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Supplemental Information

Anatomical Connections of the Functionally Defined ``Face Patches" in the Macaque Monkey

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Anatomical connections of the functionally-defined "face patches" in the macaque monkey: Supplementary Online Material

Supplementary Experimental Procedures

Face patch localization. Three male rhesus monkeys (6-10 kg) were implanted with ultem headposts, as described in Tsao et al. (2008). All procedures conformed to local and US National Institutes of Health guidelines, including the US National Institutes of Health Guide for Care and Use of Laboratory Animals. They were trained via standard operant conditioning techniques to maintain fixation on a small spot for a juice reward and then scanned in a TIM TRIO (Siemens) horizontal bore magnet equipped with AC88 gradient insert to identify face-selective regions using MION contrast agent. Eye position was monitored using an infrared pupil tracking system (RK-726PCI, ISCAN Inc.). The stimuli were displayed at 60 Hz with a resolution of 1280 by 1024 pixels, using a video beamer (JVC DLA-G15E) and a back projection screen. For further details see (Tsao et al., 2006; Tsao et al., 2008).

Multi-unit recording and eye-position monitoring. We recorded extracellularly with electropolished tungsten electrodes coated with vinyl lacquer (FHC), advanced using a manual advancer (Narishige). Neural signals were recorded and spikes were sorted online with dual-window discrimination using Plexon. Single units and multiunits were filtered at 0.15-8 kHz and recorded at 40 kHz. Eye position was monitored with an infrared eye tracking system (ISCAN) at 60 Hz with an angular resolution of 0.25°, calibrated before each recording session by having the monkey fixate dots at the center and four corners of the monitor.

Visual stimuli for mapping face patches electrophysiologically. The monkey sat in a dark box with its head rigidly fixed and was given a juice reward for keeping fixation for 3 s in a 2.5° fixation box. Visual stimuli were presented using custom software and presented at a 60-Hz monitor refresh rate and 640 x 480 resolution on a BARCO ICD321 PLUS monitor. The monitor was positioned 53 cm in front of the monkey's eyes. Pictures subtended a 7° × 7° region of the visual field. Pictures were presented for 100 ms, separated by 100 ms blank intervals in three experiments; 96 pictures from six different image categories (faces, human bodies, produce, technical objects, human hands and scrambled images) were shown.

Targeting face patches for tracer injections. We injected two face patches in monkey N (left AM and right AL), four patches in monkey D (left PL, left ML, right AL and right AM) and 6 patches in monkey B (left PL, left ML, left AL, left AM, right ML and right AL). In Monkey B we also made a control injection outside of the face patches in the ventral bank of the STS (see Table 1).

The face patches were targeted according to the MRI coordinates using custom software (Ohayon and Tsao, 2012). For each targeted patch, several grid holes spanning the region of strongest fMRI activation were identified. For each grid hole, we mapped the entire extent of face-selective cortex through recordings spaced every 40-200 μm; in each penetration the spacing between recording sites was constant. The grid hole with longest stretch of face-selective activity was elected for tracer injection.

We chose a superficial approach for two injections (left PL and left ML in monkey D) and deep approach for all the other injections. For superficial recordings a CILUX chamber (Crist instruments), 19 mm inner diameter was placed on the temporal bone, centered on ML. For superficial injections, we thinned the dura mater in a small region of the chamber where the patch was expected to be. A tungsten rod was dipped in sterile black ink and placed through a grid on the surface of the dura, to label the expected location of the face patch according to the MRI

coordinates. To stabilize recordings, we used a sealed drive (Narishige) and the chamber was filled with mineral oil.

On the day of the injection, recordings were performed prior to injection and the injection was made in the same hole and the same depth as where center of face-selective activity was found.

Tracer Injections. Pressure injections were made with a 1 µl Hamilton syringe connected to a needle (deep injections) or a pulled glass capillary (superficial injections) via a Teflon tube filled with mineral oil. For deep injections we used a 27 gauge steel needle ending with a 45° beveled tip. The needle was mounted on the same drive we used for the electrode during recordings and advanced to the desired depth. For superficial injections, we pulled a capillary glass to a tip diameter ranging 30-50 µm (50 µm for Fast Blue and True Blue, 30 µm for all other tracers). On the day of the injection a small hole in the dura was made, corresponding to the location of the face patch. A recording was made to confirm face-selective activity and then the injection was made in the same spot. The glass pipette was fixed to the electrophysiology advancer and advanced until it touched the surface of the brain, and then further advanced 1.5 mm to target around layer IV.

Both steel needles and glass pipettes were loaded with 1 µl of tracer. For deep injections, to avoid spillover of tracer along the penetration of the needle, 0.2 µl of air was sucked in the pipette after the tracer, to avoid contact of the tracer with the brain tissue. The needle was flushed with sterile saline and carefully dried with sterile gauze.

For all injections we injected 0.2 µl of tracer over 10 minutes. For deep injections, after the end of the injection we waited 20 minutes with the needle sitting in place, then retracted for 500 µm and retracted the plunger of the syringe by 0.2 ul, waited another 30 minutes, and then slowly retracted to the surface.

Superficial injections were made under microscope control, to check that the tracer was flowing in the pipette and that there was no leak of tracer on the surface. After the end of the injection the pipette was left in place for 30 minutes and then retracted. The dura slit was closed with artificial dura.

The tracers used (see Table 1) were CTB-Alexa 488, CTB-Alexa 555 (1% in PBS, Invitrogen), Cascade Blue, Fluoro-Emerald, Lucifer Yellow, (10% in PBS; Life Technologies), Fast Blue (2% in distilled water, Polysciences), True Blue (5% in distilled water, Sigma Aldrich), and Biotinylated Dextran amine (BDA; 1% in PBS, Invitrogen).

Perfusion and tissue processing. The injections were made on different days. On each day we recorded face selective neural activity and then made an injection. The animals were perfused 14 days after the last injection and no longer than 21 days after the first injection.

On the day of perfusion, the animal was anesthetized with ketamine (8 mg/kg, i.m) and sodium pentobarbital (50 mg/kg, Akorn Inc., i.v). When the skin and corneal reflexes were abolished we made a thoracic incision, exposed the heart, and perfused transcardially with 2 L of warm saline (37 °C) with heparin (5000 UI/L) followed by 3 L of 4% paraformaldehyde in 0.12 M phosphate buffer (PB), and finally 1 L of 4% paraformaldehyde and 10% sucrose in 0.12 M PB. At the end of the perfusion the brain was extracted from the skull, photographed, and postfixed for 4 hours in the final fixative/sucrose solution at 4 °C. It was then moved in a solution of 10% sucrose in

0.12 M PB for 2 days at 4°C on a rocking plate and then stored for 4 more days in 20% sucrose in 0.12 M PB.

After cryoprotection the brain was blocked and cut coronally at 50 µm thick sections on a sliding microtome. We divided the sections into 10 series that were processed in different ways. For each brain different series of sections were treated for the different tracers (500 µm interval between adjacent sections in each series). Additional series of sections were processed with the Nissl or immunohistochemically with antibodies against parvalbumin (PV), and a nonphosphorylated epitope of the neurofilament protein, recognized by the SMI-32P antibody (see below).

The fluorescent tracers Fast Blue and True Blue were examined from unstained sections. For other tracers, antibodies were used to enhance the fluorescence of the labeled neurons or terminals: anti-Alexa488 for CTB-488 (1:1000, Invitrogen), anti-Lucifer Yellow for Lucifer Yellow (1:1000, Invitrogen), anti-fluorescein/oregon green for Fluoro Emerald (1:1000, Invitrogen), and anti-Alexa 555/Cascade Blue for Cascade Blue (1:1000, Invitrogen). For immunofluorescence, the primary antibody was incubated overnight at room temperature on a rocking plate in PBS with 5% gelatin and 0.25% Triton. The next day, the sections were rinsed 2 times in PBS for 10 minutes and incubated in the specific secondary antibody, linked to Alexa Fluor 488 (1:1000, Invitrogen) or to Cy3 (1:800, Jackson Immunoresearch) for one hour at room temperature. In some cases, cell nuclei were stained with 4′-6-diamidino-2-phenylindole (DAPI, Sigma Aldrich). At the end of processing, the slices were mounted on glass slides, air-dried, and cover-slipped with mounting media, Mowiol (Sigma).

Some series were treated for immunohistochemistry (PV and SMI-32; Cascade Blue, Lucifer Yellow, and Fluoro Emerald were also processed immunohistochemically, in addition to immunofluorescence technique described above). In this case the slices were incubated in PBS with 0.3% H_2O_2 at room temperature for 2 hours and then incubated with the primary antibody in a solution of 4% gelatin and 0.25% TritonX overnight (Anti-Parvalbumin, 1:5000, Sigma Aldrich; Anti-SMI-32p, 1:1000, Covance). The next morning the slices were rinsed twice for 10 minutes in PBS and then incubated with the appropriate biotinylated secondary antibody for 4 hours (1:200, Vector Labs), rinsed in PBS again and incubated for one hour with the avidin/biotin staining kit (ABC kit, 1:50, Vector Labs). The slices were rinsed in PBS twice for 10 minutes and then in Tris HCl twice for 10 minutes and then incubated with a solution of diaminobenzidine (0.3%, Sigma Aldrich) and H_2O_2 (0.03%) in Tris HCl. The slices were periodically checked under the microscope and the reaction was stopped when needed. To develop BDA we incubated the slices in the ABC kit (1:50, Vector Labs) for one hour and then the reaction was enhanced with diaminobenzidine and nickel, to make the BDA labeling black and distinguishable from the other tracers.

Data Analysis.

MRI data analysis. We used FSFAST (http://surfer.nmr.mgh.harvard.edu) to perform functional MRI data analysis, following procedures described in (Tsao et al., 2008). To define face-selective areas we calculated the contrast faces versus all other objects, and selected contiguous regions of activated voxels at threshold $p < 10\text{-}4$ after spatial smoothing with a 1 mm full width at half maximum Gaussian. We used trilinear interpolation for visualization.

For the analysis of the anatomical tracers we used Neurolucida system (Microbrightfield), attached to Nikon Eclipse microscope. For each series, we plotted the location and extent of the injection site and spatial distribution of labeled neurons. Low and high-power photomicrographs of labeled cells and terminals were acquired with the same microscope. Confocal images were acquired with an Olympus Fluoview confocal microscope. To quantify the number of cells inside and outside of the face patches every slice plotted with Neurolucida was converted into a jpeg

image and was overlapped in Photoshop to the corresponding fMRI slice at a threshold of 10^{-4} and manually quantified. Slices between 1 mm anterior and 1 mm posterior of the injection site were not considered for quantitative analysis, because the dense labeling made the quantification of single cells impossible. The subdivisions of cortical areas, and sulci indicated in our illustrations are based on the Saleem and Logothetis atlas (Saleem and Logothetis, 2012).

To generate flatmaps, the Neurolucida plottings were then registered to the MRI of the corresponding monkey brain with custom software allowing each Neurolucida slice to be manually aligned to its corresponding MRI slice, through 2D affine transform. The two hemispheres were registered independently. The software quantified the number of plotted cells in each voxel of the MRI and outputted a nifti file.

Flatmaps were generated using Freesurfer (http://surfer.nmr.mgh.harvard.edu). For the layer analysis, supra- and infragranular layers, and layer IV were defined with NISSL or DAPI staining on adjacent sections. All the cell bodies lying superficial to layer IV were considered supragranular, all cell bodies located deeper to this layer were considered infragranular. Digital images (photomicrographs) were processed with Adobe Photoshop CS3 to adjust brightness and contrast and assemble the final plates.

