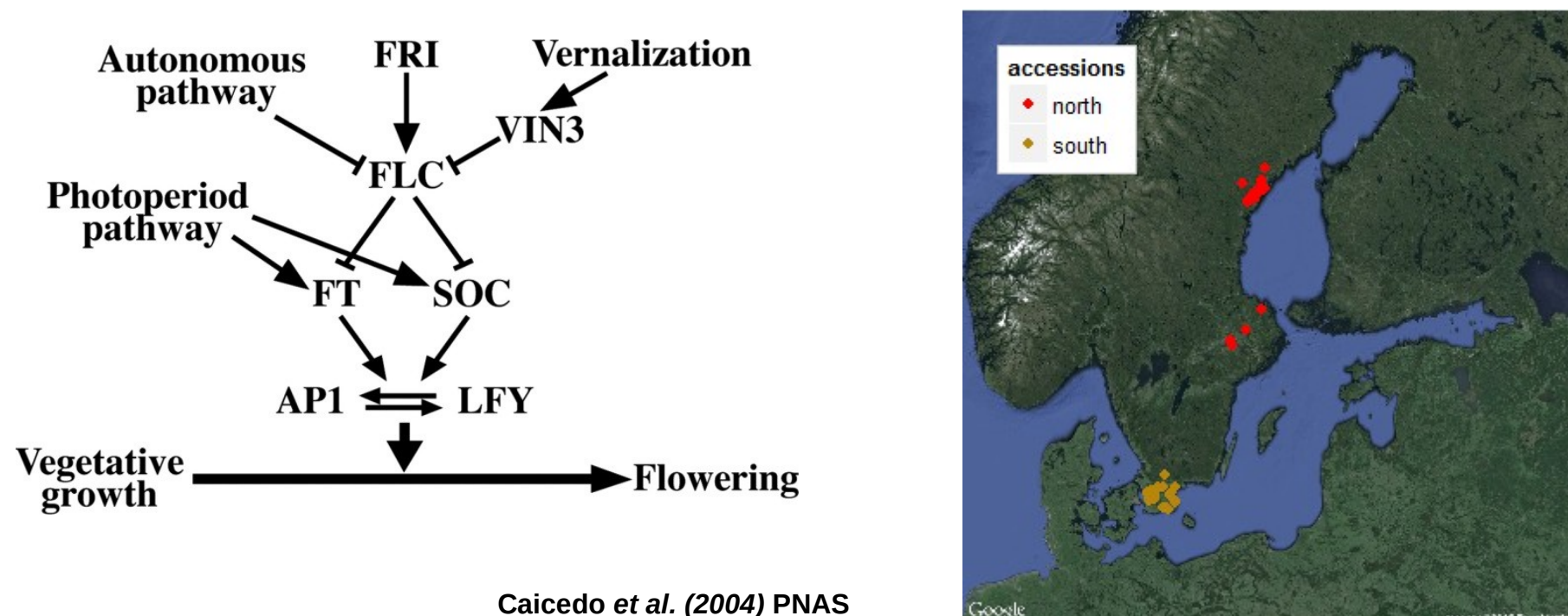


Natural Variation of Gene Regulatory Networks

Jan Freudenthal, Ammarah Anwar, William López and Arthur Korte

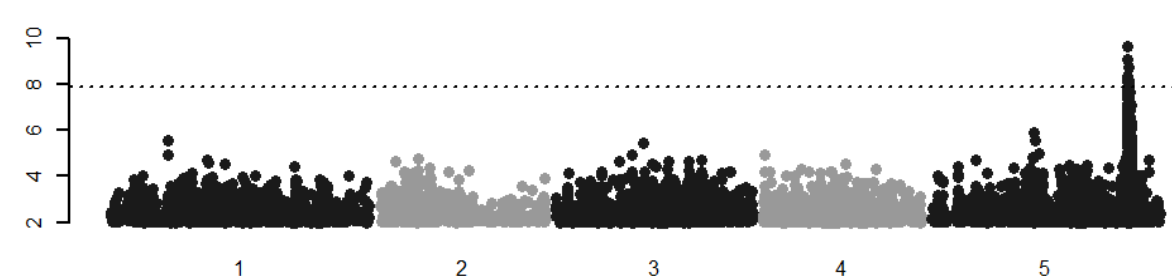
Center for Computational and Theoretical Biology, University Würzburg, 97074 Würzburg, Germany.

