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Theory of the Multiregional Neocortex: Large-Scale Neural Dynamics and Distributed Cognition
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Supplemental Figure 1.

Macroscopic gradients of synaptic excitation and inhibition. (*a*) Left: The number of spines on the basal dendrites of layer 3 pyramidal cells in an area of the macaque cortex is strongly correlated with the hierarchical position of the area, as determined by layer-dependent projections. Right: The spine count per pyramidal cell serves as a proxy of the strength of synaptic excitation in a computational model. (*b*) Left: The ratio of SST+ interneuron density to PV+ interneuron density plotted and ranked for different areas of the mouse cortex. PV+ neurons are abundant in primary sensory areas, whereas frontal areas are dominated by SST+ neurons. Areas are color-coded to depict the type of cortical subnetwork to which they belong. Right: Disinhibitory circuit comprising a parvalbumin-expressing (PV+) interneuron, a somatostatin-expressing (SST+) interneuron, and a vasoactive intestinal peptide–expressing (VIP+) interneuron, in addition to an excitatory pyramidal neuron (PYR). Panel *a* is reproduced from Chaudhuri et al. (2015) with the original data from Elston (2007).

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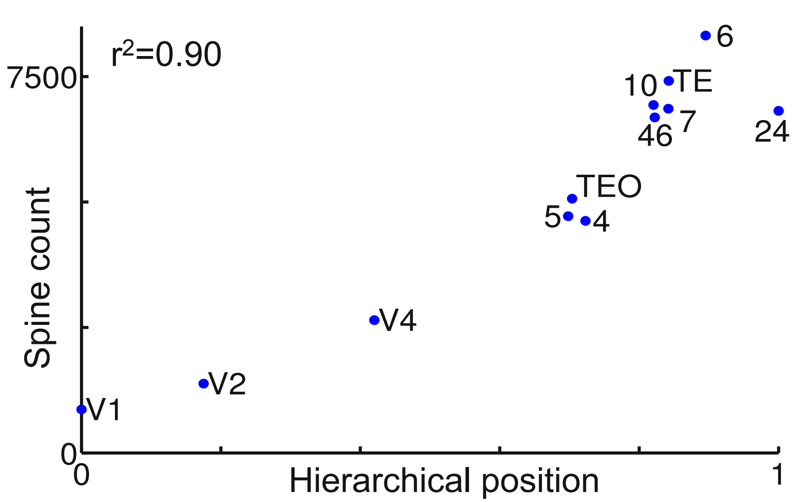
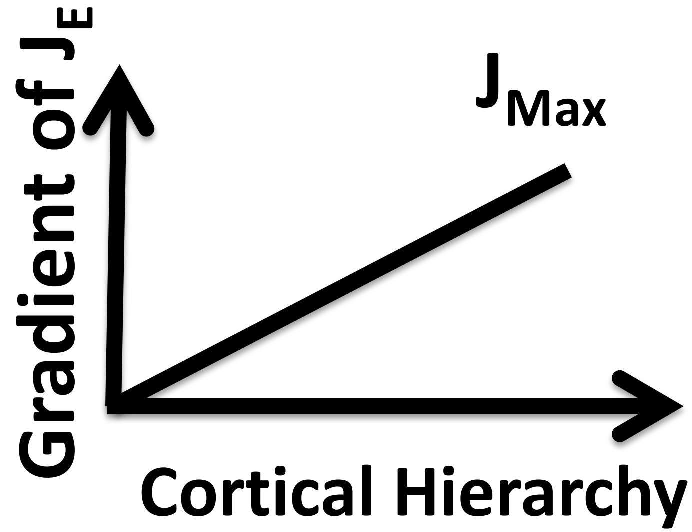
a





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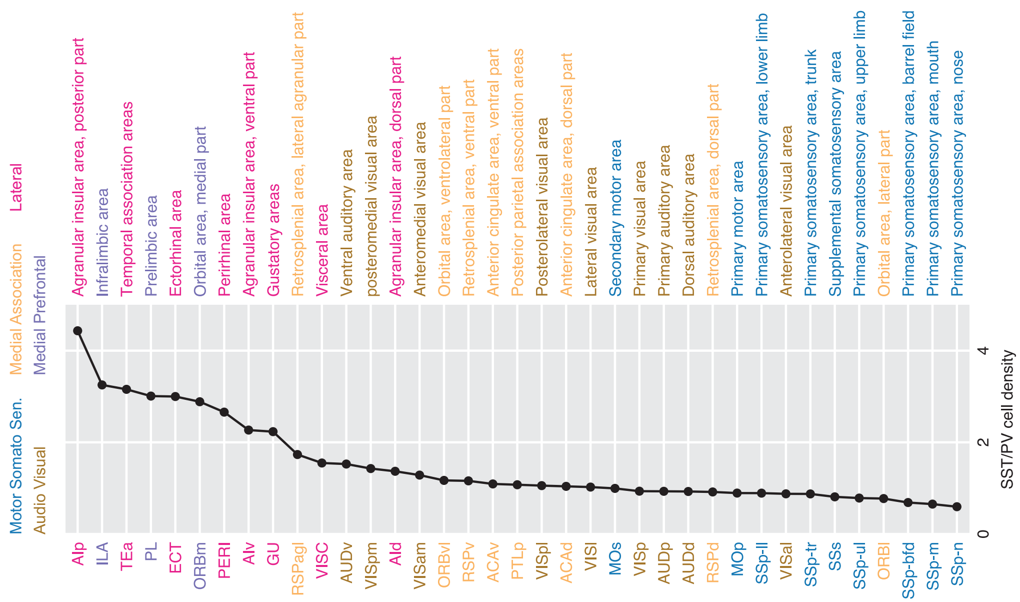