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Supplementary List of Abbreviations

12l	ventrolateral prefrontal area
12o	orbital prefrontal area
13l	orbital prefrontal area
13m	orbital prefrontal area
36	area 36 of the perirhinal cortex
45	ventrolateral prefrontal area
AF	anterior fundus face patch
AL	anterior lateral face patch
AM	anterior medial face patch
amg	amygdala
amts	anterior middle temporal sulcus
asl	arcuate sulcus lower limb
asu	arcuate sulcus upper limb
cas	calcarine sulcus
cl	claustrum
cs	central sulcus
ICA	internal carotid artery
ios	inferior occipital sulcus
ips	intraparietal sulcus
los	lateral orbital sulcus
ls	lunate sulcus
MF	middle fundus face patch
ML	middle lateral face patch
MTL	medial temporal lobe
mos	medial orbital sulcus
ots	occipitotemporal sulcus
PL	posterior lateral face patch
pmts	posterior middle temporal sulcus
ps	principal sulcus
rs	rhinal sulcus
sf	sylvian fissure
sts	superior temporal sulcus
TEad	dorsal subregion of anterior TE
TEav	ventral subregion of anterior TE
TEm	area TEm, ventral bank of the sts
TEO	area TEO
TEpd	dorsal subregion of posterior TE
TEpv	ventral subregion of posterior TE
TF	area TF of the parahippocampal cortex
TFO	area TFO of the parahippocampal cortex
TH	area TH of the parahippocampal cortex
TPO	area TPO (dorsal bank of the sts)
V1	visual area 1 (primary visual cortex)
V2	visual area 2
V3	visual area 3, dorsal part
V3v	visual area 3, ventral part
V4	visual area 4 (dorsal part)

V4v	visual area 4, ventral part
WM	white matter

Supplementary Table and Figure Legends

Table S1, related to Table 1. Quantification of the cell bodies found in each anatomical area after different face patch injections in three cases. First column on the left indicates the name of the animals and the injected face patches. The first row shows the name of the anatomical regions where cell bodies were found. From left to right: all the face patches in the left and right hemisphere (an "x" indicates that the face patch was missing in the particular case), cells in IT cortex outside of the face patches, cortical areas outside of IT including lateral and orbital prefrontal cortex (dl PFC and OFC), caudal inferotemporal area TEO, caudal visual areas (V2, V3, V4), perirhinal, and parahippocampal cortex (areas TF, TFO, and TH), and subcortical regions (pulvinar, amygdala, and claustrum). For cortical areas we indicate the percentage of cells in the superficial layers (sup. l).

Suppl. Figure 1, related to Figure 1. Distribution of retrogradely-labeled cells in the temporal lobe after CB injection into left PL (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the left hemisphere indicating the trajectory of the electrode (and injection cannula) into PL. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 100 µm apart) into PL. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of left PL. **(G)** Corresponding histology slice in the frozen brain block. The blue spot indicates the CB injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within PL. Inset shows the same injection site in bright-field photomicrograph, developed with DAB. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of CB-labeled cells from TE (rectangular box in J), TEO (rectangular boxes in M and P), and V2 (rectangular box in S). Inset: high-power photomicrographs of labeled neurons. **(U)** Flatmap of left occipito-temporal areas with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that almost all the clusters of labeled neurons within IT were localized within the face patches (shown in W).

Suppl. Figure 2, related to Figure 2. Distribution of retrogradely-labeled cells in the temporal lobe after CTB-555 injection into left ML (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the left hemisphere indicating the trajectory of the electrode (and injection cannula) into ML. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 50 µm apart) into ML. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of both left ML, left MF, right ML and right MF. **(G)** Corresponding histology slice in the frozen brain block. The red spot indicates the CTB-555 injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within ML. **(I, L, O, R, R')** Coronal MR images with face-selective activation overlaid. **(J, M, P, S, S')** Plottings of retrogradely-labeled neurons. **(K, N, Q, T, T')** Low-power photomicrographs of CTB-555-labeled cells from TE (rectangular boxes in J, M, P) and TEO (rectangular boxes in R and S). Insets: high-power photomicrographs of labeled neurons. Panels (S, T) show connections from AP to both AL and ML (cf. Figure S4). **(U)** Flatmap of left visual cortex with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that almost all the clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 3, related to Figure 2. Distribution of retrogradely-labeled cells in the temporal lobe after CTB-488/LY injection into right ML (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the right hemisphere indicating the trajectory of the electrode (and injection cannula) into ML. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 50 µm apart) into ML. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of both left ML and right ML. **(G)** Corresponding histology slice in the frozen brain block. The green spot indicates the CTB-488/LY injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within ML. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of CTB-488/LY-labeled cells from TE (rectangular boxes in J, M) and V4 (rectangular boxes in P, S). Insets: high-power photomicrographs of labeled neurons. **(U)** Flat map of right occipito-temporal areas with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that almost all the clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 4, related to Figure 3. Distribution of retrogradely-labeled cells in the temporal lobe after FE injection into left AL (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the left hemisphere indicating the trajectory of the electrode (and injection cannula) into AL. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 100 µm apart) into AL. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the left AL. **(G)** Corresponding histology slice in the frozen brain block. The green spot indicates the FE injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within AL. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of FE-labeled cells from TE (rectangular boxes in J, M) and TEO (rectangular boxes in P and S). Insets: high-power photomicrographs of labeled neurons. **(U)** Flat map of the left occipito-temporal areas with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that almost all the clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 5, related to Figure 3. Distribution of retrogradely-labeled cells in the temporal lobe after FB injection into right AL (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the right hemisphere indicating the trajectory of the electrode (and injection cannula) into AL. **(B, C)** The trajectory of actual electrode into this face patch in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 40 µm apart) into AL. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the right and left AL. Note that the right AL in this case is located between sts and amts, but the left AL is located at the ventral lip of the sts, as in other cases **(G)** Corresponding histology slice in the frozen brain block. The blue spot indicates the FB injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within AL. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of FB-labeled cells from TE (rectangular box in J), and TEO (rectangular boxes in M, P, S). Insets: high-power photomicrographs of labeled neurons. **(U)** Flatmap of right hemisphere (occipito-temporal areas)

with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that most clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 6, related to Figure 3. Distribution of retrogradely-labeled cells in the temporal lobe after CB injection into right AL (case Monkey D), conventions as in Figure 1. **(A)** Lateral view of the right hemisphere indicating the trajectory of the electrode (and injection cannula) into AL. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 100 µm apart) into AL. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the right AL, AM and AF and left AM. **(G)** Corresponding histology slice in the frozen brain block. The blue spot indicates the CB injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within AL. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of FB-labeled cells from TE (rectangular boxes in J, M, P, S). Insets: high-power photomicrographs of labeled neurons. **(U)** Flatmap of the right visual cortex with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that most clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 7, related to Figure 4. Distribution of retrogradely-labeled cells in the temporal lobe after LY injection into right AM (case Monkey D), conventions as in Figure 1. **(A)** Lateral view of the right hemisphere indicating the trajectory of the electrode (and injection cannula) into AM. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 100 µm apart) into AL. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the right AM **(G)** Corresponding histology slice in the frozen brain block. The green spot indicates the LY injection site. **(H)** High-power fluorescent photomicrograph of the injection site, which was confined within AM. **(I, L, O, R, R')** Coronal MR images with face-selective activation overlaid. **(J, M, P, S, S')** Plottings of retrogradely-labeled neurons. **(K, N, Q, T, T')** Low-power photomicrographs of LY-labeled cells from the PFC (rectangular box in J), and TE (rectangular boxes in M, P, S, S'). Insets: high-power photomicrographs of labeled neurons. **(U)** Flatmap of right visual cortex with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that most clusters of labeled neurons were localized within the face patches (shown in W).

Suppl. Figure 8, related to Figure 4. Distribution of retrogradely-labeled cells in the temporal lobe after BDA injection into left AM (case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the left hemisphere indicating the trajectory of the electrode (and injection cannula) into AM. **(B, C)** The trajectory of actual electrode into this face patch, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 60 µm apart) into AM. **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the left AM. **(G)** Corresponding histology slice in the frozen brain block. The black spot indicates the BDA injection site. **(H)** High-power photomicrograph of the injection site, which was mainly confined within AM. Spillover of the tracer is visible in the overlying white matter. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of BDA-labeled cells from TE (rectangular boxes in J, M, P) and TEO (S). Insets: high-power photomicrographs of labeled neurons. **(U)** Flat map of left visual cortex with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches.

Suppl. Figure 9, related to Figures 1-4. Distribution of retrogradely-labeled cells in the temporal lobe after TB injection in a non-face selective spot in the lower bank of the sts located between AM and AL (control injection; case Monkey B), conventions as in Figure 1. **(A)** Lateral view of the left hemisphere indicating the trajectory of the electrode (and injection cannula) the injection spot. **(B, C)** The trajectory of actual electrode into this area, in coronal and sagittal-like MR images. **(D)** Normalized responses of cells along one penetration (spaced 50 µm apart). **(E)** Rostrocaudal level of coronal MR slices illustrated in this figure. **(F)** Coronal MRI slice showing the location of the injection site. **(G)** Corresponding histology slice in the frozen brain block. The blue spot indicates the TB injection site. **(H)** High-power fluorescent photomicrograph of the injection site. **(I, L, O, R)** Coronal MR images with face-selective activation overlaid. **(J, M, P, S)** Plottings of retrogradely-labeled neurons. **(K, N, Q, T)** Low-power photomicrographs of TB-labeled cells from TE (rectangular boxes in J, M, P, S). Inset: high-power photomicrographs of labeled neurons. **(U)** Flatmap of the left visual cortex with face-selective activation overlaid. **(V)** Flatmap with density of labeled cells overlaid. **(W)** Flatmap with density of labeled cells superimposed on face patches. Note that all the clusters of labeled neurons were localized outside of the face patches (shown in W).

Suppl. Figure 10, related to Figures 1-4. Distribution of retrogradely-labeled cells in the contralateral hemisphere relative to the injection. **(A, E, J, N, R, V)** Lateral view of the brain indicating the trajectory of the electrode (and injection cannula). **(B, F, K, O, S, W)** Coronal MR images with face-selective activation overlaid on the contralateral hemisphere. **(C, G, L, P, T, X)** Plottings of retrogradely-labeled neurons. **(D, H, M, Q, U, Y)** Low-power photomicrographs of retrogradely labeled neurons (rectangular boxes in C, G, L, P, T, X). Insets: high power photomicrographs of labeled neurons.

Suppl. Figure 11, related to Figure 5. Subcortical connections of different face patches. **(A, D, G)** Coronal MR images with claustrum outlined. **(B)** Distribution of retrogradely-labeled cells in the claustrum after FB injection into AL. Conventions as in Figure 5. **(C)** Low and high-power photomicrographs of FB labeled neurons (rectangle in B). **(E)** Distribution of retrogradely-labeled cells in the claustrum after CB injection into AL. **(F)** Low power photomicrographs of CB-labeled neurons (rectangle in E). **(H)** Distribution of retrogradely-labeled cells in the claustrum after LY injection into AM. **(I)** Low power photomicrograph of LY-labeled neurons (rectangle in H). **(J, M)** Coronal MR images of the lateral pulvinar (pl). **(K, N)** Distribution of labeled neurons in the caudorostral extent of the lateral pulvinar (pl) after retrograde tracer CB injection into AL (K) and LY in AM (N). Note the complimentary and discontinuous patches of CB-labeled neurons at caudorostral level AP +2, and LY-labeled neurons at AP +2.5. **(L, O)** Low and high-power photomicrographs of CB- and LY-labeled neurons (rectangles in K, N).

