



**Figure S29. StARS parameterization: out-of-sample gene expression prediction.** TRNs were built using the Th17 ATAC prior with prior-based or TF mRNA TFA, no, moderate or strong prior reinforcement, network- and gene-level average instabilities at cutoffs .05, .1 and .2. Out-of-sample gene expression prediction was tested on the leave-out “Early Th17” set (8 samples). **(A)** and **(B)** show overall  $R^2_{\text{pred}}$  or the median-gene’s  $R^2_{\text{pred}}$  as a function of average model size, using **Equation 4** to rank TF-gene interactions.