

Projectome

All the [neural projections](#) within a brain.

the whole-brain organization of [Prefrontal cortex](#) axon projections remains poorly understood. Using single-neuron reconstruction of 6,357 mouse PFC projection neurons, we identified 64 projectome-defined subtypes. Each of four previously known major cortico-cortical subnetworks was targeted by a distinct group of PFC subtypes defined by their first-order axon collaterals. Further analysis unraveled topographic rules of soma distribution within PFC, first-order collateral branch point-dependent target selection and terminal arbor distribution-dependent target subdivision. Furthermore, we obtained a high-precision hierarchical map within PFC and three distinct functionally related PFC modules, each enriched with internal recurrent connectivity. Finally, we showed that each [transcriptome](#) subtype corresponds to multiple projectome subtypes found in different PFC subregions. Thus, whole-brain single-neuron projectome analysis reveals organization principles of axon projections within and outside PFC and provides the essential basis for elucidating neuronal connectivity underlying diverse PFC functions ¹⁾.

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Gao L, Liu S, Gou L, Hu Y, Liu Y, Deng L, Ma D, Wang H, Yang Q, Chen Z, Liu D, Qiu S, Wang X, Wang D, Wang X, Ren B, Liu Q, Chen T, Shi X, Yao H, Xu C, Li CT, Sun Y, Li A, Luo Q, Gong H, Xu N, Yan J. Single-neuron projectome of mouse prefrontal cortex. Nat Neurosci. 2022 Mar 31. doi: 10.1038/s41593-022-01041-5. Epub ahead of print. PMID: 35361973.

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