Suppl. Figure 12, related to Figure 6. Summary of the hierarchical organization of the face patch system. The hierarchical relationships between the face patches according to our quantitative layer analysis are shown. The patch on the left in bold in each diagram is the injected patch, while the patches on the right are connected to it. The direction of the arrow indicates the direction of the axons. The color indicates the hierarchy: blue = feedforward connection, red = feedback, green = ambiguous. In monkey B, we injected both left and right AL, but we only show the connections of the right AL because the injection in the left AL was mainly confined to superficial layers.

Suppl. Figure 13, related to Figure 6. Summary of the connections of the face patches on an inflated view of the brain (lateral view, left column; ventral view, right column). The shaded colors

on the surface of the brain indicate the cytoarchitectonic areas: dark yellow: V2, dark green: V3, purple: V4, red: TEO, gray: TE, light green: TFO, light purple: TF, cyan: TH, ochre: perirhinal cortex. V2, V3 and V4 are further divided into a ventral and a dorsal portion (dashed white line).

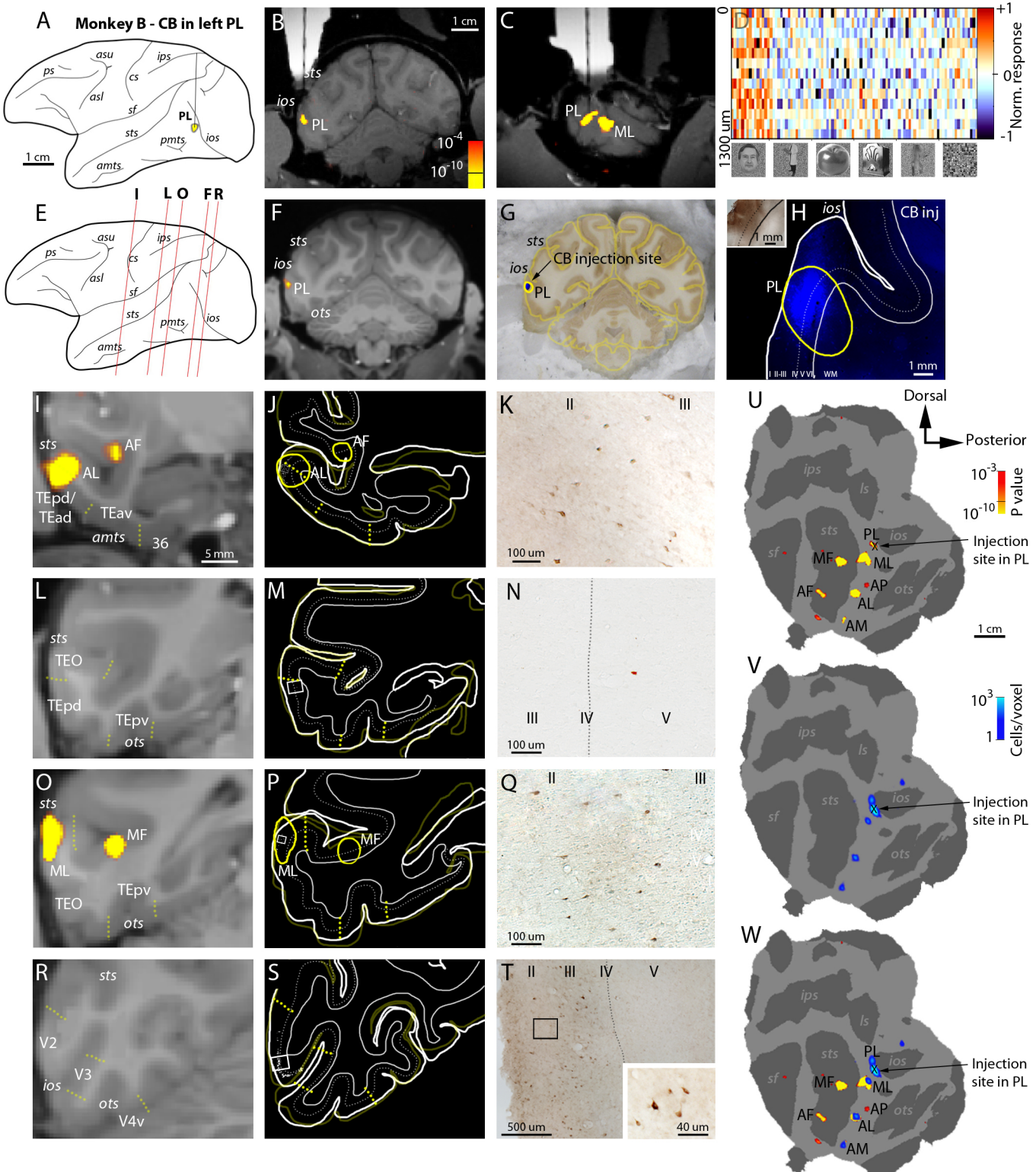

A
Monkey B - CB in left PL
asu
ips
ps
cs
asl
sf
PL
sts
pmts
ios
amts
1 cm
B
1 cm
sts
ios
PL
10^{-4}
10^{-10}
C
PL
ML
D
0
1300 um
+1
0
-1
Norm. response
E
I
L O
FR
F
sts
ios
PL
ots
G
sts
ios
CB injection site
PL
H
ios
CB inj
1 mm
PL
I II-III IV V VI WM
1 mm
I
sts
AF
AL
TEpd/
TEad
TEav
amts
36
5 mm
J
AF
AL
K
II
III
100 um
U
Dorsal
Posterior
ips
ls
sts
sf
PL
ios
MF
ML
AP
AF
ots
AL
AM
10^{-3}
10^{-10}
P value
Injection
site in PL
1 cm
L
sts
TEO
TEpd
TEpv
ots
M
N
III
IV
V
100 um
V
ips
ls
sts
sf
ios
ots
10^{3}
1
Cells/voxel
Injection
site in PL
O
sts
MF
ML
TEO
TEpv
ots
P
MF
ML
Q
II
III
IV
V
100 um
W
ips
ls
sts
sf
PL
ios
MF
ML
AP
AF
ots
AL
AM
Injection
site in PL
R
sts
V2
V3
ios
ots
V4v
S
T
II
III
IV
V
500 um
40 um

Figure S1

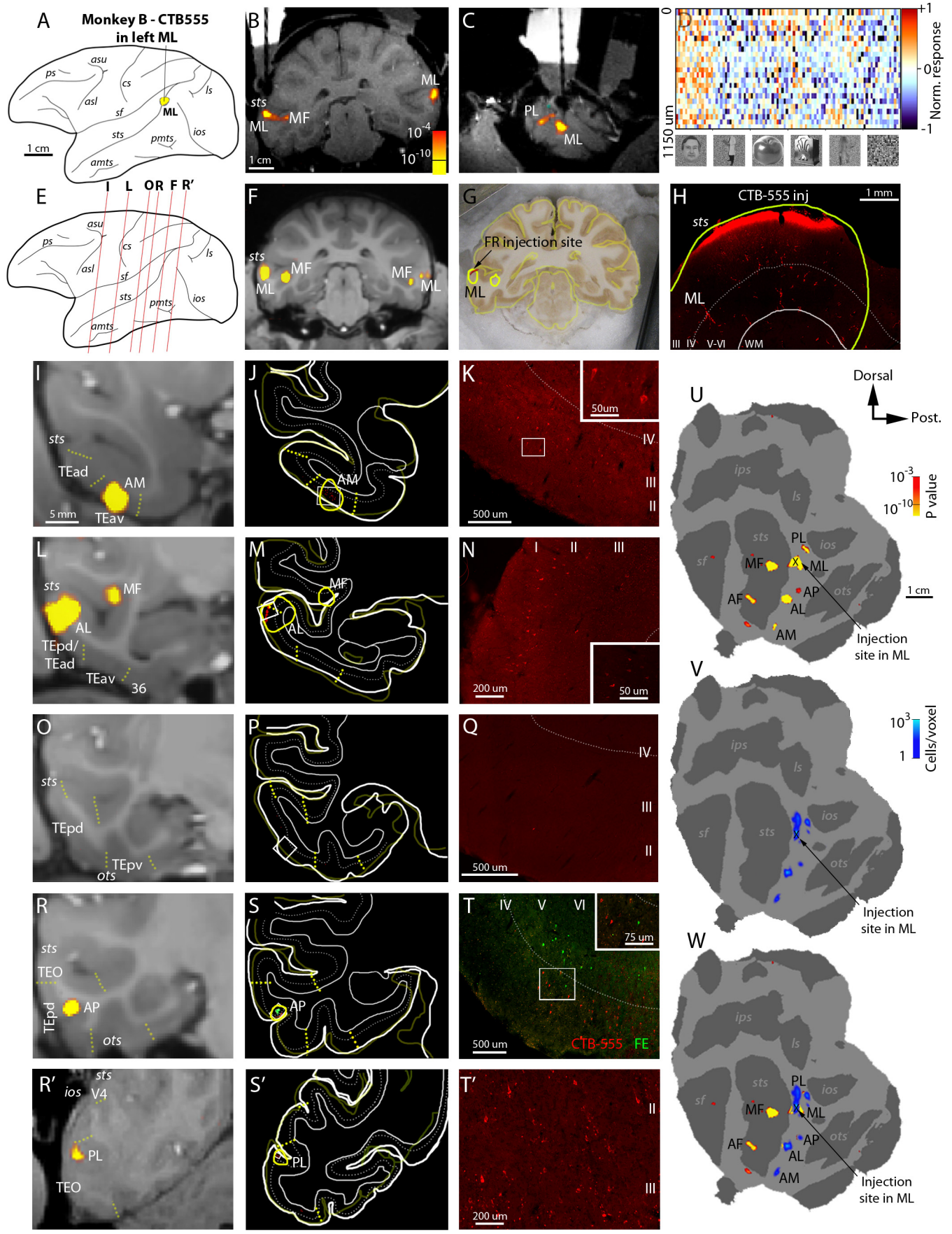

A
Monkey B - CTB555 in left ML
ps
asu
cs
ls
asl
sf
ML
sts
pmts
ios
amts
1 cm
B
ML
sts
MF
ML
10^{-4}
10^{-10}
1 cm
C
PL
ML
D
0
1150 um
+1
0
-1
Norm. response
E
I L OR F R'
ps
asu
cs
ls
asl
sf
sts
pmts
ios
amts
F
sts
MF
ML
MF
ML
G
FR injection site
ML
H
CTB-555 inj
1 mm
sts
ML
III IV V-VI WM
I
sts
TEad
AM
5 mm
TEav
J
AM
K
50um
IV
III
II
500 um
U
Dorsal
Post.
ips
ls
sts
PL
ios
sf
MF
ML
AP
ots
AF
AL
AM
10^{-3}
10^{-10}
P value
1 cm
Injection site in ML
L
sts
MF
AL
TEpd/
TEad
TEav
36
M
MF
AL
N
I II III
200 um
50 um
V
ips
ls
sts
ios
sf
ots
10^{3}
1
Cells/voxel
Injection site in ML
O
sts
TEpd
TEpv
ots
P
Q
IV
III
II
500 um
W
ips
ls
sts
PL
ios
sf
MF
ML
AP
ots
AF
AL
AM
Injection site in ML
R
sts
TEO
TEpd
AP
ots
S
AP
T
IV V VI
75 um
500 um
CTB-555 FE
R'
sts
ios
V4
PL
TEO
S'
PL
T'
II
III
200 um

