Supporting Information

Haegens et al. 10.1073/pnas.1117190108

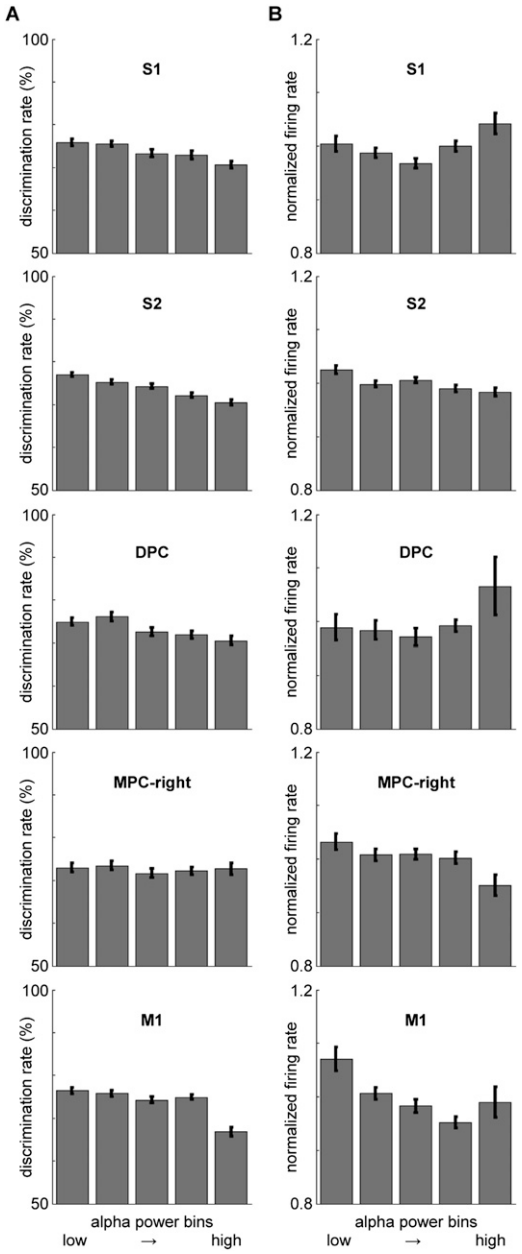

Fig. S1. α-Power predicts task performance and firing rate. (*A*) Discrimination rate decreased with increasing α-power during the decision-delay period ($P < 0.001$) for all regions except MPC-right (Fig. 4 and Table S1). (*B*) Firing rate decreased with increasing α-power ($P < 0.001$) in S2, MPC-right, and M1, whereas in S1 there was a positive effect ($P < 0.01$). (There was no significant effect in DPC.)

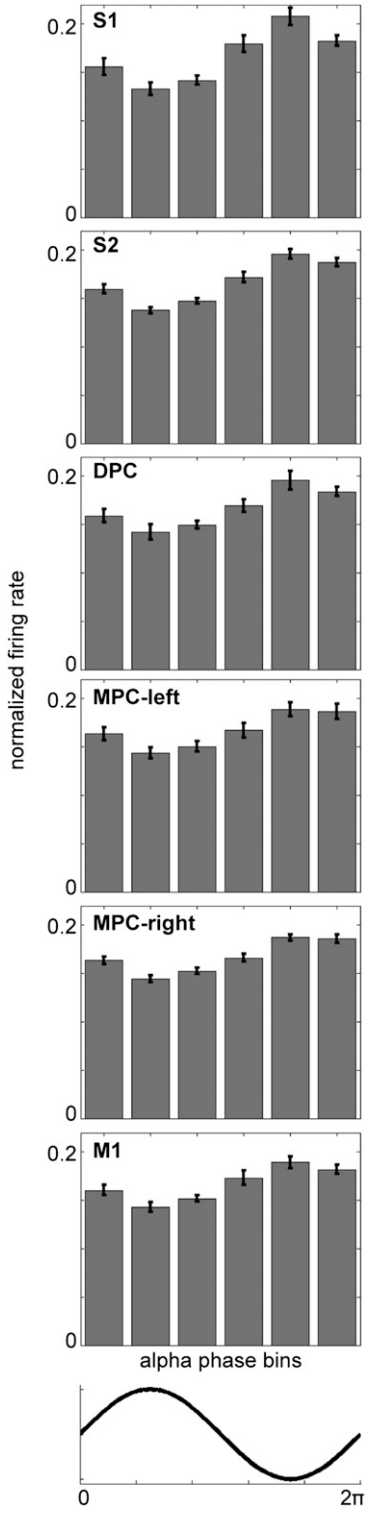

Fig. S2. Firing in relation to the α-cycle. For each recording site, α-cycles were extracted from the data (retention and decision-delay periods) and divided into six phase bins. For each bin, the normalized firing rate was computed (relative to the average firing rate during that particular cycle). Firing rate was highest at the α-trough and lowest at the α-peak (one-way ANOVA, $P < 0.001$, in each of the regions).

Table S1. α-Power predicts task performance and firing rate

	Discrimination rate		Firing rate	
Region	One-way ANOVA	Post hoc tests	One-way ANOVA	Post hoc tests
S1	$F_{(4,460)} = 6.518$ $P < 0.001$	1, 2 vs. 5	$F_{(4,460)} = 4.563$ $P < 0.01$	3 vs. 5*
S2	$F_{(4,845)} = 19.265$ $P < 0.001$	1 vs. 3, 4, 5 2 vs. 4, 5 3 vs. 5	$F_{(4,845)} = 5.504$ $P < 0.001$	1 vs. 4, 5
DPC	$F_{(4,300)} = 5.177$ $P < 0.001$	1 vs. 5 2 vs. 4, 5	$F_{(4,300)} = 1.669$ $P = 0.157$	
MPC-left	$F_{(4,390)} = 34.161$ $P < 0.001$	1, 2, 3 vs. 4 1, 2, 3, 4 vs. 5	$F_{(4,390)} = 5.197$ $P < 0.001$	1 vs. 4 2 vs. 4, 5
MPC-right	$F_{(4,260)} = 0.396$ $P = 0.812$		$F_{(4,260)} = 4.776$ $P < 0.001$	1 vs. 5
M1	$F_{(4,510)} = 25.779$ $P < 0.001$	1, 2, 3, 4 vs. 5	$F_{(4,510)} = 5.687$ $P < 0.001$	1 vs. 3, 4 2 vs. 4

DPC, dorsal premotor cortex; M1, primary motor cortex; MPC, medial premotor cortex; S1, primary somatosensory cortex; S2, secondary somatosensory cortex. For each of the regions, a one-way ANOVA was performed, which tested the effect of α-power level on both discrimination rate and firing rate. Post hoc comparisons using the Games–Howell procedure (which controls for multiple comparisons with unequal population variances) revealed the significantly differing α-bins (corrected $P < 0.05$). All reported relations are negative (i.e., increasing α, decreasing discrimination/firing rate) except for S1 α-power that showed a poitive effect on firing rate (denoted by an asterisk).