Natural variation in the flowering time pathway in *Arabidopsis thaliana*

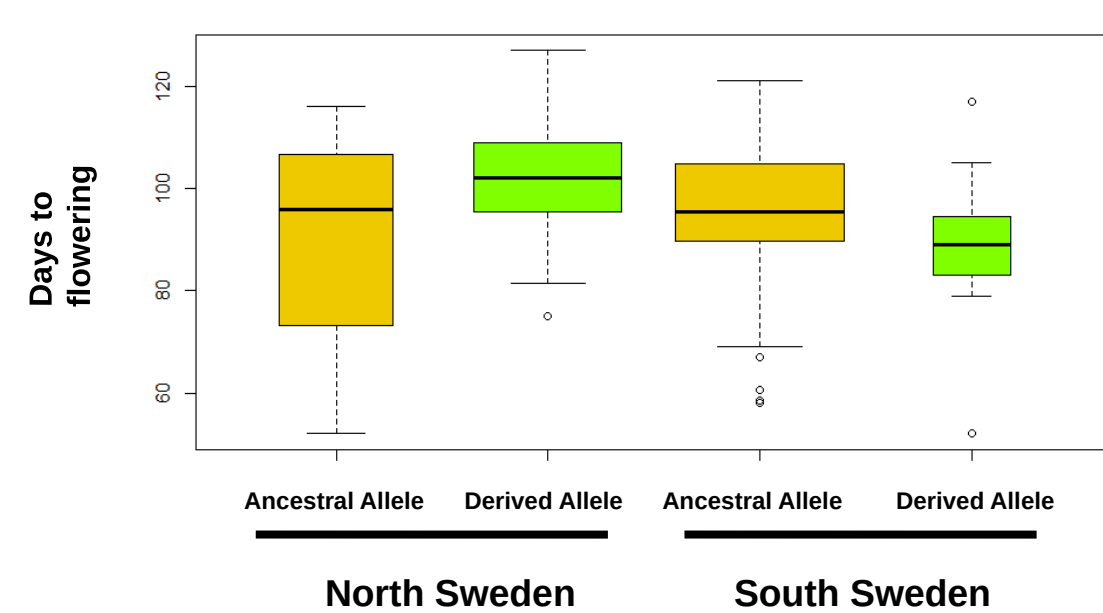
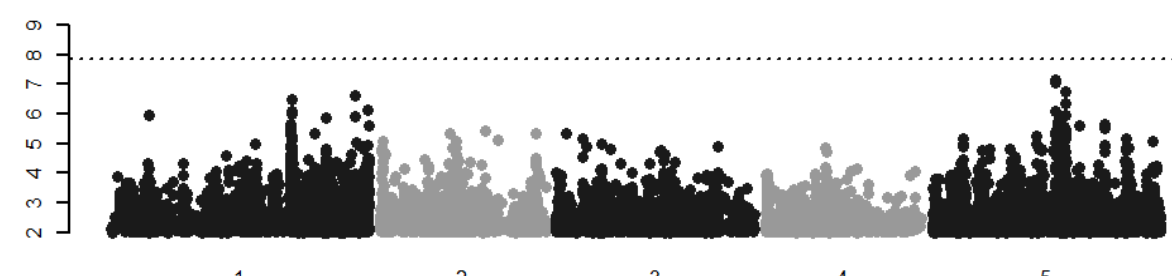


GWAS in local populations

North Sweden



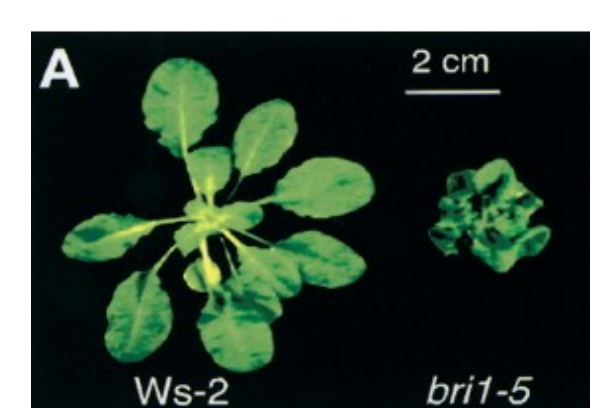
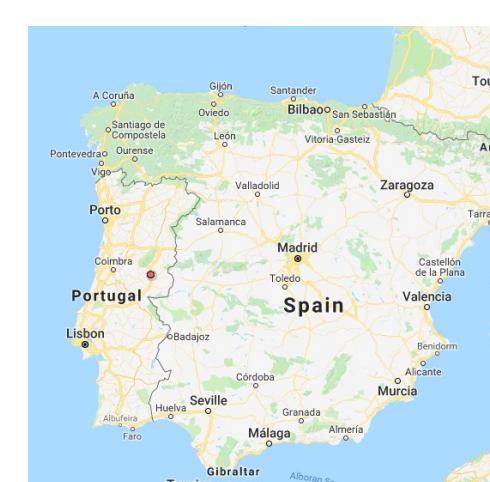
South Sweden