Figure S2

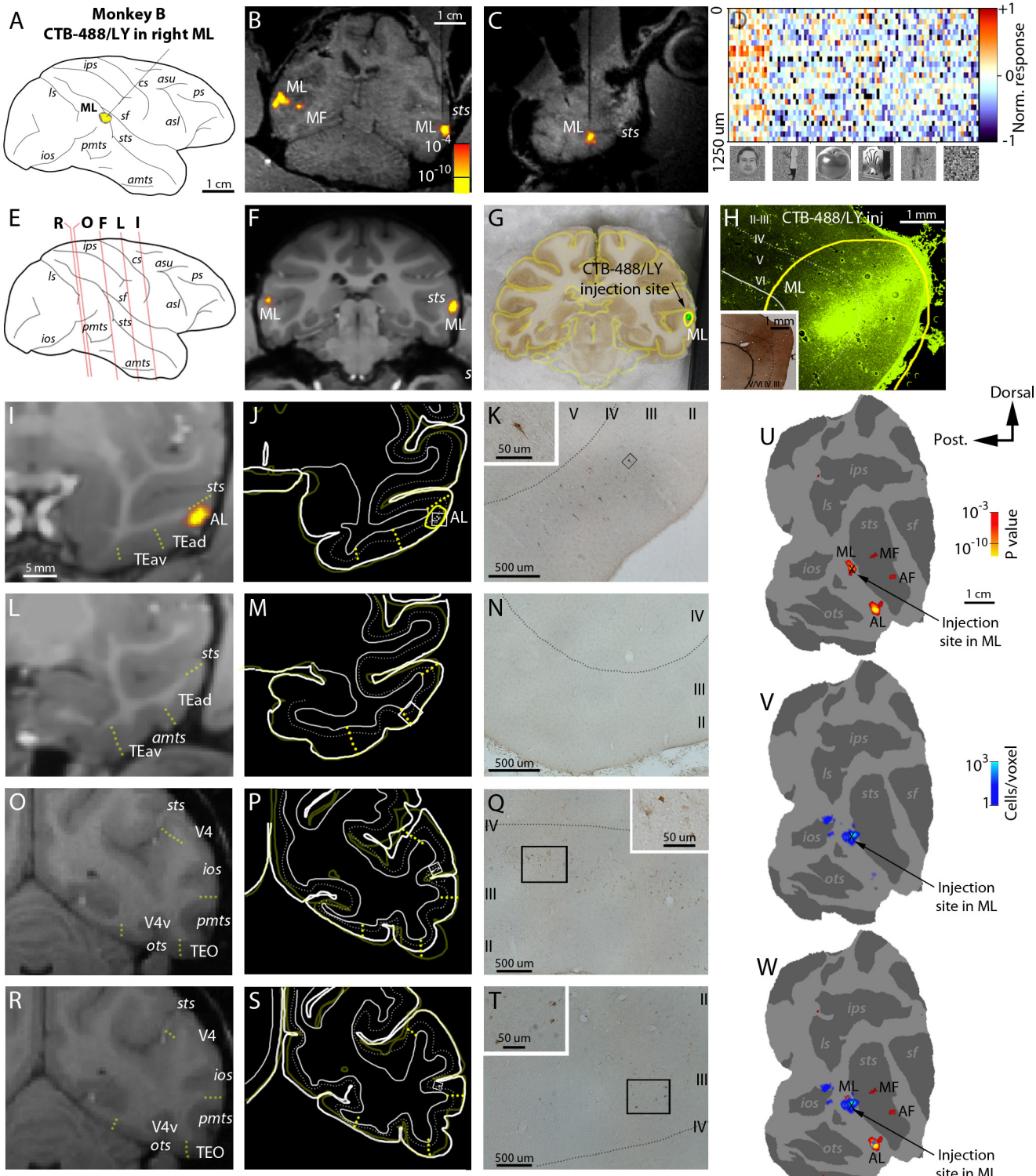

A
Monkey B
CTB-488/LY in right ML
ips
cs
asu
ps
ls
ML
sf
asl
sts
pmts
ios
amts
1 cm
B
1 cm
ML
MF
sts
ML
10^{-4}
10^{-10}
C
ML
sts
D
0
1250 um
+1
0
-1
Norm. response
E
R O F L I
ips
cs
asu
ps
ls
sf
asl
pmts
sts
ios
amts
F
ML
sts
ML
G
CTB-488/LY
injection site
ML
H
II-III
IV
V
VI
CTB-488/LY inj
1 mm
ML
1 mm
I
sts
AL
TEad
TEav
5 mm
J
AL
K
V
IV
III
II
50 um
500 um
L
sts
TEad
amts
TEav
M
N
IV
III
II
500 um
O
sts
V4
ios
V4v
pmts
ots
TEO
P
Q
IV
III
II
50 um
500 um
R
sts
V4
ios
V4v
pmts
ots
TEO
S
T
II
III
IV
50 um
500 um
U
Dorsal
Post.
ips
ls
sts
sf
ML
MF
ios
AF
ots
AL
10^{-3}
10^{-10}
P value
1 cm
Injection
site in ML
V
ips
ls
sts
sf
ios
ots
10^{3}
1
Cells/voxel
Injection
site in ML
W
ips
ls
sts
sf
ML
MF
ios
AF
ots
AL
Injection
site in ML

Figure S3

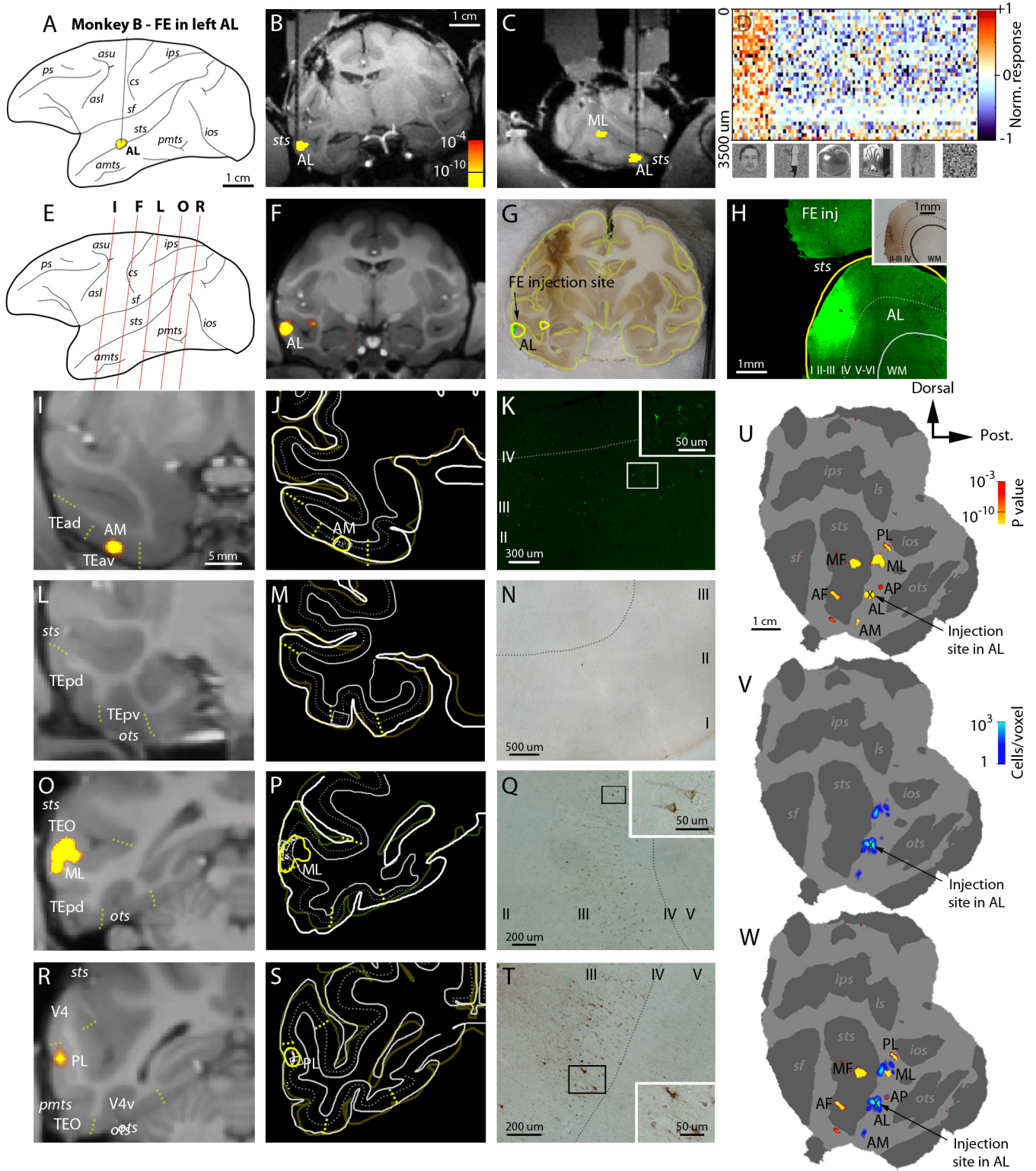

A Monkey B - FE in left AL
asu
ips
ps
cs
asl
sf
sts
pmts
ios
AL
amts
1 cm
B
1 cm
sts
AL
10^{-4}
10^{-10}
C
ML
sts
AL
D
0
3500 um
+1
0
-1
Norm. response
E
I F L O R
F
AL
G
FE injection site
AL
H
FE inj
sts
1mm
II-III IV WM
AL
1mm
I II-III IV V-VI WM
I
TEad
AM
TEav
5 mm
J
AM
K
50 um
IV
III
II
300 um
Dorsal
Post.
U
ips
ls
sts
PL
ios
sf
MF
ML
AP
ots
AF
AL
AM
1 cm
10^{-3}
10^{-10}
P value
Injection site in AL
L
sts
TEpd
TEpv
ots
M
N
III
II
I
500 um
V
ips
ls
sts
ios
sf
ots
10^{3}
1
Cells/voxel
Injection site in AL
O
sts
TEO
ML
TEpd
ots
P
ML
Q
50 um
II
III
IV V
200 um
W
ips
ls
sts
PL
ios
sf
MF
ML
AP
ots
AF
AL
AM
Injection site in AL
R
sts
V4
PL
pmts
V4v
TEO
ots
S
PL
T
III
IV
V
200 um
50 um

