

# Hierarchy of Cortical Population Timescales Inferred from LFP & ECoG

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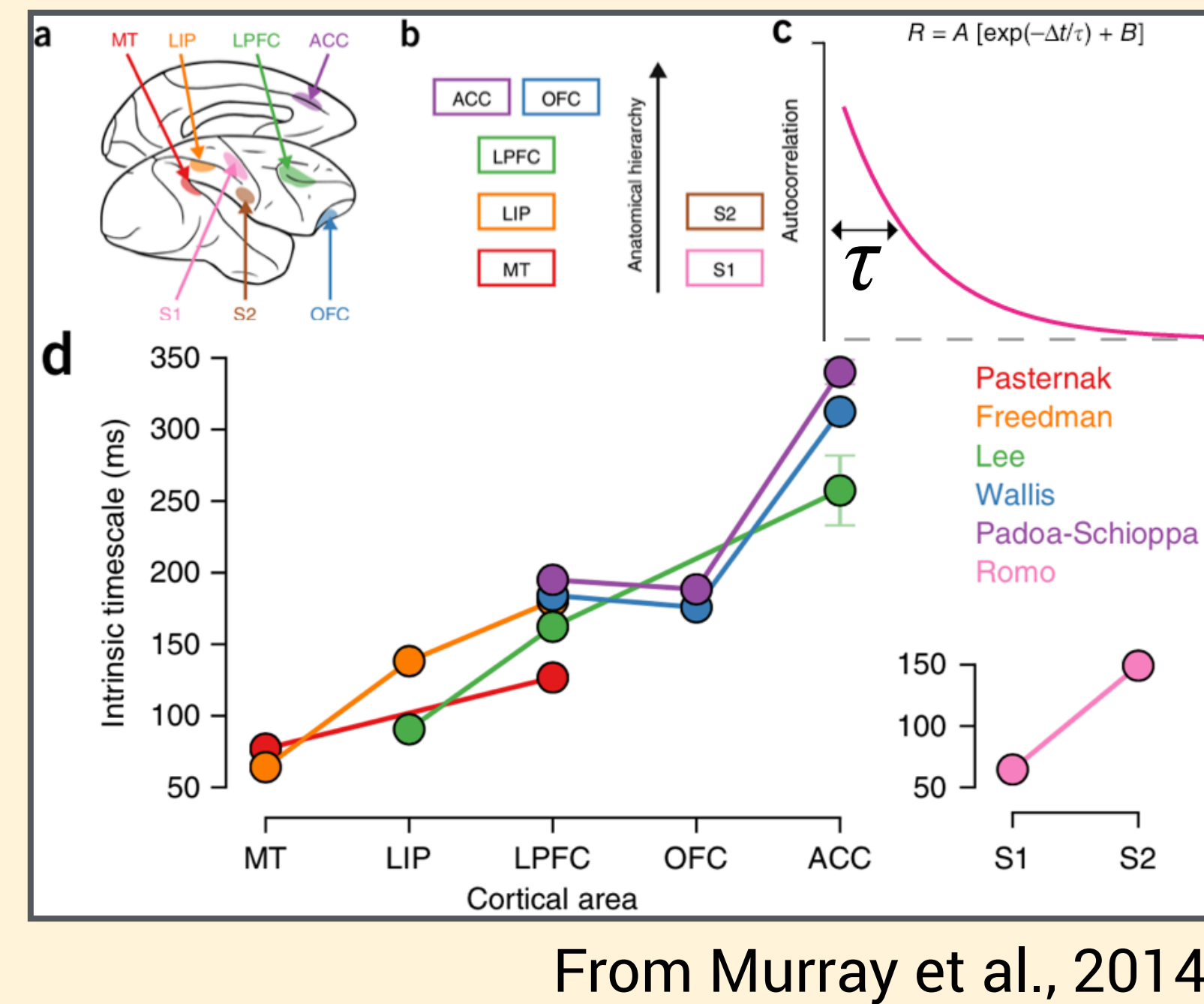
## Background: Intrinsic Spiking Population Timescale

By measuring the **decay time constant of autocorrelation** in population spiking, previous works report:

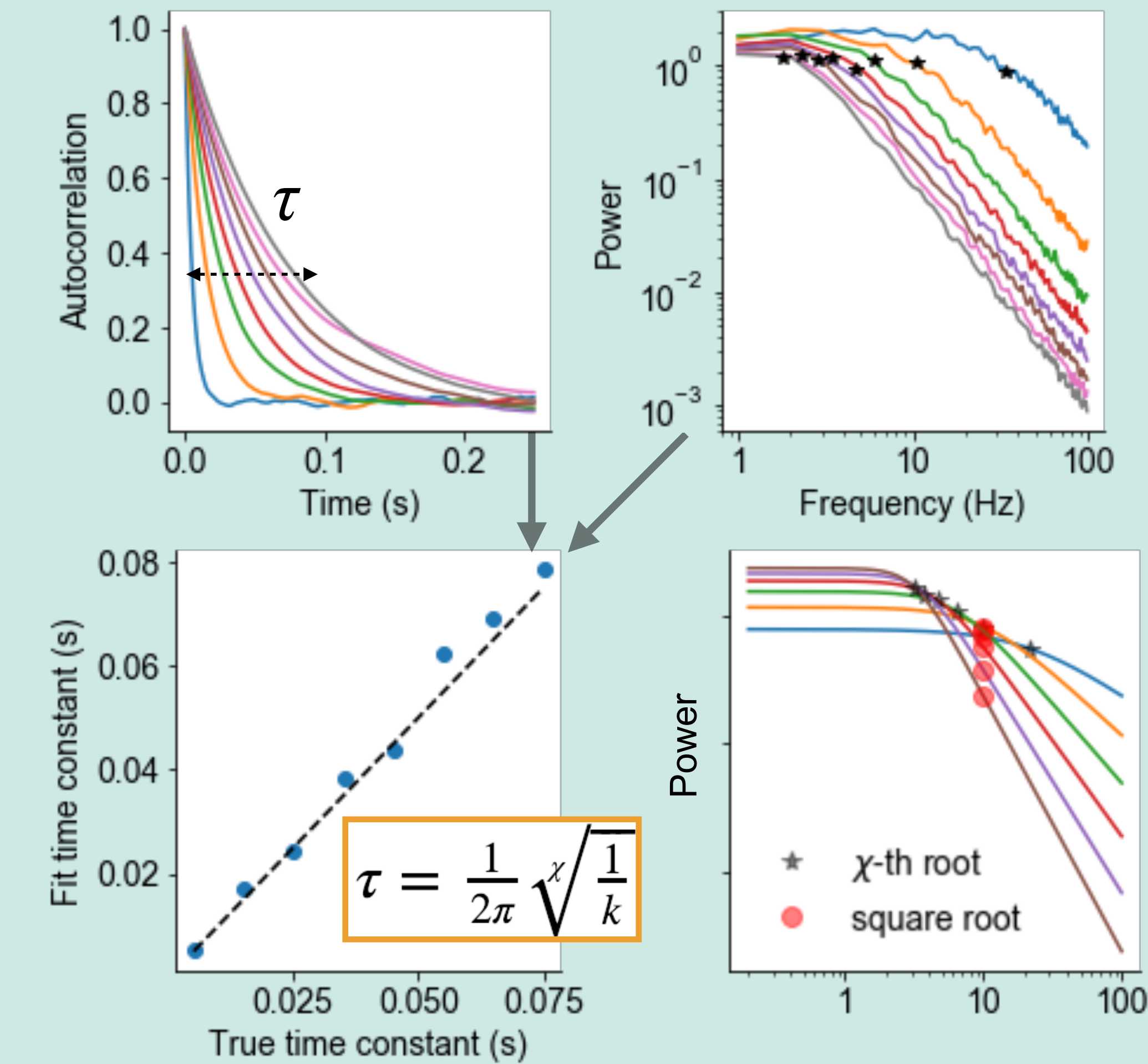
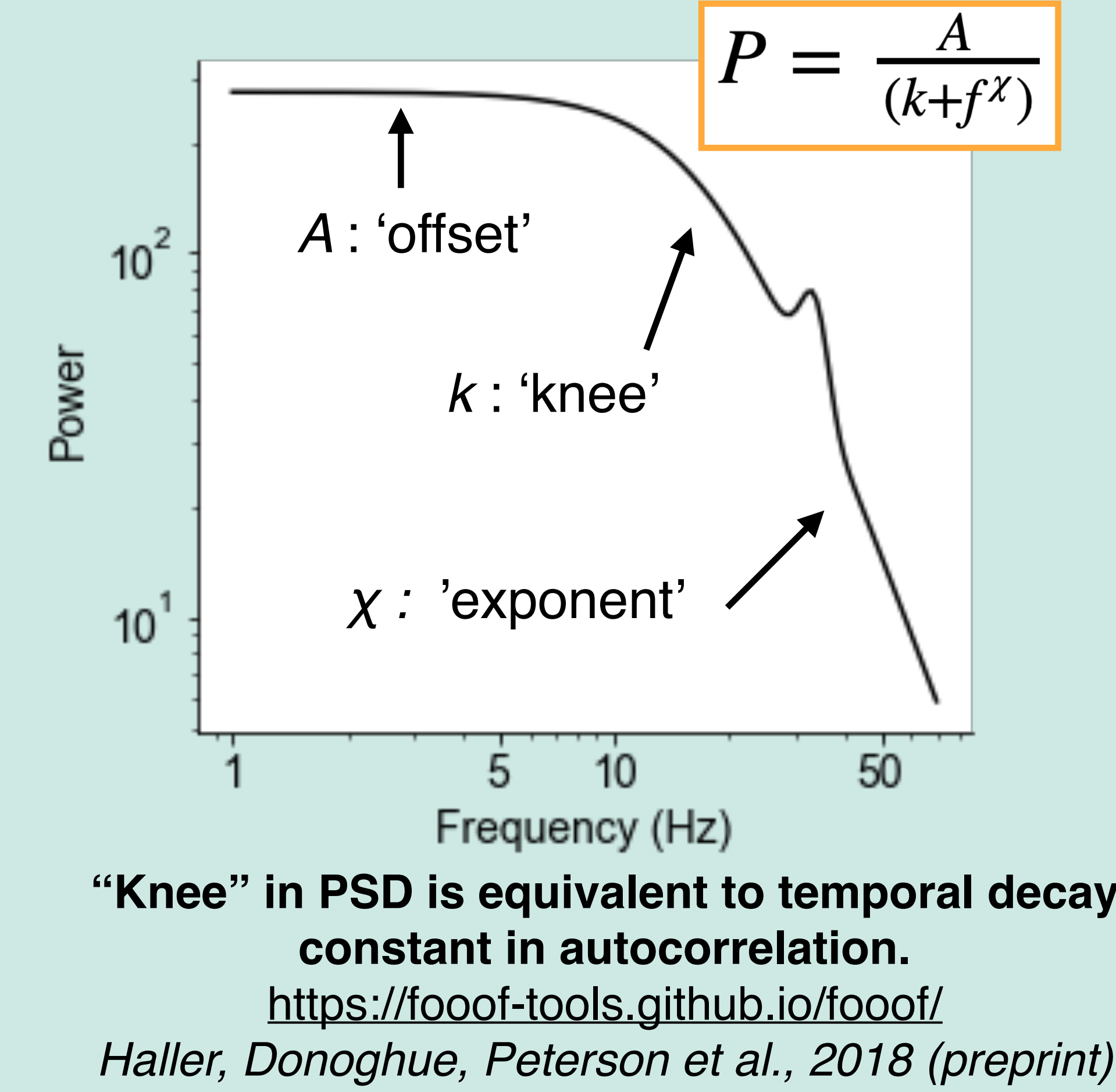
- **Hierarchical:** intrinsic timescale increases along cortical hierarchy, i.e. sensory and association areas exhibit shorter and longer timescales, respectively;
- **Functional:** intrinsic timescales are functionally significant in working memory and decision-making.

