

Supplementary Table. Glossary for Functional Magnetic Resonance Imaging and Definition of the Sequence Parameters for Echo Planar Imaging

Parameter		Definition	Typical value
Blood oxygen level dependent		A change in T2* MRI signal caused by differences in the amount of oxygenated hemoglobin in the vessels near neurons. Oxygenated hemoglobin has a smaller magnetic susceptibility than deoxygenated hemoglobin which generates higher T2* signal.	
Cerebral blood volume		The volume of blood in the blood vessel	
Contrast		The difference in signal intensity between two tissues in an image.	
Gradient coils		Coils of wire used to generate the magnetic field gradients.	
Hemodynamic response		The changes in blood flow, blood volume and blood oxygenation in response to local neural activity.	
MRI		Use of magnetic resonance to create images of objects by imaging the distribution of hydrogen nuclei (protons).	
Pulse Sequence		Sequence of pulse signals sent to the RF transmit/receive coil, to the slice-selection gradient coil, to the frequency-encoding coil, and to the phase-encoding coil during an MRI experiment.	
RF		Wave frequency intermediate between auditory and infrared.	
RF coils		The coils used to transmit the RF electromagnetic energy that flips the magnetization, and to receive the nuclear magnetic resonance signal generated by the precession of the resulting transverse magnetization.	
Scan		A single, continuous collection of images.	
Tesla		A unit of magnetic field strength.	
T1-weighted MRI		A magnetic resonance image generated using imaging parameters that cause contrast to be primarily based on differences in T1 times for different tissues (used for anatomy image).	Short TR/TE
T2-weighted MRI		A magnetic resonance image generated using imaging parameters that cause contrast to be primarily based on differences in T2 times for different tissues (used for discrimination of pathological changes).	Long TR/TE
T2*		A spin-spin relaxation time composed of contributions from molecular interactions and inhomogeneous magnetic field (used for functional image).	
Voxel		A single unit in a 3-dimensional volume.	
<hr/>			
EPI		An MRI technique for collecting a 2-dimensional planar image from single excitation.	
Timing parameter	TE	Time between the RF pulse (from coil to tissue) and echo signal (from tissue to coil).	30-60 msec
	TR	Time between repeating series of RF pulses.	1000-3000 msec
Flip angle		The amount of rotated or tipped net magnetization during RF pulse application.	60-90°
Resolution parameter	FOV	Spatial region of MRI data collected (x, y size of image matrix).	Various
	Matrix size	Number of voxel in slice (number of voxels on x and y axis of FOV).	64 × 64 or 128 × 128
	Slice thickness	The thickness of a slice (z size of voxel).	2-3 mm
Bandwidth		Range of frequencies of signal sampling or slice selection.	Various

MRI, magnetic resonance imaging; RF, radiofrequency; TR, time to repetition; TE, time to echo; EPI, echo planar imaging; FOV, field of view.