Figure S4

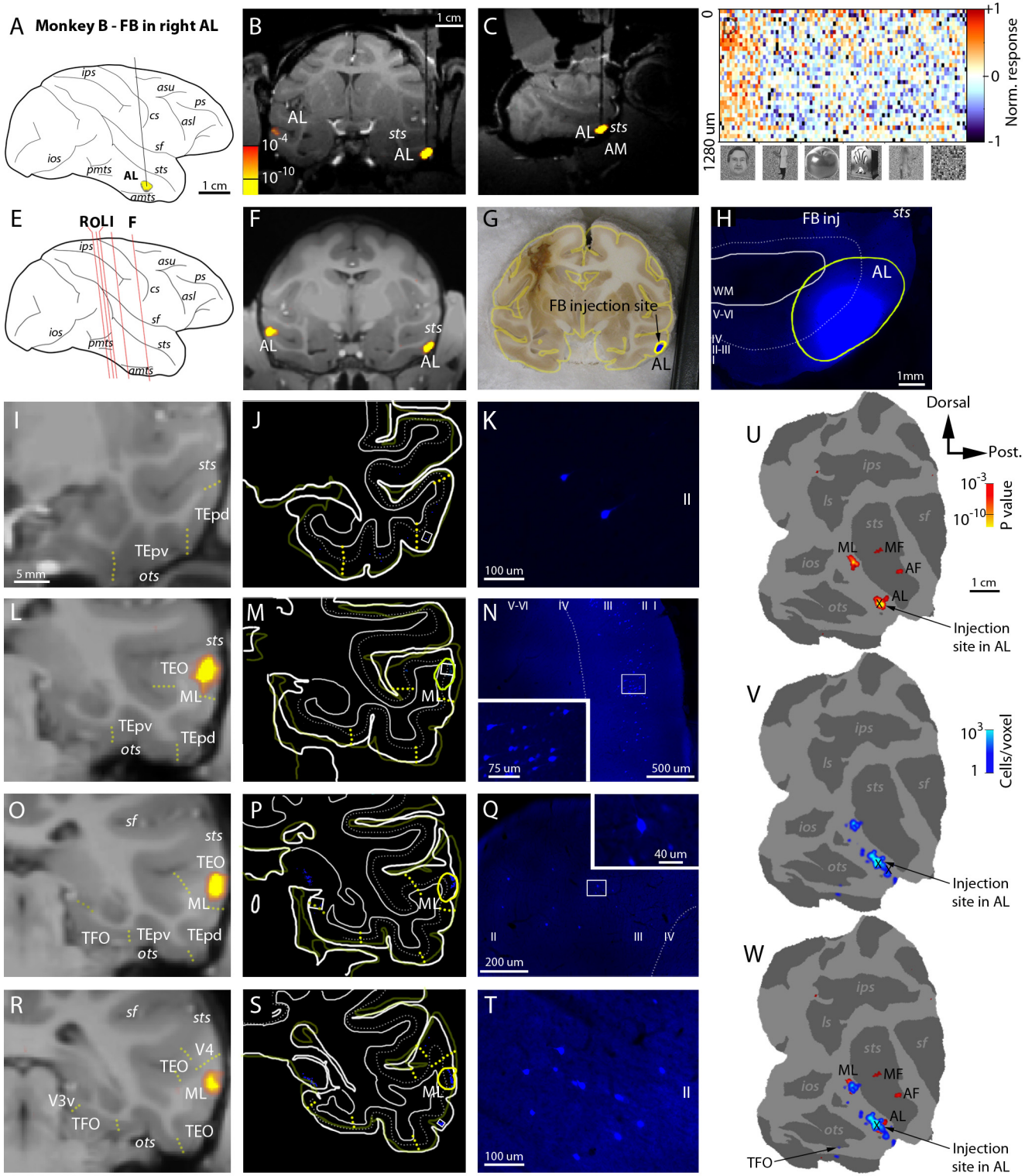

A Monkey B - FB in right AL
ips
asu
ps
cs
asl
sf
ios
pmts
AL
sts
amts
1 cm
B
1 cm
AL
sts
AL
10^{-4}
10^{-10}
C
AL
sts
AM
0
1280 um
+1
0
-1
Norm. response
E
ROLI
F
F
AL
sts
AL
G
FB injection site
AL
H
FB inj
sts
AL
WM
V-VI
IV
II-III
I
1mm
I
sts
TEpd
TEpv
ots
5 mm
J
K
II
100 um
L
sts
TEO
ML
TEpv
ots
TEpd
M
ML
N
V-VI
IV
III
II I
75 um
500 um
O
sf
sts
TEO
ML
TFO
TEpv
ots
TEpd
P
ML
Q
40 um
II
III
IV
200 um
R
sf
sts
V4
TEO
ML
V3v
TFO
ots
TEO
S
ML
T
II
100 um
U
Dorsal
Post.
ips
ls
sts
sf
ML
MF
ios
AF
AL
ots
10^{-3}
10^{-10}
P value
1 cm
Injection site in AL
V
ips
ls
sts
sf
ios
ots
10^{3}
1
Cells/voxel
Injection site in AL
W
ips
ls
sts
sf
ML
MF
ios
AF
AL
ots
TFO
Injection site in AL

Figure S5

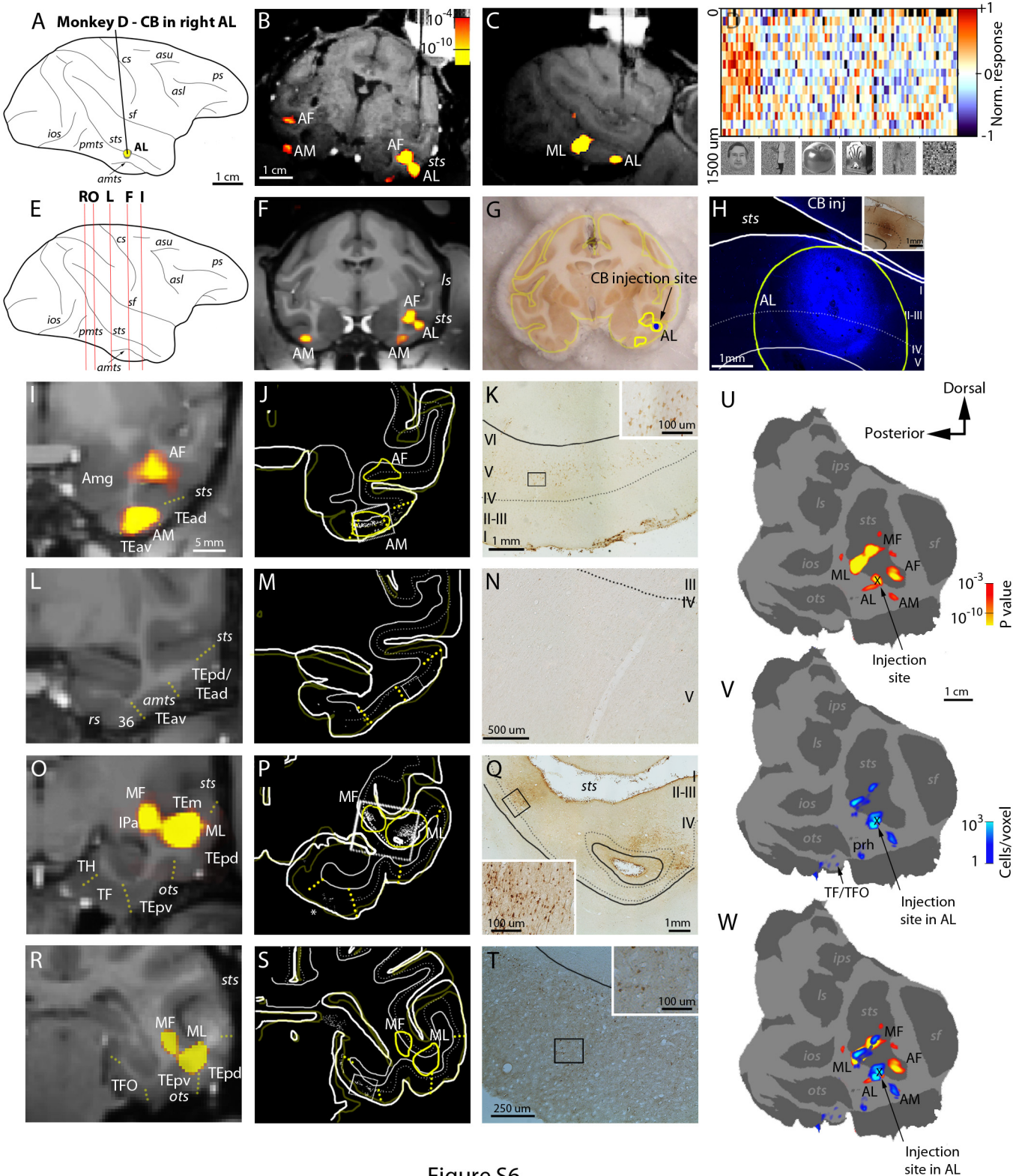

A Monkey D - CB in right AL
cs
asu
ps
asl
sf
ios
pmts
sts
AL
amts
1 cm
B
AF
AM
AF
sts
AL
1 cm
C
ML
AL
Norm. response
1500 um
E
RO L F I
F
ls
AF
sts
AL
AM
AM
G
CB injection site
AL
H
sts
CB inj
AL
I
II-III
IV
V
1mm
1mm
I
Amg
AF
sts
TEad
AM
TEav
5 mm
J
AF
AM
K
100 um
VI
V
IV
II-III
I
1 mm
L
sts
TEpd/
TEad
amts
rs
36
TEav
M
N
III
IV
V
500 um
O
sts
MF
TEm
IPa
ML
TEpd
TH
TF
ots
TEpv
P
MF
ML
Q
sts
I
II-III
IV
100 um
1mm
R
sts
MF
ML
TFO
TEpv
TEpd
ots
S
MF
ML
T
100 um
250 um
U
Dorsal
Posterior
ips
ls
sts
sf
ios
ots
MF
AF
ML
AL
AM
P value
Injection
site
V
1 cm
prh
TF/TFO
Injection
site in AL
Cells/voxel
W
Injection
site in AL

