

## Supplemental Materials

**Supplemental Figure 1. Stroke does not significantly alter delta and gamma brain oscillations in the ipsilateral cortex distal to ischemic lesion or homotopic region of the contralateral cortex.** Comparison of temporal changes in cortical oscillatory activity in the ipsilateral (upper open bar panel) and contralateral cortex (lower solid bar panel) recorded distally to ischemic penumbra did not reveal any significant changes in power of delta and gamma oscillations either during dMCAO or CCAO in the intact ipsilateral or contralateral cortex. dMCAO: N=10; CCAO: N=7.

**Supplemental Table 1. Statistical analysis of oscillation changes in the hippocampus induced by CCAO or dMCAO during HTD periods.**

	Ipsilateral (left)		Contralateral (right)	
	CCAO	dMCAO	CCAO	dMCAO
<b>T/D Ratio</b>	$F_{3, 24} = 2.96$ (n.s.)	$F_{2, 24} = 8.92$ (**)	$F_{3, 24} = 4.64$ (*)	$F_{2, 26} = 17.01$ (***)
<b>Delta</b>	$F_{3, 24} = 0.93$ (n.s.)	$F_{2, 24} = 1.73$ (n.s.)	$F_{3, 24} = 1.86$ (n.s.)	$F_{2, 26} = 2.15$ (n.s.)
<b>Theta</b>	$F_{3, 24} = 0.52$ (n.s.)	$F_{2, 24} = 4.84$ (*)	$F_{3, 24} = 2.75$ (n.s.)	$F_{2, 26} = 9.80$ (***)
<b>LoG</b>	$F_{3, 24} = 0.35$ (n.s.)	$F_{2, 24} = 4.08$ (*)	$F_{3, 24} = 0.40$ (n.s.)	$F_{2, 26} = 7.74$ (**)
<b>MI<sub>LoG-Theta</sub> SIm-Ctx</b>	$F_{3, 24} = 3.73$ (*)	$F_{2, 20} = 2.80$ (n.s.)	$F_{3, 20} = 1.95$ (n.s.)	$F_{2, 22} = 3.04$ (n.s.)
<b>MI<sub>LoG-Theta</sub> CA1-Ctx</b>	$F_{3, 24} = 1.65$ (n.s.)	$F_{2, 20} = 4.46$ (*)	$F_{3, 19} = 3.16$ (n.s.)	$F_{2, 22} = 0.65$ (n.s.)
<b>MI<sub>LoG-LowFreq</sub> SIm-Ctx</b>	$F_{3, 24} = 4.56$ (*)	$F_{2, 16} = 2.82$ (n.s.)	$F_{3, 17} = 3.28$ (*)	$F_{2, 19} = 3.92$ (*)
<b>MI<sub>LoG-LowFreq</sub> CA1-Ctx</b>	$F_{3, 24} = 0.79$ (n.s.)	$F_{2, 19} = 11.51$ (***)	$F_{3, 17} = 1.9$ (n.s.)	$F_{2, 19} = 0.55$ (n.s.)
<b>HiG</b>	$F_{3, 24} = 0.60$ (n.s.)	$F_{2, 24} = 2.25$ (n.s.)	$F_{3, 24} = 0.65$ (n.s.)	$F_{2, 26} = 5.60$ (**)
<b>MI<sub>HiG-Theta</sub> SIm-Ctx</b>	$F_{3, 24} = 2.13$ (n.s.)	$F_{2, 20} = 9.53$ (**)	$F_{3, 20} = 1.15$ (n.s.)	$F_{2, 22} = 0.32$ (n.s.)
<b>MI<sub>HiG-Theta</sub> CA1-Ctx</b>	$F_{3, 24} = 0.44$ (n.s.)	$F_{2, 20} = 13.33$ (***)	$F_{3, 19} = 0.7$ (n.s.)	$F_{2, 20} = 1.04$ (n.s.)

<b>MI<sub>HiG-LowFreq</sub> SIm-Ctx</b>	$F_{3, 24} = 2.70$ (n.s)	$F_{2, 16} = 7.74$ (**)	$F_{3, 17} = 1.1$ (n.s.)	$F_{2, 18} = 0.12$ (n.s.)
<b>MI<sub>HiG-LowFreq</sub> CA1-Ctx</b>	$F_{3, 24} = 0.91$ (n.s.)	$F_{2, 16} = 9.04$ (**)	$F_{3, 17} = 0.46$ (n.s.)	$F_{2, 19} = 1.14$ (n.s.)

A robust main effect of dMCAO is detected for T/D ratio, theta power and low gamma power bilaterally. T/D ratio: ratio of theta-to-delta amplitude. Delta: LFP power between 0-1.3 Hz. Theta: LFP power between 4-7 Hz in theta period. LoG: LFP power between 30-60 Hz. HiG: LFP power between 60-150 Hz. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ , \*\*\*:  $p < 0.005$ .

**Supplemental Table 2. One-way ANOVA analysis of oscillation changes in the hippocampus induced by dMCAO during LTD periods.**

	<b>Ipsilateral (left)</b>	<b>Contralateral (right)</b>
<b>T/D Ratio</b>	$F_{2, 21} = 0.49$ (n.s)	$F_{2, 21} = 1.90$ (n.s)
<b>Delta</b>	$F_{2, 21} = 1.63$ (n.s.)	$F_{2, 21} = 1.39$ (n.s.)
<b>Theta</b>	$F_{2, 21} = 2.93$ (n.s)	$F_{2, 21} = 4.08$ (*)
<b>LoG</b>	$F_{2, 21} = 2.3$ (n.s)	$F_{2, 21} = 1.07$ (n.s)
<b>HiG</b>	$F_{2, 21} = 1.94$ (n.s.)	$F_{2, 21} = 1.46$ (n.s)

No effect of dMCAO is detected for T/D ratio, delta, theta, low and high gamma power bilaterally except for an increase of theta power in contralateral slm during reperfusion compared to occlusion during LTD periods. T/D ratio: theta-to-delta ratio. Delta: LFP power between 0-1.3 Hz. Theta: LFP power between 4-7 Hz in theta period. LoG: LFP power between 30-60 Hz. HiG: LFP power between 60-150 Hz. \*:  $p < 0.05$

**Supplemental Table 3. One-way ANOVA analysis of oscillation changes in the cortex induced by CCAO or dMCAO during HTD periods.**

	Ipsilateral (left)		Contralateral (right)	
	CCAO	dMCAO	CCAO	dMCAO
<b>Delta</b>	$F_{3,24} = 1.84$ (n.s.)	$F_{2,24} = 0.38$ (n.s.)	$F_{3,24} = 1.95$ (n.s.)	$F_{2,26} = 1.61$ (n.s.)
<b>LoG</b>	$F_{3,24} = 0.19$ (n.s.)	$F_{2,24} = 0.75$ (n.s.)	$F_{3,24} = 0.29$ (n.s.)	$F_{2,26} = 1.91$ (n.s.)
<b>HiG</b>	$F_{3,24} = 0.89$ (n.s.)	$F_{2,24} = 1.16$ (n.s.)	$F_{3,24} = 1.13$ (n.s.)	$F_{2,26} = 2.91$ (n.s.)

dMCAO or CCAO did not induced significant changes in delta, low- or high-gamma power in either hemisphere of cortex. Delta: LFP power between 0-1.3 Hz. LoG: LFP power between 30-60 Hz. HiG: LFP power between 60-150 Hz.