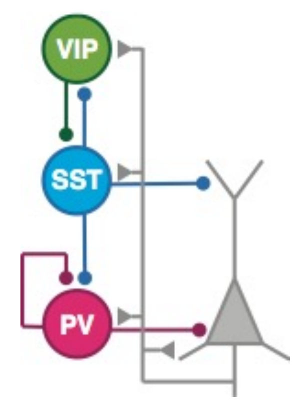

Suppl Figure 1

Supplemental Figure 2.
A hierarchy of timescales in a computational model of the macaque monkey cortex. (*a*) Stochastic activity fluctuations are fast in area V1 but much slower in dorsolateral prefrontal cortex area 9/64d. (*b*) Autocorrelation of activity time series from 12 individual areas. (*c*) The model shows a hierarchy of timescales, with sensory areas and association areas characterized by short versus long timescales, respectively. The cortical areas are ordered along the horizontal axis according to their positions in an anatomically determined hierarchy. Reproduced from Chaudhuri et al. (2015).

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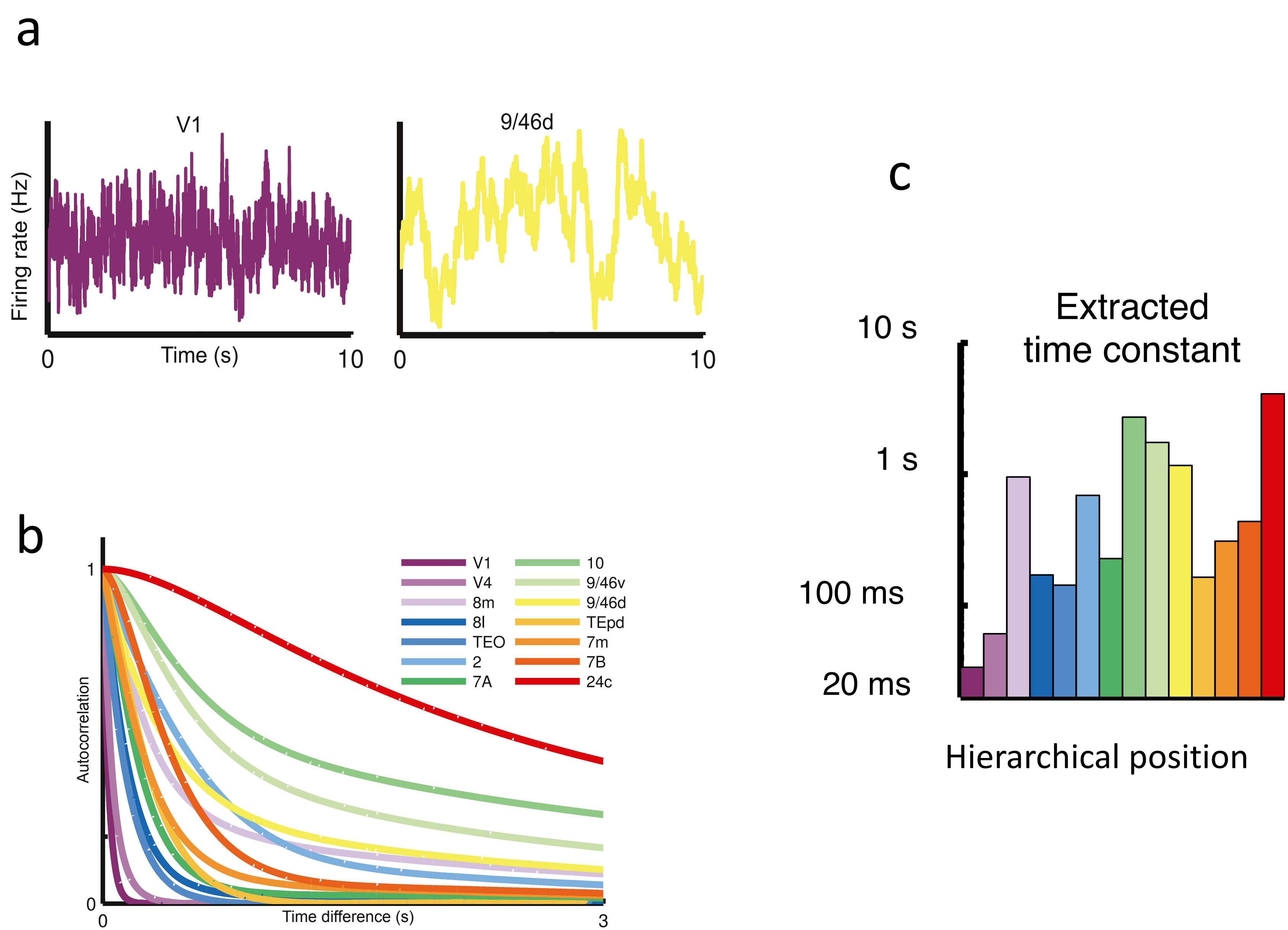