Figure S6

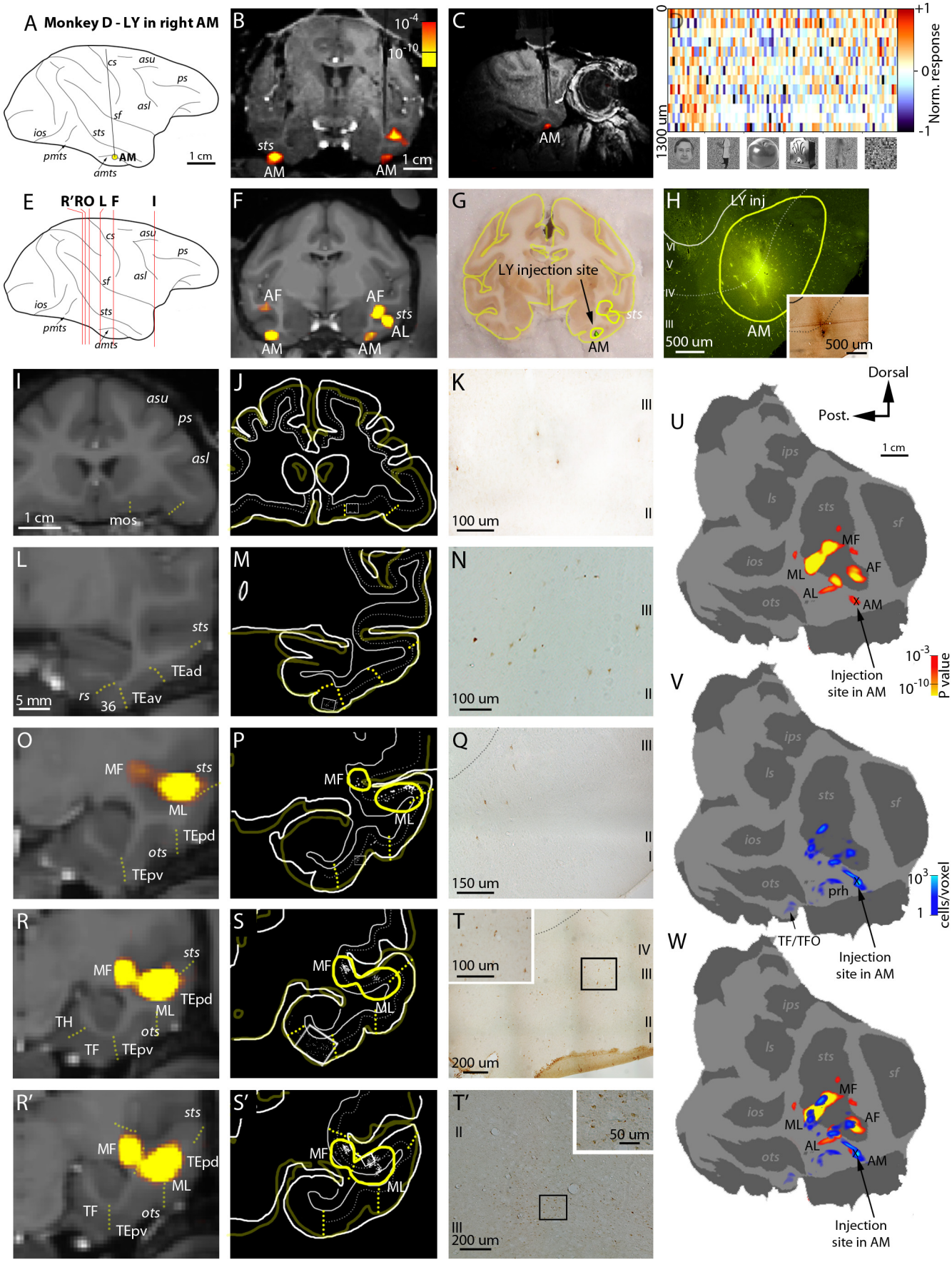

A Monkey D - LY in right AM
cs
asu
ps
asl
sf
ios
sts
pmts
AM
amts
1 cm
B
10^{-4}
10^{-10}
sts
AM
AM
1 cm
C
AM
D
0
+1
0
-1
Norm. response
1300 um
E
R'RO L F
I
cs
asu
ps
asl
sf
ios
sts
pmts
amts
F
AF
AF
sts
AL
AM
AM
G
LY injection site
sts
AM
H
LY inj
VI
V
IV
III
500 um
AM
500 um
I
asu
ps
asl
1 cm
mos
J
K
III
100 um
II
L
sts
TEad
5 mm
rs
36
TEav
M
N
III
100 um
II
O
MF
sts
ML
TEpd
ots
TEpv
P
MF
ML
Q
III
II
I
150 um
R
MF
sts
TEpd
ML
TH
ots
TF
TEpv
S
MF
ML
T
100 um
IV
III
II
I
200 um
R'
MF
sts
TEpd
ML
TF
ots
TEpv
S'
MF
ML
T'
II
50 um
III
200 um
U
Dorsal
Post.
1 cm
ips
ls
sts
sf
MF
ML
AF
ios
AL
ots
AM
Injection site in AM
10^{-3}
10^{-10}
P value
V
ips
ls
sts
sf
ios
ots
prh
TF/TFO
10^{3}
1
cells/voxel
Injection site in AM
W
ips
ls
sts
sf
MF
ios
ML
AF
AL
ots
AM
Injection site in AM

Figure S7

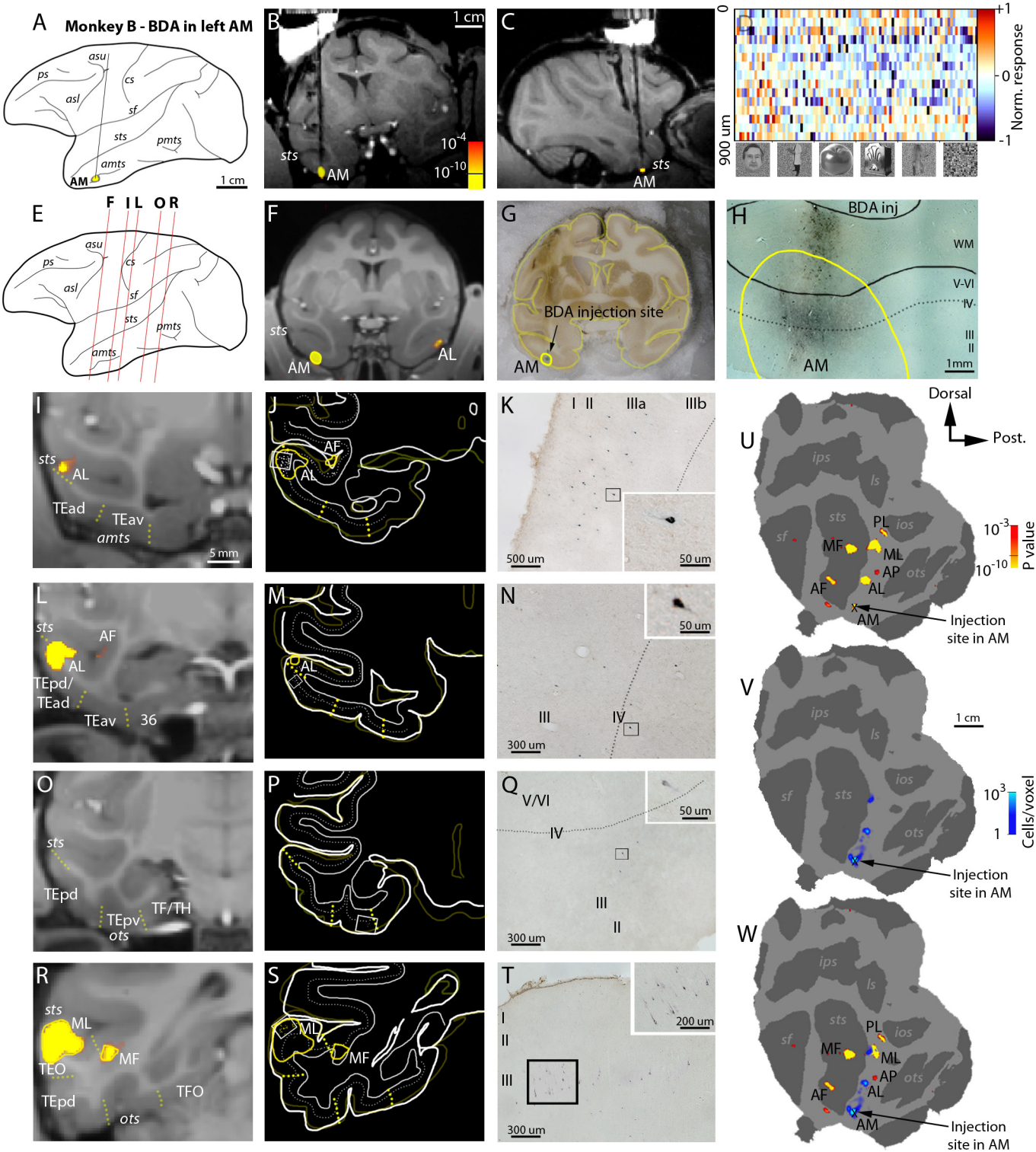

A
Monkey B - BDA in left AM
asu
ps
cs
asl
sf
sts
pmts
amts
AM
1 cm
B
1 cm
sts
AM
10^{-4}
10^{-10}
C
sts
AM
D
0
900 um
+1
0
-1
Norm. response
E
F I L O R
F
sts
AM
AL
G
BDA injection site
AM
H
BDA inj
WM
V-VI
IV
III
II
AM
1mm
I
sts
AL
TEad
TEav
amts
5 mm
J
0
AF
AL
K
I II IIIa IIIb
500 um
50 um
Dorsal
Post.
U
ips
ls
sts
PL
ios
sf
MF
ML
AP
ots
AF
AL
X
AM
10^{-3}
10^{-10}
P value
Injection site in AM
L
sts
AF
AL
TEpd/
TEad
TEav
36
M
AL
N
50 um
III
IV
300 um
V
1 cm
10^{3}
1
Cells/voxel
Injection site in AM
O
sts
TEpd
TEpv
ots
TF/TH
P
Q
V/VI
50 um
IV
III
II
300 um
W
Injection site in AM
R
sts
ML
MF
TEO
TEpd
ots
TFO
S
ML
MF
T
I
II
III
200 um
300 um

Figure S8

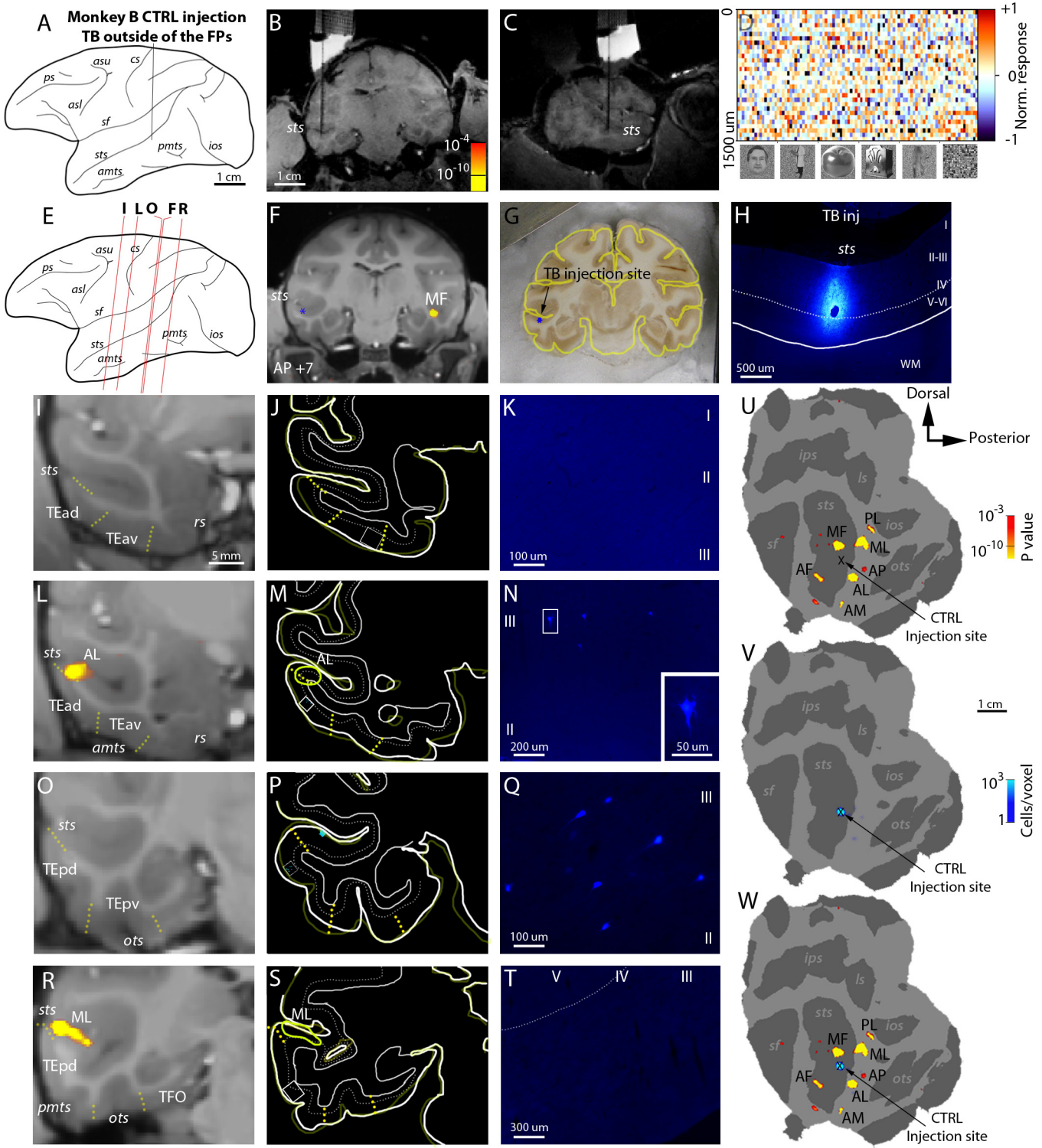

A
Monkey B CTRL injection
TB outside of the FPs
asu
cs
ps
asl
sf
sts
pmts
ios
amts
1 cm
B
sts
1 cm
10^{-4}
10^{-10}
C
sts
D
0
1500 um
+1
0
-1
Norm. response
E
I LO FR
F
sts
MF
AP +7
G
TB injection site
H
TB inj
sts
I
II-III
IV
V-VI
500 um
WM
I
sts
TEad
TEav
rs
5 mm
J
K
I
II
III
100 um
U
Dorsal
Posterior
ips
ls
sts
PL
ios
MF
ML
sf
ots
AF
AP
AL
AM
CTRL
Injection site
10^{-3}
10^{-10}
P value
L
sts
AL
TEad
TEav
amts
rs
M
AL
N
III
II
200 um
50 um
V
1 cm
10^{3}
1
Cells/voxel
O
sts
TEpd
TEpv
ots
P
Q
III
100 um
II
W
R
sts
ML
TEpd
pmts
TFO
ots
S
ML
T
V
IV
III
300 um