The effect of the respective allele depends on the genetic background

Effect of gene knock-out is depending on the genetic background

Natural BRI1 knock out in an accession from Portugal (IP-Alo-0)



Santiago Mora-García et al. 2004, Genes Dev.

Co-occurrence of premature STOP codons

Gene 1	Gene 2	gene1_count	gene2_count	Co - occurrence	Lower border	Upper border	P-value
AT1G66920	AT3G59750	341	251	122	100	157	0.03
AT4G36140	AT5G45150	312	356	266	138	196	1.7e-57
AT3G05685	AT3G63320	444	114	38	55	96	5.6e-16

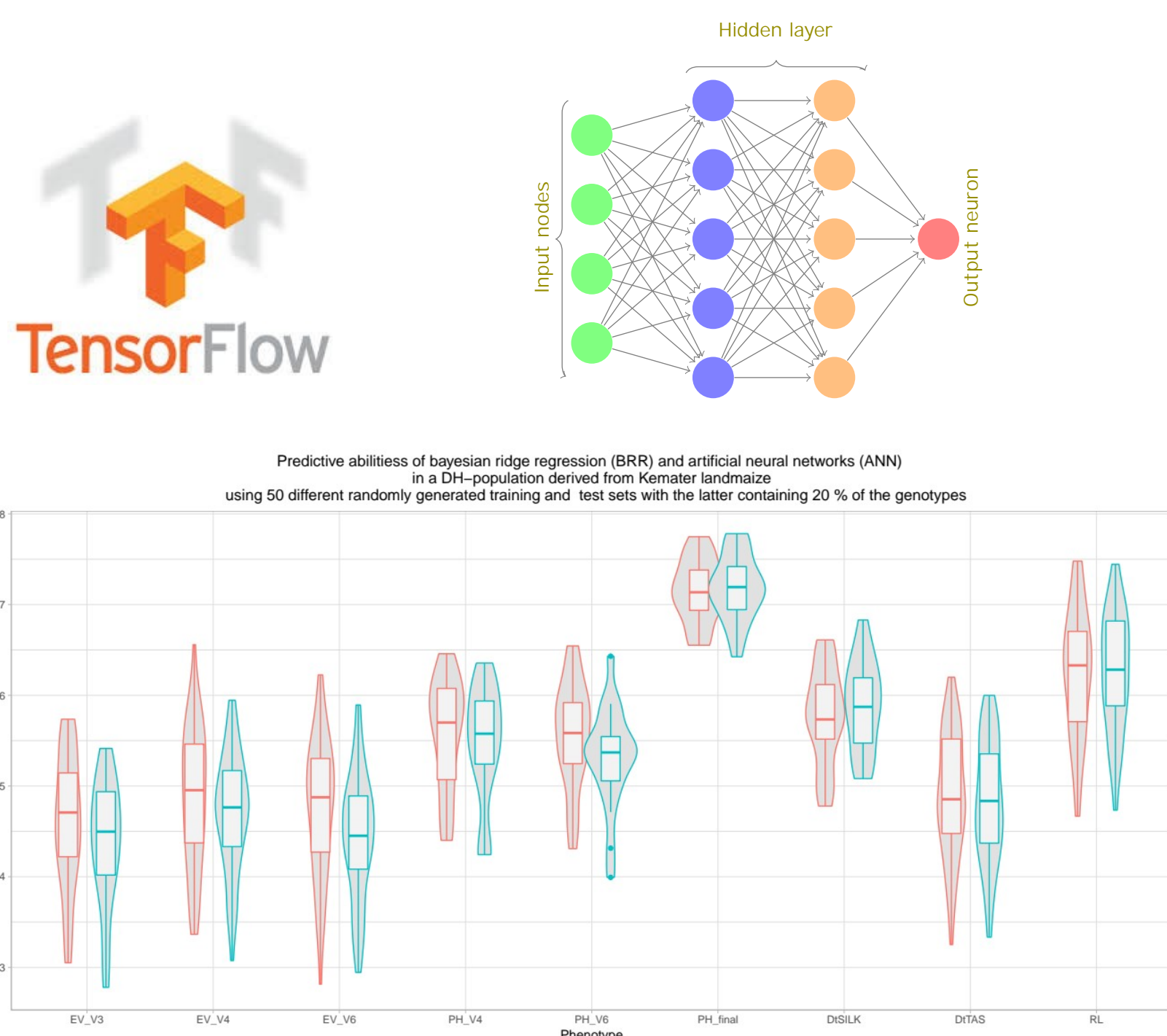
Many genes are knocked out together more (or less) often than expected by chance

