Supporting Information

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SI Methods

Spikes from single units were sorted using the OfflineSorter software package (Plexon Inc.) by projecting waveforms into principal component space and identifying isolated clusters. Spikes were detected either online (in recordings using the Plexon acquisition system) or offline (in recordings using the Tucker-Davis acquisition system) by setting a trigger threshold to capture a snippet of the spike-band–filtered voltage trace. Waveforms detected on the same channel on different days were tentatively classified as belonging to the same neuron if the waveform and spiking statistics matched between consecutive days, following the approach described in detail previously (1). Visual responses were displayed by aligning neuronal activity on stimulus onset, averaging across trials, and convolving the mean firing rate histogram with a 10-ms Gaussian kernel. Face selectivity was assessed by computing a two-way ANOVA with category (face or nonface stimuli) and neuron as factors. Activity at the recording site was considered face selective if there was, first, a significant main effect of category and, second, a significant difference between face and nonface stimuli as determined by a Tukey–Kramer post hoc test. Consistency of stimulus selectivity was assessed by splitting datasets into two halves (odd vs. even runs) and computing correlation coefficients between the conditions of interest (within-day vs. across days, same neuron vs. different neurons, etc.) as described in the main text.

1. Bondar IV, Leopold DA, Richmond BJ, Victor JD, Logothetis NK (2009) Long-term stability of visual pattern selective responses of monkey temporal lobe neurons. *PLoS ONE* 4(12):e8222.

