**Predicted Phi for 50 randomly chosen simulated genes**

R2 = 0.8853

log(Real Phi)

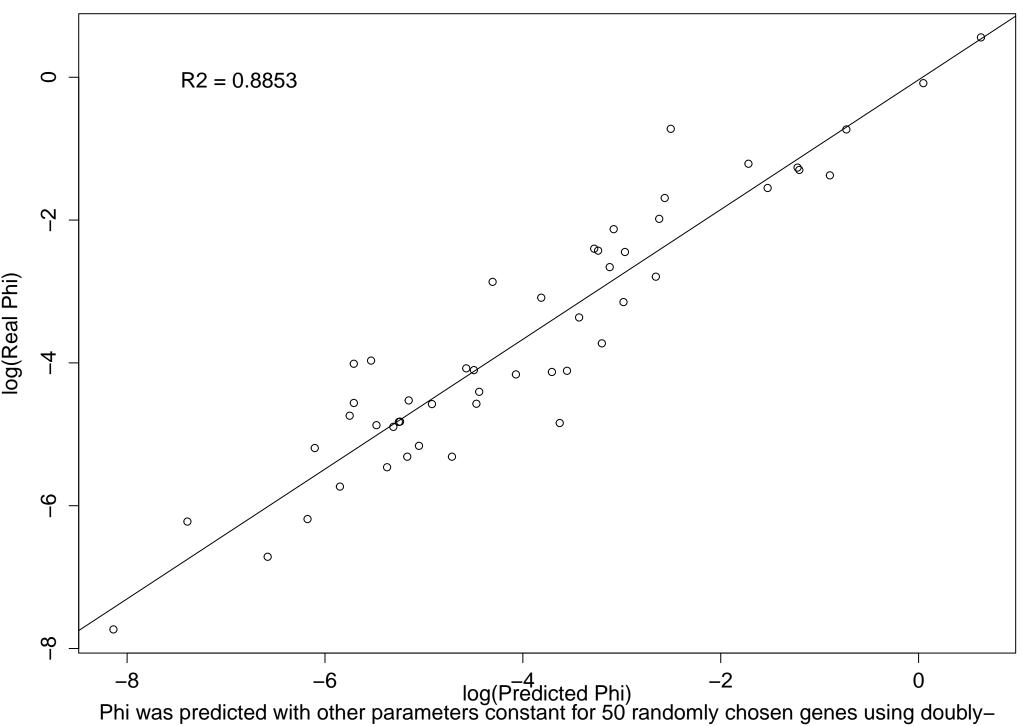log(Predicted Phi)

Phi was predicted with other parameters constant for 50 randomly chosen genes using doubly–intractible MCMC methods. Evolution simulation was used to generate auxiliary variables.