Genomic prediction



MAZE - Accessing the genomic and functional diversity of maize to improve quantitative traits

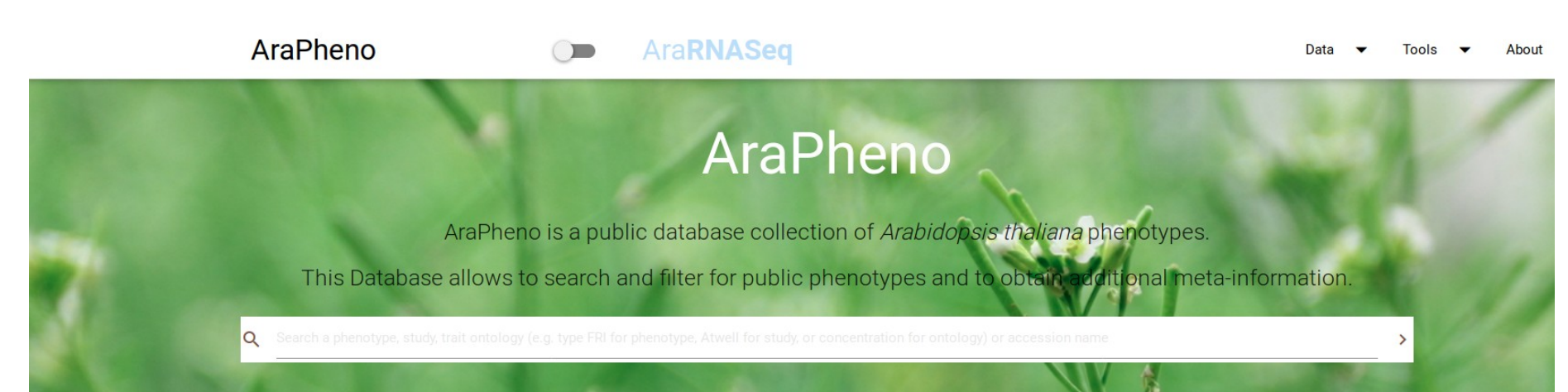
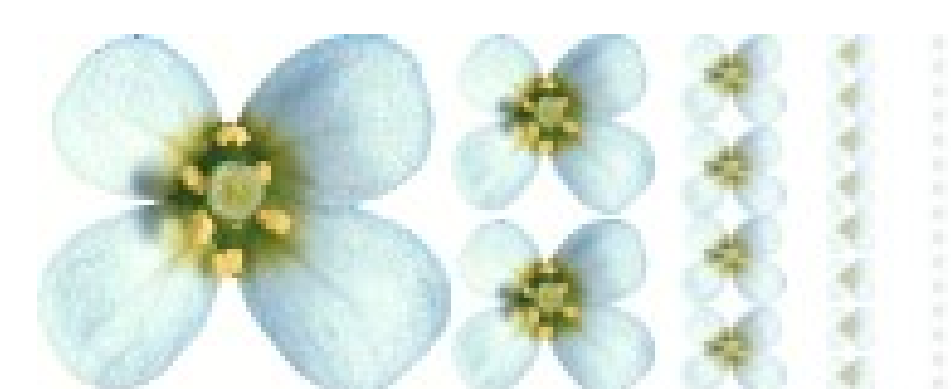
GP with artificial neural networks



www.europeanmaize.net



The 1,001 Genomes project



Quick Stats

- 22 Studies
- 471 Phenotypes total
- 462 Phenotypes published
- Last Update: Sep/04/2019

AraGWAS Catalog



www.1001genomes.org

