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Supplementary Materials for

Focal infrared neural stimulation with high-field functional MRI: A rapid way to map mesoscale brain connectomes

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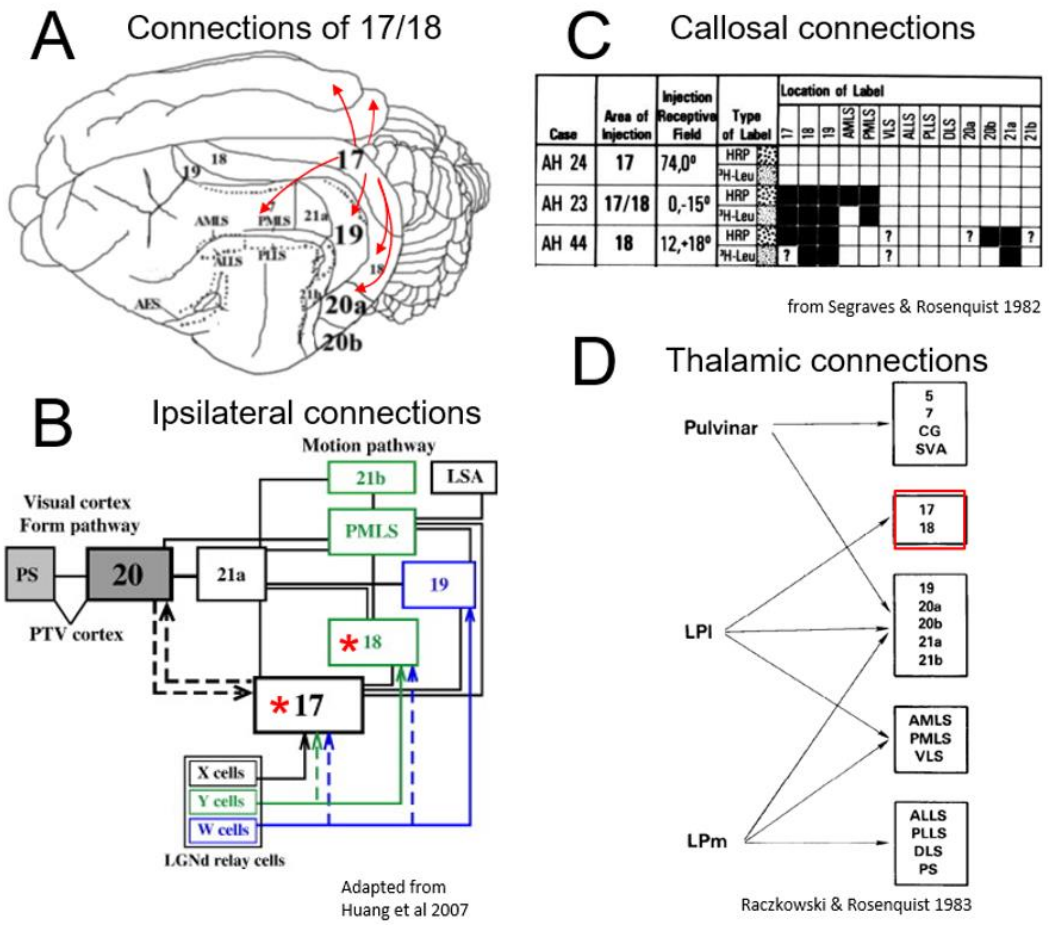

Fig. S1. Cat anatomy. (**A**) Major areas of cat visual cortex. Red arrows: major cortical targets of area 17. (**B**) Ipsilateral visual cortical connections (from 44). Red stars: Stimulated cortical areas from Fig. 1. Since laser tip was placed at border of area 17/18, it impinged on both area 17 and 18. (**C**) Callosal connections (from 25). Blackened boxes indicate presence of direct connection. White boxes: absence of connection. Callosal connections are most prominent at 17/18 border and area 18 and connect to 17, 18, 19, AMLS, PMLS, 20b and 21a. (**D**) Primary thalamocortical connections (from 28). Direct projections from LPl to area 17 and 18. Indirect connections to higher order areas via LP and pulvinar: areas 4 (see *31*, *32*), 5, 7, cingulate cortex, and splenial visual area SVA (CG, CVA is part of CG).

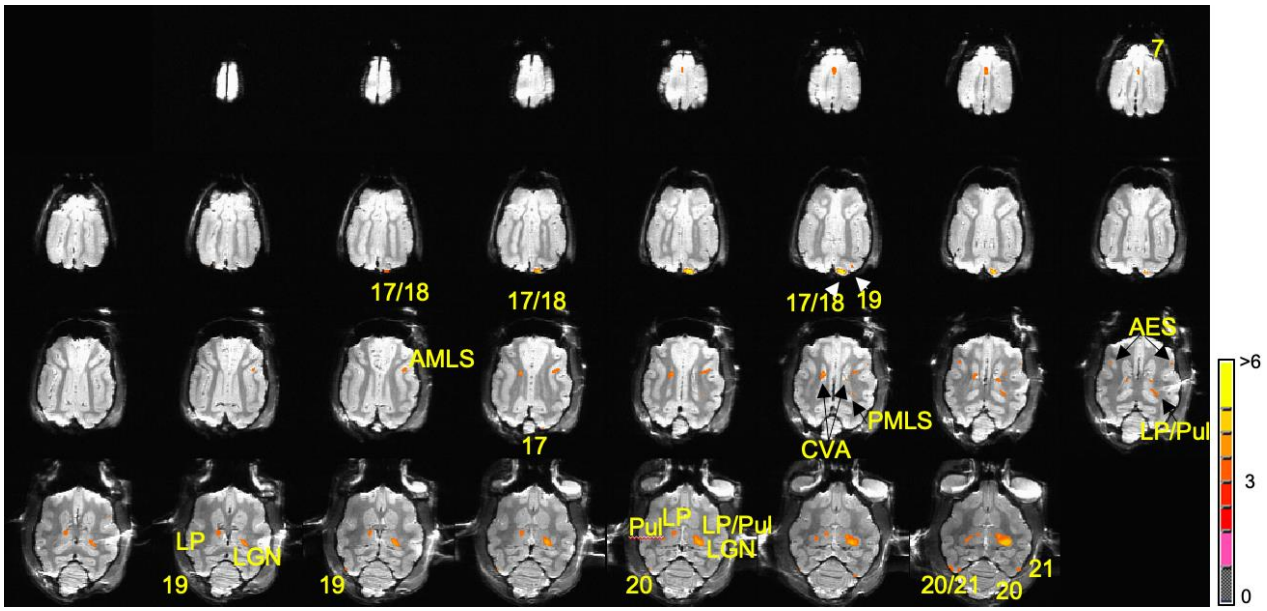

Fig. S2. All slices of significant voxels controlled at an FDR of 10% under laser stimulation of the area 17/18 border (0.7 J/cm^2). Significant voxels **(p<0.0025, FDR 10%)** overlie locations with known anatomical connections to laser stimulation site in 17/18. These include LGN, LP/pulvinar, 17, 18, 19, 20, 21, and Sylvian areas (AMLS, PMLS). Polysynaptic areas include contralateral LP/pulvinar, AES (anterior ectosylvian area), CVA (cingulate visual area), and areas 4, 5, and 7 (see text). Note that LGN, which has very strong connections with area 17/18, contains some of the most significant voxels. Color bar: T-statistics of significant voxels. See Fig. 1A for list of abbreviations.