Figure S9

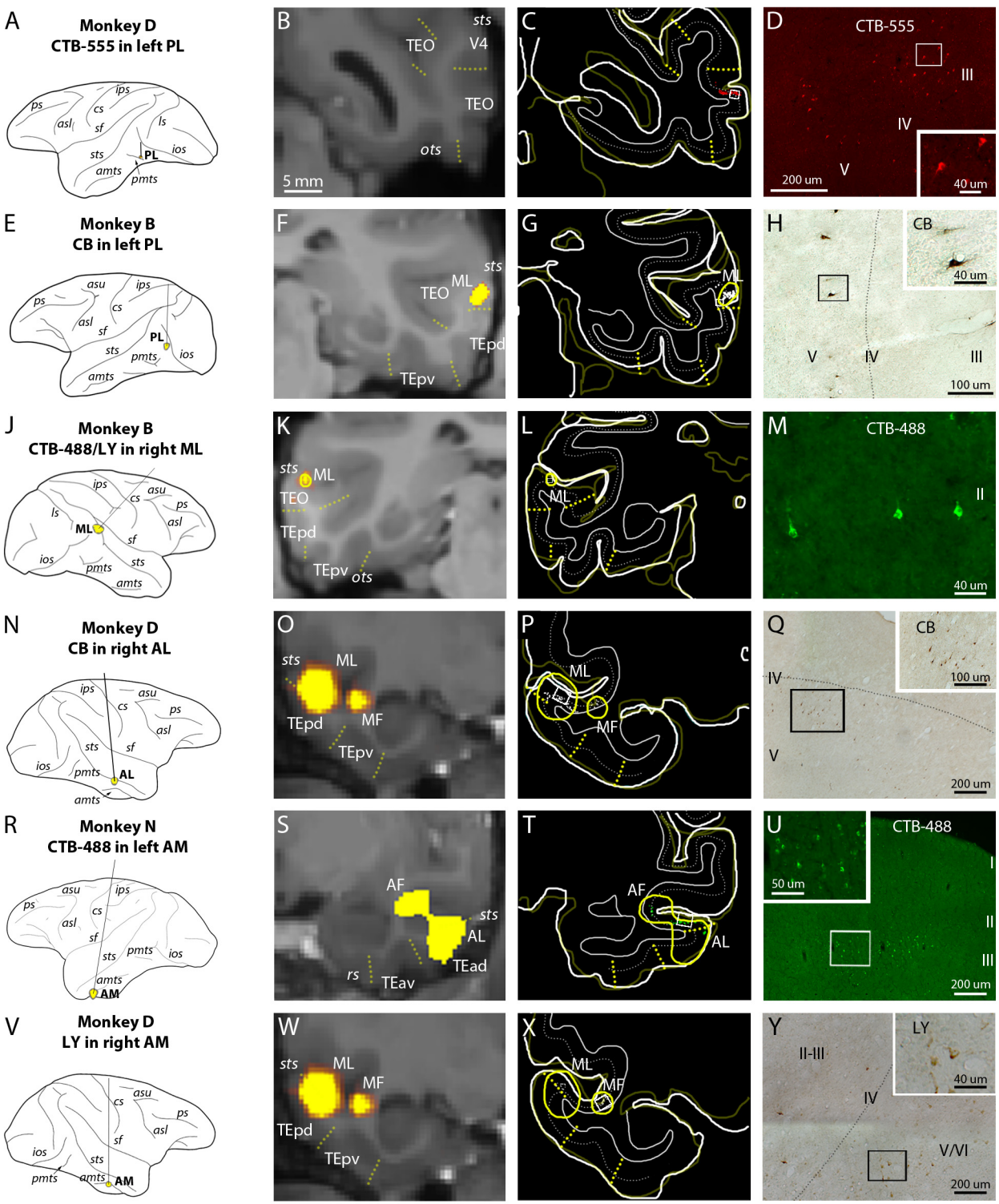

Contralateral connnections
A
Monkey D
CTB-555 in left PL
ips
ps
cs
asl
sf
ls
sts
PL
ios
amts
pmts
B
sts
TEO
V4
TEO
ots
5 mm
C
D
CTB-555
III
IV
V
200 um
40 um
E
Monkey B
CB in left PL
asu
ips
ps
cs
asl
sf
PL
sts
pmts
ios
amts
F
sts
ML
TEO
TEpd
TEpv
G
ML
H
CB
40 um
V
IV
III
100 um
J
Monkey B
CTB-488/LY in right ML
ips
asu
cs
ps
ls
ML
asl
sf
ios
pmts
sts
amts
K
sts
ML
TEO
TEpd
TEpv
ots
L
ML
M
CTB-488
II
40 um
N
Monkey D
CB in right AL
ips
asu
cs
ps
asl
sts
sf
ios
pmts
AL
amts
O
sts
ML
TEpd
MF
TEpv
P
ML
MF
Q
CB
100 um
IV
V
200 um
R
Monkey N
CTB-488 in left AM
asu
ips
ps
cs
asl
sf
sts
pmts
ios
amts
AM
S
AF
sts
AL
TEad
rs
TEav
T
AF
AL
U
CTB-488
50 um
I
II
III
200 um
V
Monkey D
LY in right AM
asu
cs
ps
asl
sf
ios
sts
pmts
amts
AM
W
sts
ML
MF
TEpd
TEpv
X
ML
MF
Y
LY
II-III
40 um
IV
V/VI
200 um

Figure S10

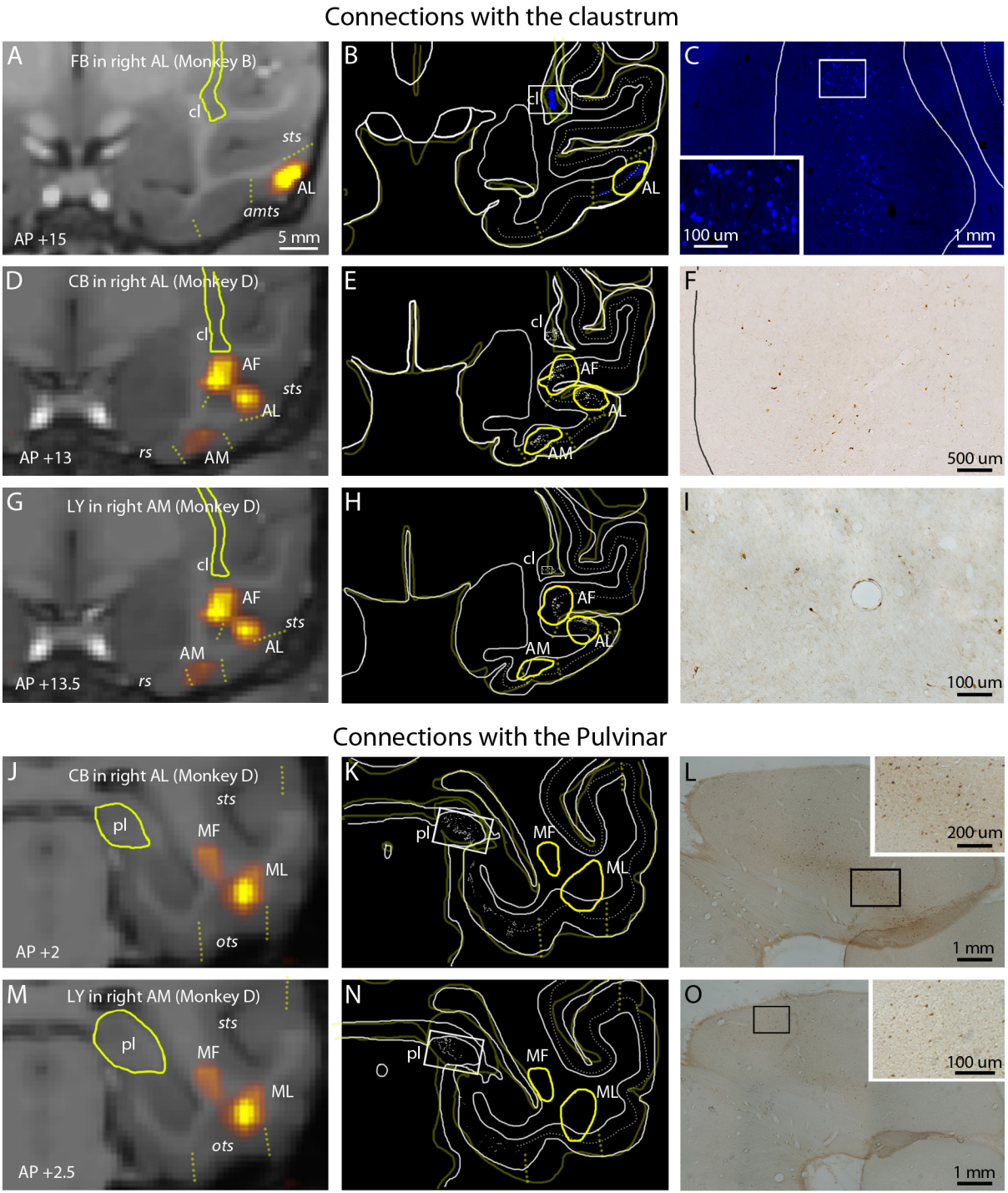

Connections with the claustrum
A
FB in right AL (Monkey B)
cl
sts
AL
amts
AP +15
5 mm
B
cl
AL
C
100 um
1 mm
D
CB in right AL (Monkey D)
cl
AF
sts
AL
AP +13
rs
AM
E
cl
AF
AL
AM
F
500 um
G
LY in right AM (Monkey D)
cl
AF
sts
AM
AL
AP +13.5
rs
H
cl
AF
AM
AL
I
100 um
Connections with the Pulvinar
J
CB in right AL (Monkey D)
sts
pl
MF
ML
AP +2
ots
K
pl
MF
ML
L
200 um
1 mm
M
LY in right AM (Monkey D)
sts
pl
MF
ML
ots
AP +2.5
N
pl
MF
ML
O
100 um
1 mm

Figure S11

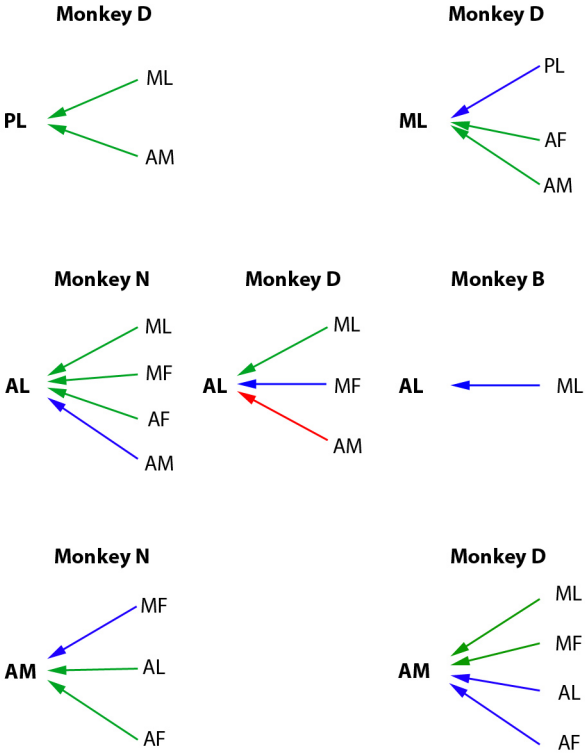
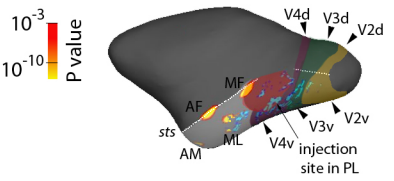
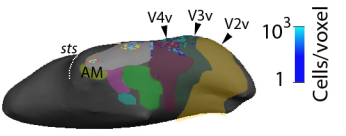

