## **Block Probability Matrix**

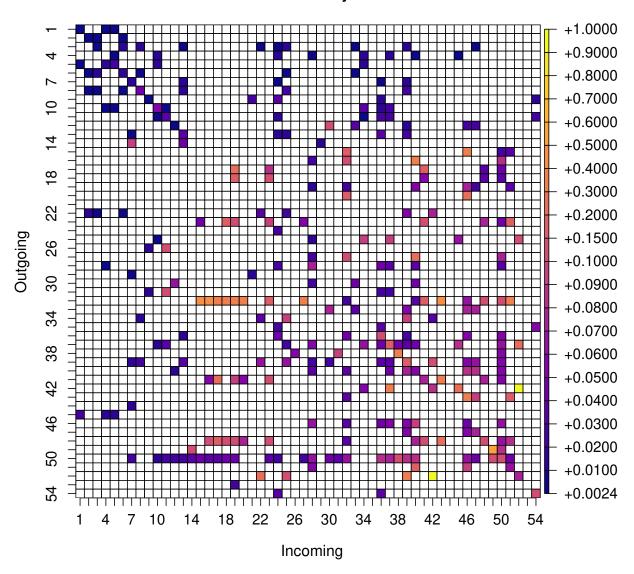


Figure S4: (a) The estimated block connectivity probabilities  $\hat{p}_{ij}$ 's between the 54 connectivity-based classes. The 319 non-zero  $\hat{p}_{ij}$ 's represent a weighted, directed edge between the 54 classes in the inferred mesoscale circuit.

## **Percentage Observations within 2 Standard Deviations**

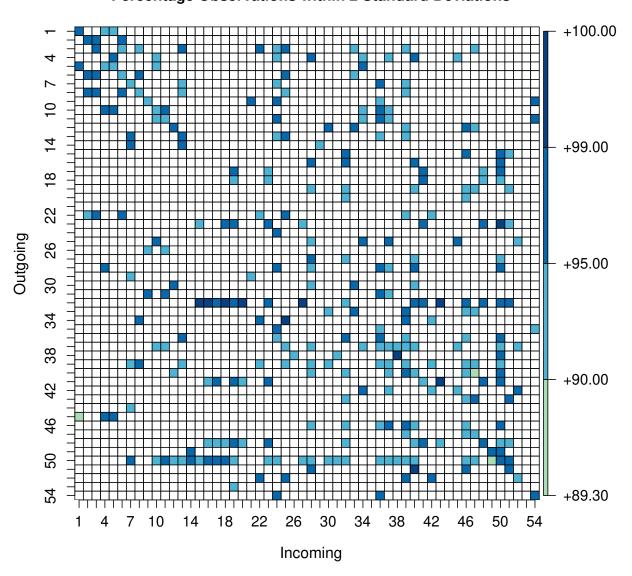


Figure S4: (b) The percentage of observed values for a block-pair that lie within two standard deviations of the expected binomial mean  $|V_j|\hat{p}_{ij}$ .

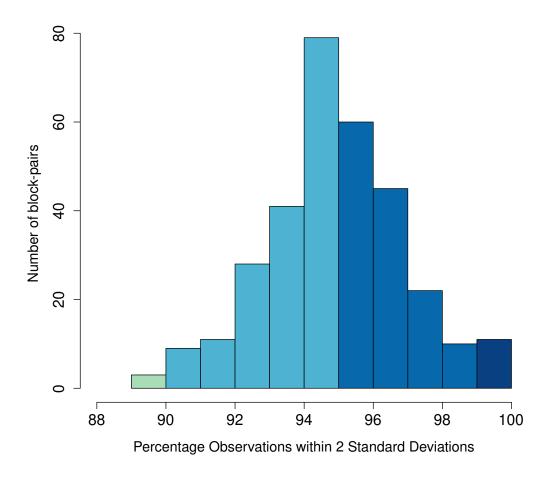


Figure S4: (c) A histogram showing the frequency count of block-pairs by the percentage of observed values that lie within two standard deviations of the expected binomial mean  $|V_j|\hat{p}_{ij}$ .