Suppl Figure 2

Supplemental Figure 3.
Comparison of results from a meta-analysis on cortical areas that display mnemonic persistent activity in the monkey cortex (*a*) and a large-scale computational model (*b*). Reproduced from Froudist-Walsh et al. (2021), with panel *a* based on Leavitt et al. (2017).

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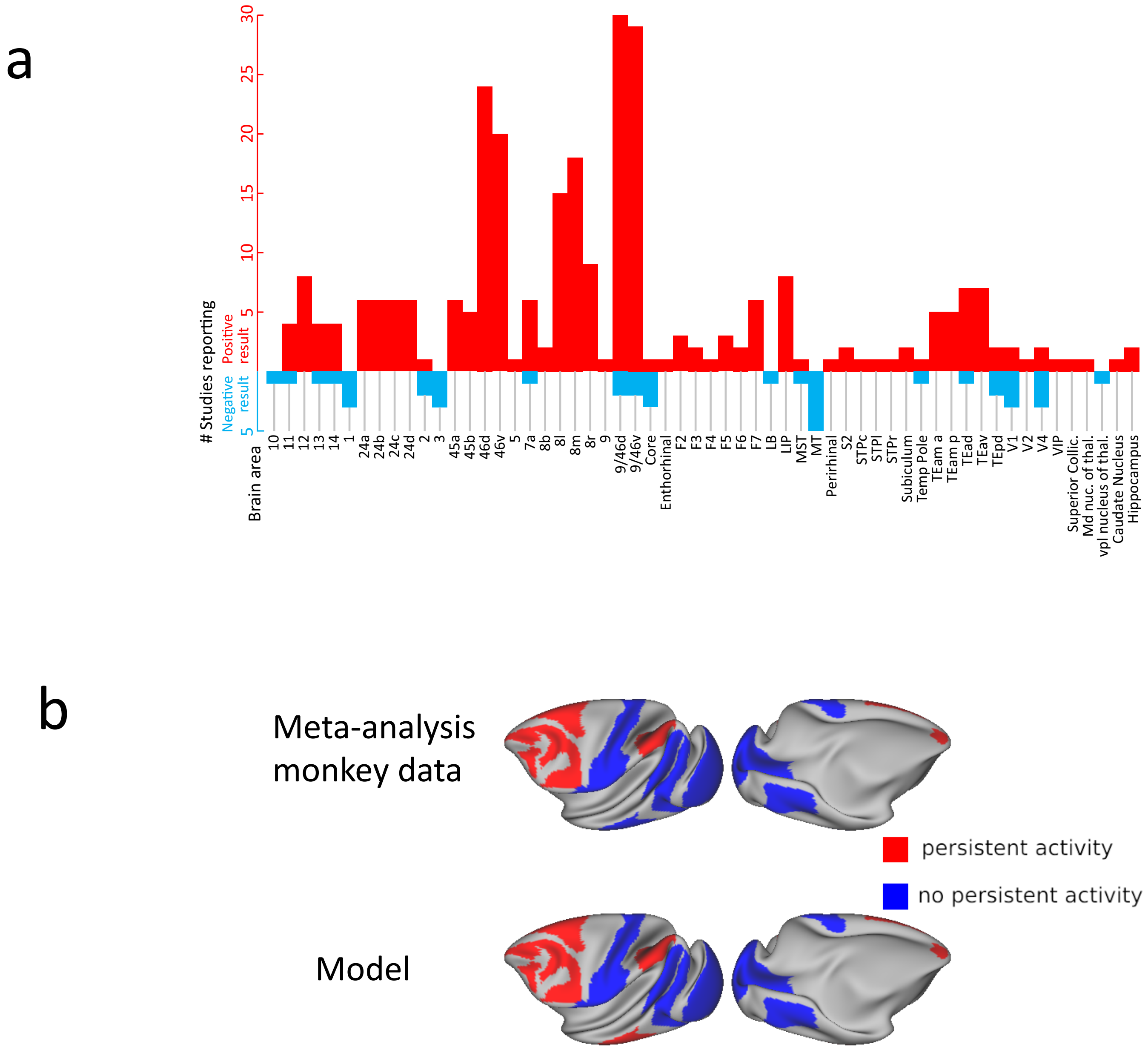

Suppl Figure 3