Monkey D
PL
ML
AM
Monkey D
ML
PL
AF
AM
Monkey N
AL
ML
MF
AF
AM
Monkey D
AL
ML
MF
AM
Monkey B
AL
ML
Monkey N
AM
MF
AL
AF
Monkey D
AM
ML
MF
AL
AF

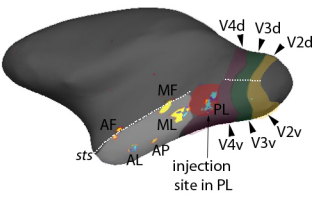
Figure S12

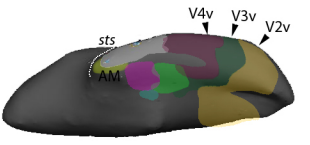
Monkey D
CTB-555 in left PL



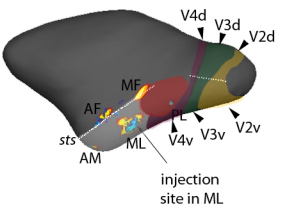


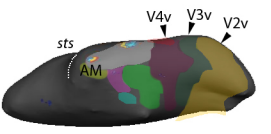
Monkey B
CB in left PL



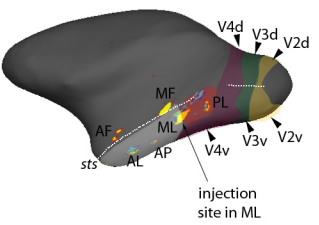


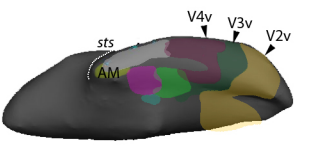
Monkey D
FB in left ML



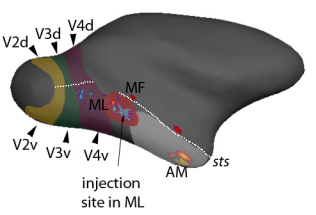


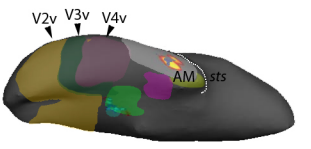
Monkey B
CTB-555 in left ML



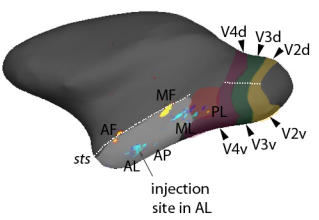


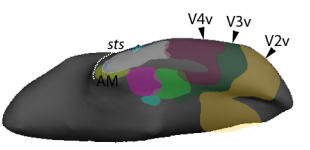
Monkey B
CTB-488/LY in right ML



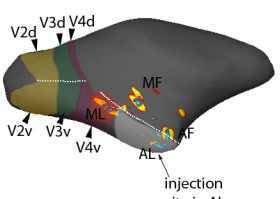


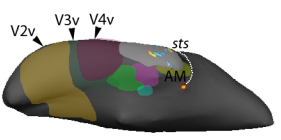
Monkey B
FE in left AL



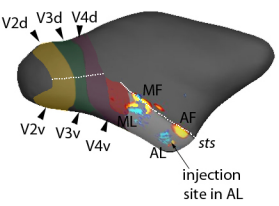


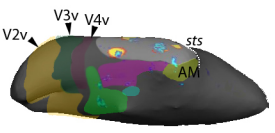
Monkey N
FB in right AL



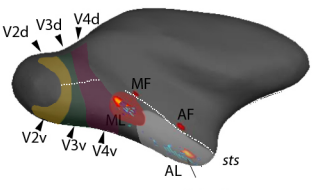


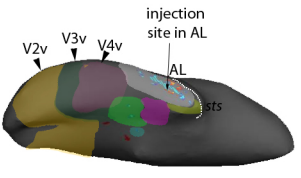
Monkey D
CB in right AL



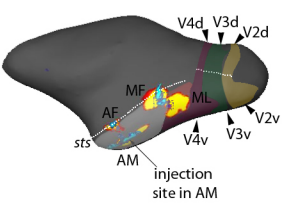


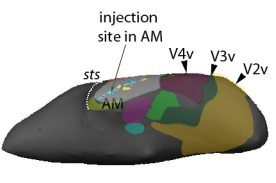
Monkey B
FB in right AL



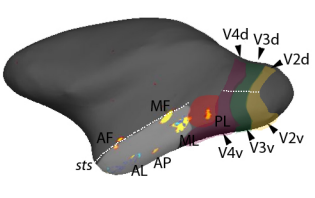


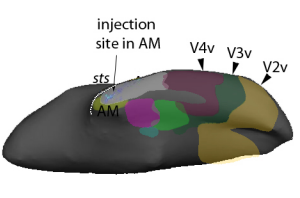
Monkey N
CTB-488 in left AM



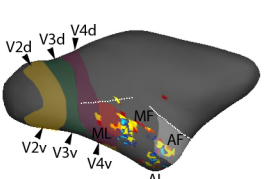


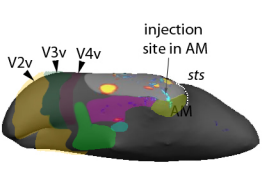
Monkey B
BDA in left AM



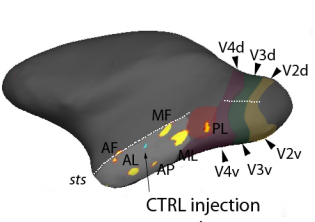


Monkey D
LY in right AM





Monkey B
TB CTRL



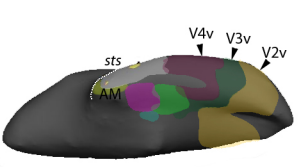


Figure S13

Table S1

Monkey N

injection	**left PL**		**left ML**		**left MF**		**left AL**		**left AF**	
	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.
left AM	x	x	0	0	899	71.2	3789	65.1	281	60.4
right AL	x	x	0	0	0	0	0	0	0	0

Monkey D

injection	**left PL**		**left ML**		**left MF**		**left AL**		**left AF**	
	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.
left PL	inj. site		1284	33.33	0	0	x	x	0	0
left ML	125	88.88	inj. site		0	0	x	x	116	61.2
right AL	0	0	231	95	74	100	x	x	0	0
right AM	0	0	52	90.38	48	100	x	x	0	0

Monkey B

injection	**left PL**		**left ML**		**left MF**		**left AL**		**left AF**	
	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.
left PL	inj. site		112	90.8	0	0	196	94.6	0	0
left ML	105	100	inj. site		0	0	730	100	0	0
left AL	45	95	1224	85.78	0	0	inj. site		0	0
left AM	0	0	392	76.02	0	0	214	0	0	0
right ML	0	0	53	0	0	0	0	0	0	0
right AL	0	0	0	0	0	0	0	0	0	0
CTRL injection (LH)	0	0	0	0	0	0	0	0	0	0

left AM		**right PL**		**right ML**		**right MF**		**right AL**		**right AF**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
inj. site		x	x	0	0	0	0	554	94.3	13
0	0	x	x	218	37.3	98	67.5	inj. site		560

left AM		**right PL**		**right ML**		**right MF**		**right AL**		**right AF**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
407	47.42	x	x	0		0	0	0	0	0
395	64.81	x	x	83	15.66	0	0	0	0	0
638	98.9	x	x	3025	47.78	642	78.5	inj. site		0
0	0	x	x	808	64.85	1018	32.5	1222	92.47	332

left AM		**right PL**		**right ML**		**right MF**		**right AL**		**right AF**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
120	100	x	x	44	100	0	0	0	0	0
78	100	x	x	0	0	0	0	0	0	0
186	94.6	x	x	0	0	0	0	0	0	0
inj. site		x	x	0	0	0	0	90	86.66	0
0	0	x	x	inj. site		0	0	195	76.41	0
0	0	x	x	1168	95.42	0	0	inj. site	0	0
0	0	x	x	0	0	0	0	0	0	0

	right AM				**IT outside of the face patches**	**dl PFC (ipsi)**	
% sup.l.	tot	% sup.l.				tot	% sup.l.
100	110	98.1			334	9	100
50.5	324	88.1			112	0	100

	right AM				**IT outside of the face patches**	**dl PFC (ipsi)**	
% sup.l.	tot	% sup.l.				tot	% sup.l.
0	0	0			836	0	0
0	0	0			135	1	100
0	1590	20.56			630	0	0
88.88	inj. site				361	0	0

	right AM		**accessory. patch (lh)**		**IT outside of the face patches**	**dl PFC (ipsi)**	
% sup.l.	tot	% sup.l.	tot	% sup.l.		tot	% sup.l.
0	x	x	0	100	130	0	0
0	x	x	103		125	0	0
0	x	x	97	100	174	0	0
0	x	x	0		373	0	0
0	x	x	0		42	0	0
0	x	x	0		156	0	0
0	x	x	0		256	0	0

OFC (ipsi)		**TEO, posterior to PL (ipsi)**		**l. V4**		**r. V4**		**l.V3**		**l. V2**		**perirh. c.**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
6	100	0	0	0	0	0	0	0	0	0	0	0
9	100	0	0	0	0	0	0	0	0	0	0	0

OFC (ipsi)		**TEO, posterior to PL (ipsi)**		**l. V4**		**r. V4**		**l.V3**		**l. V2**		**perirh. c.**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
0	0	687	18%	4796	56%	0	0	1602	75%	318	93%	0
26	83	0	0	41	68%	0	0	0	0	0	0	0
12	100	0	0	0	0	0	0	0	0	0	0	56
10	100	0	0	0	0	0	0	0	0	0	0	144

OFC (ipsi)		**TEO, posterior to PL (ipsi)**		**l. V4**		**r. V4**		**l.V3**		**l. V2**		**perirh. c.**
tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot	% sup.l.	tot
0	0	0	0	0	0	0	0	0	0	372	100	0
0	0	0	0	138	100	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0		0	0	0	0	0	0
0	0	0	0	0	0	334	100	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

TF (ipsi)	TFO (ipsi)	TH	pulvinar (ipsi)	amygdala (ipsi)	claustrum (ipsi)
tot	tot		tot	tot	tot
0	0	0	0	0	114
0	0	0	0	0	0

TF (ipsi)	TFO (ipsi)	TH	pulvinar (ipsi)	amygdala (ipsi)	claustrum (ipsi)
tot	tot		tot	tot	tot
0	0	0	11	0	35
0	0	0	0	0	33
268	78	0	93	40	23
133	109	0	74	120	11

TF (ipsi)	TFO (ipsi)	TH (ipsi)	pulvinar (ipsi)	amygdala (ipsi)	claustrum (ipsi)
tot	tot		tot	tot	tot
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	76	0	0
0	72	37	190	0	726
0	0	0	0	0	0