

## Experimental infections

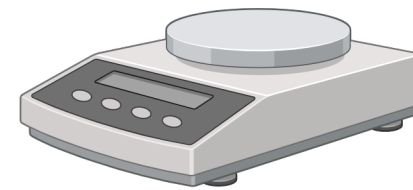
1



Wild-derived mice strains infected with two strains of *Eimeria* spp.

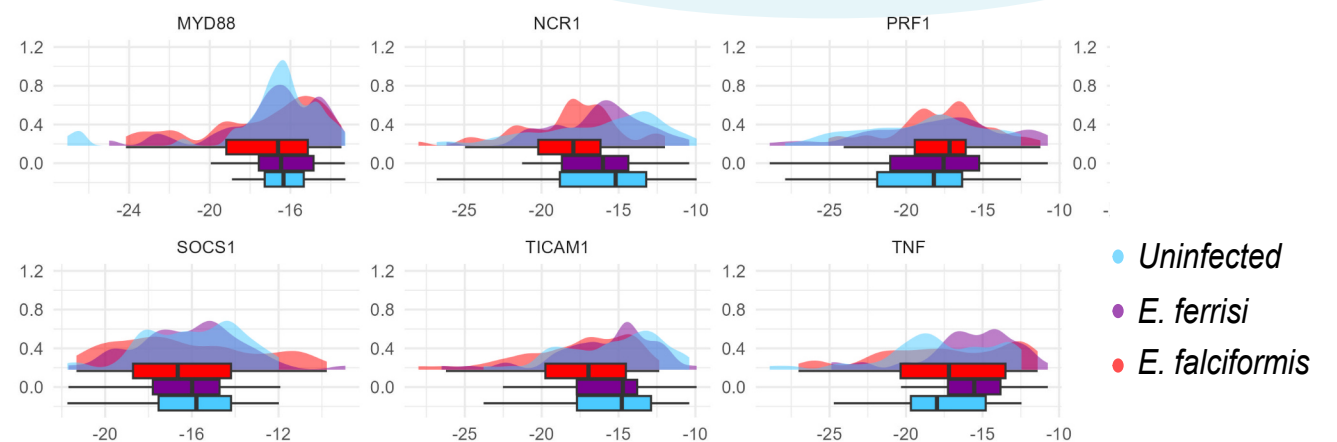
$n = 136$

Daily weight measurements:  
Proxy for host health



Day 8 post infection

Expression of 19 immune genes



## Random forest training

2



**Training data:**

Laboratory infection experiments

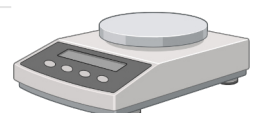
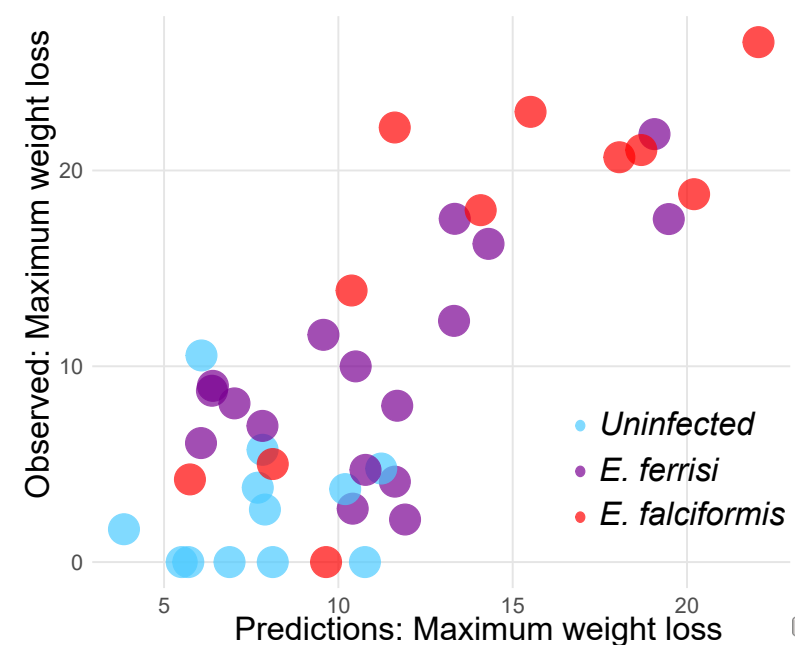
**Independent variables:**

19 immune genes

**Dependent variable:**

Relative weight-loss

$r = 0.79, p < 0.0001$   
43.6% variance explained



## Application

3

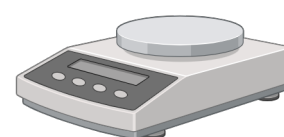
355 wild mice caught in rural Germany



Expression of 19 immune genes

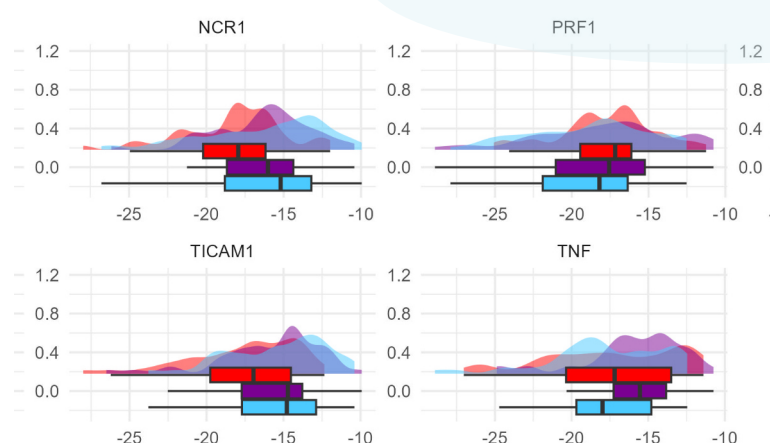


Predicted weight loss for each individual as a proxy for host health



Validation of predictions

Predicted values correlated with infection intensity ( $r = 0.206, p = 0.006$ ) and *Eimeria* presence in wild mice



Uninfected

Infected with *Eimeria* spp.

