

Table S6. Functional neuroimaging studies (conducted during 2000-2010) comparing PFC activity in addicted individuals (S) and healthy controls (C) during performance of inhibitory control tasks.

	Subjects	Abstinence length	Task	Performance Differences	PFC results: dependent variable	Correlations with task or drug use
INHIBITORY CONTROL						
Cocaine						
Kaufman, Ross et al. 2003	13 S 14 C	18-72 hrs	fMRI go/no-go	S>C errors	S<C T>BL R ACC 24, 6/32, R ACC/MedFG/SFG 6/8/32, R INS 47, R MedFG 6, L IFG 6, L INS 13	NR
Bolla, Ernst et al. 2004	13 S 13 C	~23 days	H ₂ ¹⁵ O Stroop	S=C	S<C T>N L ACC 32, R LPFC 10 S>C T>N R ACC 32	Drug use (-) R rACC 24, R LPFC 13
Hester and Garavan 2004	15 S 15 C	41 hrs	fMRI go/no-go + WM	S>C errors	S<C T>N L ACC 32/24, R SFG 10/9	Inhibition ACC
Li, Huang et al. 2008	15 S 15 C	≥2 weeks	fMRI SSRT	S=C	S<C T>N (stop success) ↑ rACC 32/24	Inhibition (-) T>N dmPFC 8
Marijuana						
Eldreth, Matochik et al. 2004	11 S 11 C	~23 days	H ₂ ¹⁵ O Stroop	S=C	S<C T>N L DLPFC 8,9, L pgACC 32, R vmPFC 10, R DLPFC 10	NR
Tapert, Schweinsburg et al. 2007	16 S 17 C	58 days	fMRI go/no-go	S=C (adolescents)	S>C T>BL B SFG/MidFG 10,46, R MidFG/INS 6,13, B MedFC 6, R IFG/INS 44, 13	Duration use (-) T>BL ↑ R DLPFC 10
Hester, Nestor et al. 2009	16 S 16 C	38 hours	fMRI error awareness	S<C Error awareness	S (not C) T>N ↑ B MidFG, ↑ R ACC	Drug use (-) T>BL R ACC, R INS
Alcohol						
De Rosa, Desmond et al. 2004	11 S 13 C	100 days	fMRI proactive interference	S=C	S<C T>N L vmOFC/rectal, L IFG, R mOFC, R pOFC S>C T>N	NR

					L IFG, L ACC	
Li, Luo et al. 2009	24 S 24 C	2 weeks	fMRI SSRT	S>C Reaction time, % stops	S<C T>N (slowing, risk) B DLPFC, R MidFG, R INS, B mOFC, L ACC S>C T<N (stop error) B SFG, B MidFG, L ACC	Craving (-) T>N R DLPFC
Heitzeg, Nigg et al. 2010	21 S+fh 20 C+fh 20 C	NR	fMRI go/no-go	S=C	S>C T>N ↑ B OFC 10, ↑ L mPFC 9, ↑ L mDPFC 8	Drug use (+) B OFC 10, L MedPFC 9, L mDPFC 8 Reaction time (+) T>N L mPFC 9, L mDPFC 8
Nicotine						
Luijten, Veltman et al. 2011	18 S 19 C	3 hours	fMRI attention bias line counting	S=C	S<C T>BL R rvACC S>C D>N (&D bias>name) R dACC	NS
Methamphetamine						
Leland, Arce et al. 2008	19 S 19 C	34 days	fMRI cued go/no-go	S (not C) T>N False alarm rate advantage	S>C T>N L vACC, C dACC	False alarm (-) T>N L vACC
Salo, Ursu et al. 2009	12 S 16 C	4 months	fMRI Stroop	S<C T>N Reaction time advantage	S<C T>N ↑ R MidFG 6, R ACC 32, B SFG 6, R SFG 8	NR
Heroin						
Yucel, Lubman et al. 2007	24 S 24 C	Morning opiate dose 24 hours all other	fMRI MSIT	S=C	S>C T>N L DLPFC 9	Reaction time, error (+) T>N dACC 32
Fu, Bi et al. 2008	28 S 15 C	8 weeks	fMRI go/no-go	S>C Reaction time	S<C T>N L MidFG 10, L MedFG 10, R MedFG 9/32, R IFG 9, L IFG 45, B ACC 9, L INS 13	NR
MDMA						

Roberts and Garavan 2010	<i>20 S</i> <i>20 C</i>	16 days	fMRI go/no-go	S=C	S>C T>BL ↑ R MidFG, IFG 46,10, MidFG 9,8,6, ↑ L MedFG 10	NS
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C controls, S subjects, +fh with family history of alcohol use disorders

MDMA 3,4-Methylenedioxyamphetamine or Ecstasy, fMRI functional magnetic resonance imaging, H₂¹⁵O positron emission tomography with H₂¹⁵O for cerebral blood flow

NR not reported, NA not applicable, NS not significant

A Abstinence, S Satiety

WM working memory, SSRT stop signal reaction time task, MSIT multi-source interference task,

D drug (within respective category), N neutral, T Task, BL baseline

ACC anterior cingulate cortex, dACC dorsal ACC, pgACC perigenual ACC, rACC rostral ACC, scACC subcallosal ACC, vACC ventral ACC, FC frontal cortex, aFC anterior FC, mFC middle FC, IFC inferior FC, PFC prefrontal cortex, mPFC medial PFC, dmPFC dorsomedial PFC, vmPFC ventromedial PFC, DLPFC dorsolateral PFC, vIPFC ventrolateral PFC, IFG inferior frontal gyrus, OFC orbitofrontal cortex, mOFC medial OFC, MedFG medial frontal gyrus, MidFG middle frontal gyrus, SFG superior frontal gyrus, INS insula, SMA supplementary motor area

(+) positive correlation, (-) negative correlation

R right, L left, B bilateral, C central

If available: ↑ increase/activation/hyperactivation, ↓ decrease/deactivation/hypoactivation, Brodmann Areas are noted by numbers

Subject column is in italics if groups are matched on at least two of the following: age, sex, race, education

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