

# Intraoperative Functional Ultrasound Imaging of Human Brain Activity

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## SUPPLEMENTARY MATERIALS

			Correlation	
	Tasks	Number	Mean correlation in the functional area (r>0.41)	Mean correlation outside the functional area
Tasks of interest	Hand motor	9	0.498	0.107
	Hand sensory	4	0.515	0.131
	Index motor	3	0.520	0.132
	Index sensory	2	0.529	0.146
	Thumb motor	1	0.526	0.192
	Thumb sensory	2	0.483	0.119
	Thumb/index motor	3	0.494	0.111
	Thumb/index sensory	1	0.570	0.101
	Ring finger/little finger sensory	1	0.507	0.114
	Wrist motor	2	0.521	0.131
	Wrist sensory	1	0.472	0.186
	Elbow/biceps sensory	1	0.500	0.184
	Mouth motor	8	0.508	0.124
	Mouth sensory	3	0.505	0.121
	Repetition (sentences)	1	0.503	0.154
	Count (1 to 10)	1	0.461	0.073
		<b>Total</b>	<b>43</b>	<b>0.507</b>

**Supplementary figure 1 - List of the different tested tasks depending on the lesion location.** The number of times that one task was tested is indicated in the Number column. For every tested task, the mean correlation between the task pattern and the Doppler signal is documented along with the mean correlation calculated outside the functional area as a reference correlation value. In 43 cases, detection of the corresponding functional area ( $r>0.41$ ) was obtained.

**Supplementary video 1 - Neuroimaging of the human brain using intraoperative fUltrasound.** First, this video presents the ultrasound probe positioning on the “mouth sensitive” cortical area (ESM tag 13). Second, the movie of the cerebral blood volume (CBV) variations compared to the baseline CBV is displayed in the imaging plane during 220 s of ultrasound acquisition. Stimulations (“MOUTH MOTION”) result in a 20% increase in CBV compared to baseline CBV in the associated cortical area during stimulation. The drawing of the brain was created by Alexandre Dizeux.