

File S1

Detailed Results of Co-expression Network Analysis.

We applied Weighted Gene Co-expression Network Analysis (WGCNA) to investigate whether gene expression traits are clustered in expression networks. We also mapped the “Eigengene” for each cluster (the first principal component of expression level of all genes in a given cluster) to the genome using FIA. Detailed results from the cluster analyses are available in Supplementary Tables S3. The analysis grouped genes into 54 co-expression clusters. Whereas the „Eigengenes“ in five of the clusters were correlated with tameness, none of the QTL influencing these clusters overlapped with tameness QTL. There is therefore currently no evidence that these clusters and tameness are influenced by shared genetic loci. Gene Ontology and transcription factor binding site enrichment analysis of the clusters that correlated with tameness showed enrichment for a large variety of biological processes. For example, the „grey60“ cluster was enriched for retrotransposable elements (L1 transposase, FDR < 0.002%). Modulation of the transcription of retrotransposable elements occurs in the brain during exposure to stressful environmental conditions, possibly in response to glucocorticoid receptor activation [1]. The blue cluster was enriched in proteasomal ubiquitin-dependent protein catabolic processes (FDR < 2%) and enriched for binding sites of transcription factor Elk-1 (FDR < 10e-8). Elk-1 has been shown to be activated subsequently to glucocorticoid receptor activation [2] comforting a possible role of glucocorticoids receptors in the formation of the tame-aggressive phenotype.

References to Supplementary Note

1. Hunter, R.G., B.S. McEwen, and D.W. Pfaff, *Environmental stress and transposon transcription in the mammalian brain*. Mob Genet Elements, 2013. **3**(2): p. e24555.
2. Gutierrez-Mecinas, M., et al., *Long-lasting behavioral responses to stress involve a direct interaction of glucocorticoid receptors with ERK1/2-MSK1-Elk-1 signaling*. Proc Natl Acad Sci U S A, 2011. **108**(33): p. 13806-11.