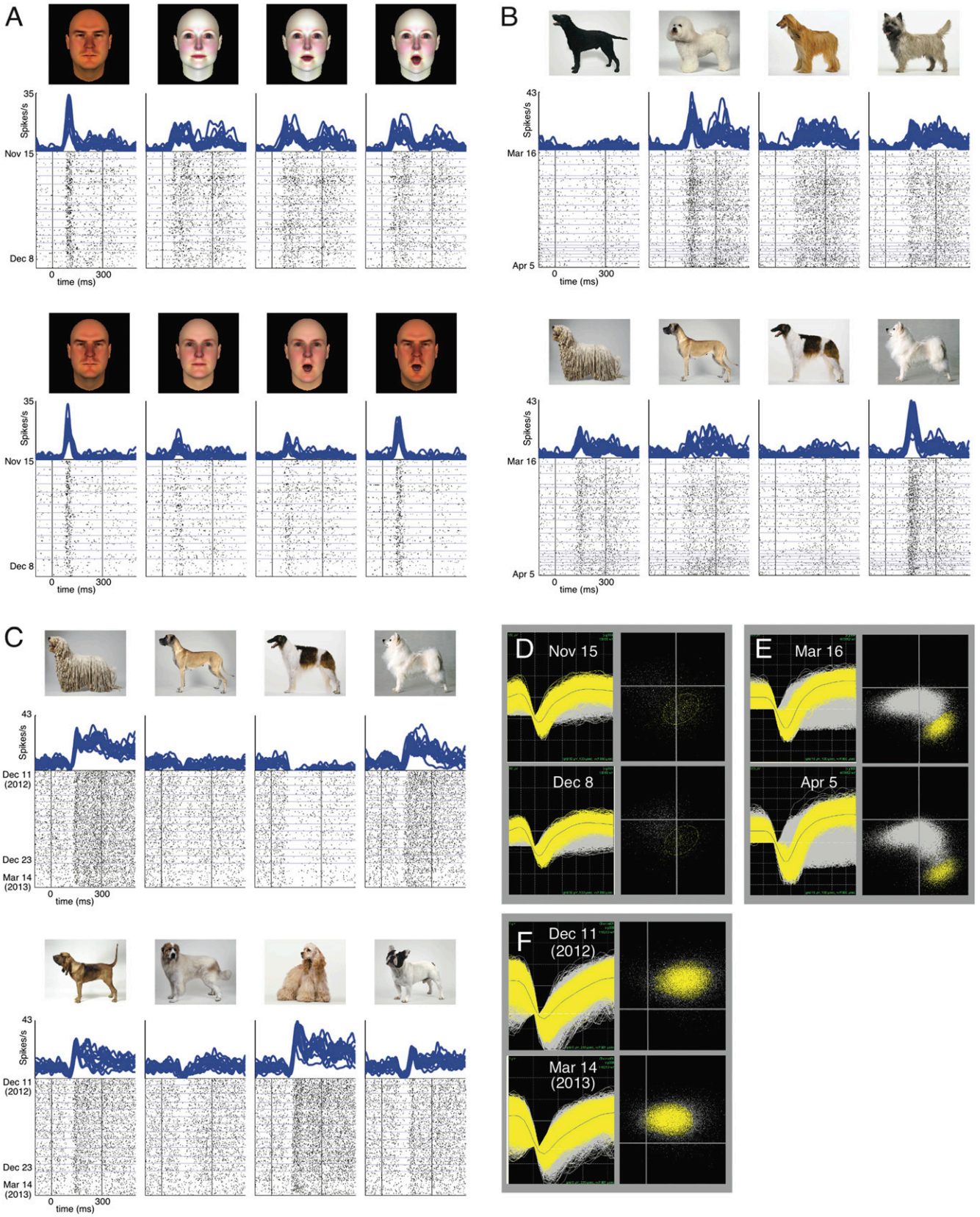

Fig. S1. Visual responses recorded from three longitudinally recorded neurons from monkey 1 (*A* and *B*) and monkey 2 (*C*). Neruons were followed for 23, 21, and 93 days, as indicated by the dates next to the raster plots. The corresponding spike waveforms and clusters in principal components space are shown in *D*–*F*.

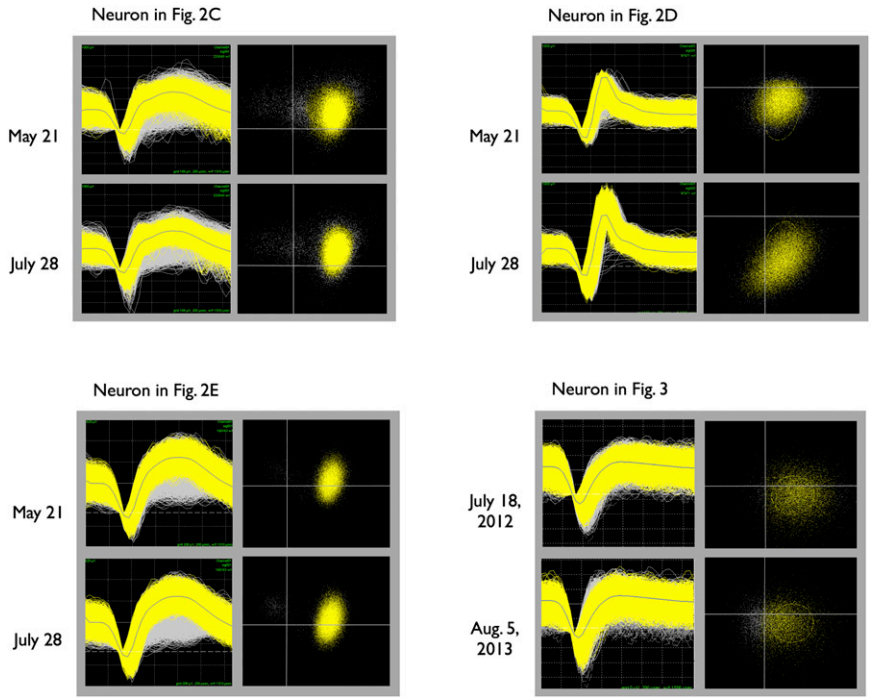

Fig. S2. Stability of spike waveforms over the duration of longitudinal recordings. Each panel shows the voltage traces (*Left*) of isolated spikes and corresponding clusters in principal component space (*Right*; PC1 and PC2 on *x* and *y* axes, respectively) for the four example neurons shown in the main text. The first day (*Upper*) and last day (*Lower*) of recording are shown in each panel.

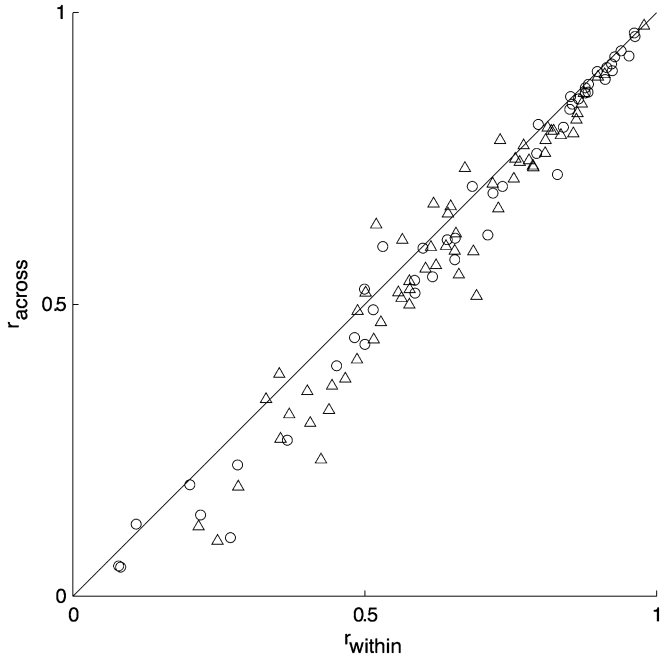

Fig. S3. Longitudinal consistency of stimulus selectivity patterns for population of recorded neurons (triangles, monkey 1; circles, monkey 2). The method of analysis is identical to Fig. 4*C*, except that only the first and last days of recording are considered, rather than recordings on all sequential days.