

Extended Data Table 4. A list of parameters used for the network model  
See Methods for descriptions of parameters.

| Parameter name          | Value (synaptic potentiation model) | Value ( synaptic depression model) |
|-------------------------|-------------------------------------|------------------------------------|
| $\tau_{PT} = \tau_{IT}$ | <i>10 ms</i>                        | <i>10 ms</i>                       |
| $\tau_I$                | <i>10 ms</i>                        | <i>10 ms</i>                       |
| $\tau_{Th}$             | <i>10 ms</i>                        | <i>10 ms</i>                       |
| $W_{IT \leftarrow IT}$  | <i>1.22</i>                         | <i>1.02</i>                        |
| $W_{PT \leftarrow IT}$  | <i>0.41</i>                         | <i>0.5</i>                         |
| $W_{In \leftarrow IT}$  | <i>0.5</i>                          | <i>0.55</i>                        |
| $W_{PT \leftarrow PT}$  | <i>0.6</i>                          | <i>0.8</i>                         |
| $W_{In \leftarrow PT}$  | <i>0.6</i>                          | <i>0.65</i>                        |
| $W_{Th \leftarrow PT}$  | <i>0.6</i>                          | <i>0.55</i>                        |
| $W_{In \leftarrow In}$  | <i>1.45</i>                         | <i>0.43</i>                        |
| $W_{IT \leftarrow In}$  | <i>0.6</i>                          | <i>0.55</i>                        |
| $W_{PT \leftarrow In}$  | <i>0.6</i>                          | <i>0.65</i>                        |
| $W_{IT \leftarrow Th}$  | <i>0.3</i>                          | <i>0.8</i>                         |
| $W_{PT \leftarrow Th}$  | <i>0.6</i>                          | <i>0.8</i>                         |
| $W_{In \leftarrow Th}$  | <i>1.1</i>                          | <i>0.4</i>                         |
| $b_{IT}$                | <i>0.35</i>                         | <i>0.1</i>                         |
| $b_{PT}^{max}$          | <i>1.2</i>                          | <i>NA</i>                          |
| $b_{PT}^{min}$          | <i>NA</i>                           | <i>0.26</i>                        |
| $b_{In}$                | <i>0.2</i>                          | <i>0.4</i>                         |
| $b_{Th}$                | <i>0</i>                            | <i>0</i>                           |
| $c_{IT}$                | <i>0</i>                            | <i>0</i>                           |
| $c_{PT}$                | <i>0</i>                            | <i>0</i>                           |
| $c_{In}$                | <i>0</i>                            | <i>0</i>                           |
| $c_{Th}$                | <i>0.75</i>                         | <i>0.75</i>                        |
| $I_{IT}$                | <i>-0.1</i>                         | <i>-0.1</i>                        |

|                    |   |  |
|--------------------|---|--|
| $I_{PT}$           | -0.1  | -0.1   |
| $I_{In}$           | -1.5  | -1.0   |
| $I_{Th}$           | -0.5  | -0.2   |
| $I^{tonic}$        | $0.85 * \frac{\log(k+1)}{\log(7)}$ , for<br>k=0,...,6 | $-0.11 * \frac{\log(k+1)}{\log(7)}$ , for<br>k=0,...,6 |
| $r_{PT}^*$         | 15  | 15   |
| $b_{PT}^0$         | 0   | 0.7  |
| $\mu^{tonic}$      | 0   | 0  |
| $\sigma^{tonic}$   | 0.2   | 0.05   |
| $\mu^{cue}$        | 3.0   | 5.0  |
| $\sigma^{cue}$     | 0.35  | 0.25   |
| $I^{cue}$ duration | 100 ms  | 100 ms   |
| $\eta$             | 0.00075   | 0.00025  |