(Murray et al., 2014; Runyan et al., 2017; Wasmuht et al., 2018)

**Summary:** we recapitulate & extend these results in **broad coverage** macaque and human intracranial data via spectral parameterization.

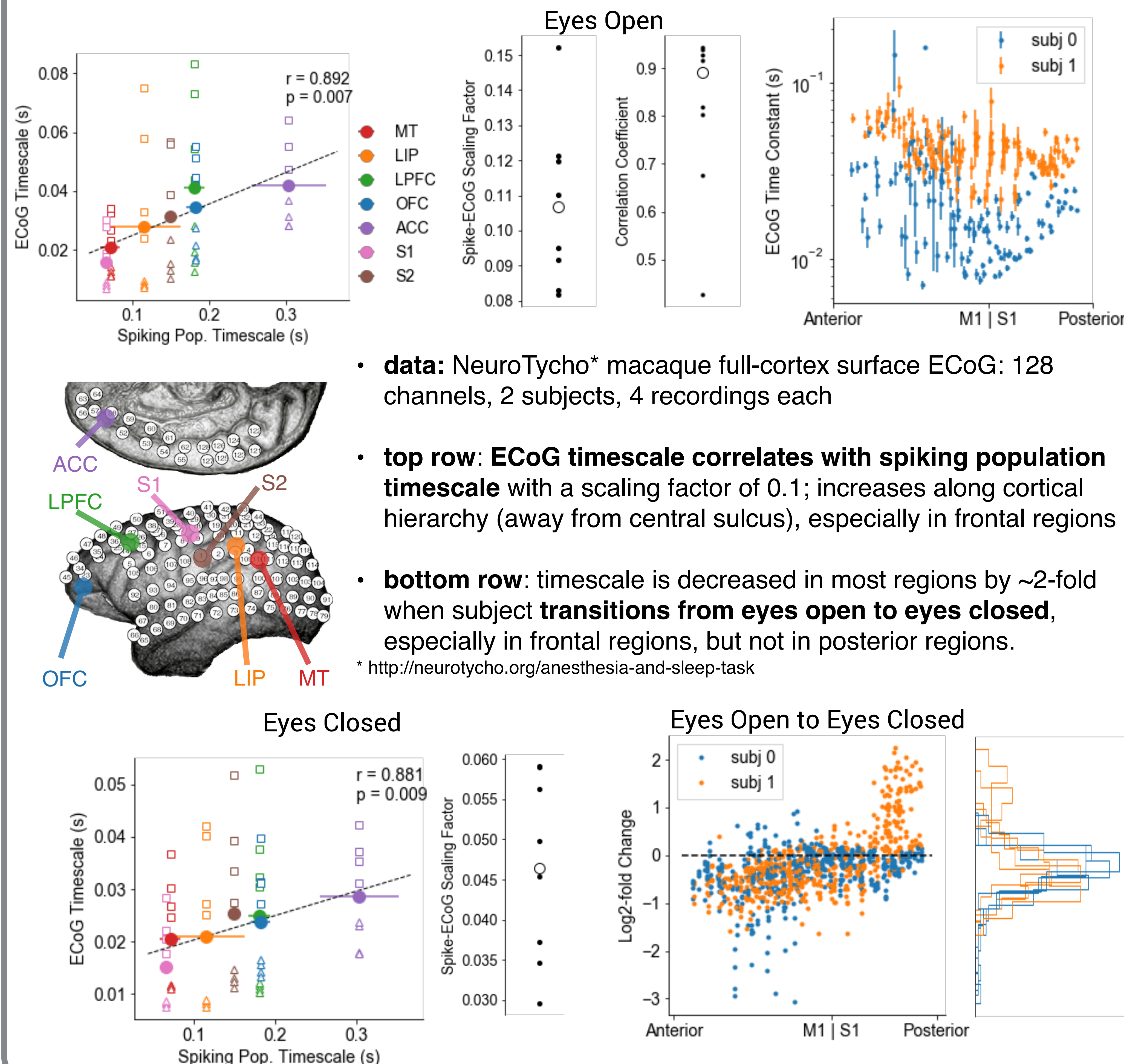


## Method & Simulation: Inferring AC Timescale from Power Spectra



## Results

### Timescale Measured in Macaque ECoG Recapitulates Spiking Data



### Timescale in Human ECoG & iEEG Exhibits Functional Hierarchy

