

1 Supplementary Figure 1. High-resolution spectrograms of monkey call (MC) stimuli. For
2 presentation clarity, 100 ms of silence has been added prior to stimulus onset. Frequency
3 scale is logarithmic.

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5 Supplementary Figure 2. High-resolution spectrograms of environmental sound (ES)
6 stimuli. For presentation clarity, 100 ms of silence has been added prior to stimulus onset.
7 Frequency scale is logarithmic.

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9 Supplementary Figure 3. *A*: distribution of BPN/PT ratio obtained from the neurons'
10 onset responses [BPN/PT(o)] in the recording area. Data smoothed with a 2D Gaussian
11 kernel, $\sigma=1.5$. Black line shows the core/belt boundary. *B*: direction, strength, and
12 significance of BPN/PT(o) gradients. Correlation coefficient of the ratio values with
13 spatial locations of units projected onto an axis which was rotated 360 degrees in 5-
14 degree steps is shown as a black line. The gradient direction angle is the angle at which
15 maximum correlation was found, the strength is the maximum r value, and the p value is
16 determined by comparison with correlations obtained from scrambled data (shades of
17 grey). See Methods for details. The outer circle of the plot denotes $r=0.4$. Cf. Figures 2
18 and 3.

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20 Supplementary Figure 4. Selectivity to pure tones and band-pass noise bursts. The graphs
21 show the preference index (PI, top row), t-test-based preference index (PI_t , middle row)
22 and linear discriminator performance (LDPC, bottom right) for different cortical fields
23 (color-coded) and stimulus classes (PT, pure tones; BPN13, 1/3-octave band-pass noise
24 bursts; BPN1, 1-octave band-pass noise bursts). Vertical axes for PI and PI_t run from top
25 to bottom, thus, on each graph taller bars indicate higher selectivity. PI and PI_t are
26 analyzed separately for “on” (left), “sustained” (middle), and “entire” (right) response.
27 Significant differences between stimulus classes and across-class differences between
28 fields (or groups or fields, such as core, belt, more anterior, more posterior fields) are
29 marked *above* graphs. Within-class differences are marked *below* the class' groups of
30 bars. Differences between classes within a field or group of fields are marked with lines.

31 Grey line in the PI/”sustained” graph was used to denote an almost significant difference.

32 Error bars show standard deviations.

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34 Supplementary Figure 5. Selectivity to monkey calls (MC) and environmental sounds

35 (ES). See Supplementary Figure 4 for a detailed legend.

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