

Table S5. Functional neuroimaging studies (conducted during 2000-2010) comparing PFC activity in addicted individuals (S) and healthy controls (C) during performance of selected emotion tasks.

	Subjects	Abstinence length	Task	Performance Differences	Group PFC differences	Correlations with task or drug use
MOTIVATION						
Cocaine						
Goldstein, Alia-Klein et al. 2007	16 S 13 C	5 days	fMRI money for go/no-go	S<C T&N accuracy	S<C T>N ↑ L OFC 47, R OFC 13,44,45, ↑ L DLPFC 9,10	Reaction time (-) T>N L DLPFC 10
Goldstein, Alia-Klein et al. 2009	17 S 17 C	5 days	fMRI pressing for word color for money	S=C	S<C T>BL ↑ R dACC 32 S>C T>BL ↓ L rvACC/mOFC 10,11, ↑ L DLPFC 6,8, ↑ L dmPFC 6	Drug use (-) T>BL L dACC Craving (+) T>BL L vACC
Nicotine						
Buhler, Vollstadt-Klein et al. 2010	21 S 21 C	Sat: as usual A: 36 hours	fMRI instrumental motivation	C: money > cigarettes S: money = cigarettes # responses	S<C Money>Cigarettes ↑ R OFC 11, R SFG 9,10, L ACC 24,32 A>Sat T>BL R mPFC	# responses (+) T>BL SFG
Non Drug						
de Ruiter, Veltman et al. 2009	19 Sg 19 Sm 19 C	10 hours	fMRI reversal learning and ToL	Sg<Sm<C money won	Sg<C T(gain)>BL R vIPFC Sm>C T(gain)>BL R DLPFC, R INS Sm<C T(loss)>BL R vIPFC Sm>C T(loss)>BL R frontal operculum, R INS S=C ToL	NR
EMOTION						
Alcohol						
Salloum, Ramchandani et al. 2007	11 S 11 C	19 days	fMRI facial emotion intensity judgment	S=C	S<C T>BL L IFG 9, L MidFG 6, L MedFG 6, L rACC 32,24,24/32, B scACC 25,	NR

					L dACC 32, B INS 13 S>C T>BL L MidFG 9,46, R dACC 24, B INS 13	
Heitzeg, Nigg et al. 2008	11 Sv 11 Sr	NR	fMRI press for emotional words	Sv=Sr	Sv<Sr T>N ↑ B OFC 11, L INS Sv>Sr T>N ↑ R dmPFC 8/9/10 R mPFC 9,10	NR
Methamphetamine						
Payer, Lieberman et al. 2008	12 S 12 C	9 days	fMRI facial emotion match	S=C	S<C T>N R vIPFC 47 S>C T>N L ACC 24	NR
Kim, Lee et al. 2010	19 S 19 C	21 days	fMRI empathy	S<C T&N accuracy	S<C T>N OFC S>C T>N DLPFC	S: NS C: NR
Payer, Lieberman et al. 2010	36 S 33 C	>4 days	fMRI facial emotion match & label	NR	S<C T>N B IFG	NS
Marijuana						
Gruber, Rogowska et al. 2009	15 S 15 C	12 hours	fMRI masked facial affect	NA	S<C T>BL L ACC 32 S>C T>BL R IFG 9, R SFG	Drug use (+) T>BL B ACC
Heroin						
Wang, Zhang et al. 2010	17 S 16 C	2-5 months	fMRI IAPS passive viewing	S=C valence ratings	S=C T>N PFC	NR
Cocaine						
Asensio, Romero et al. 2010	32 S 26 C	>72 hours	fMRI letter discrimination on emotional set	S=C	S<C P>N B MidFG 6, B dmPFC 32/6 S>C U>P B DLPFC 6/8/9	NS

C controls, S subjects, Sr resilient and Sv vulnerable (by family hx), Sg pathological gamblers, Sm smokers
fMRI functional magnetic resonance imaging, IAPS International Affective Picture System, ToL Tower of London
NR not reported, NA not applicable, NS not significant

A Abstinence, S Satiety

T Task, N neutral, P pleasant, U unpleasant, 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, vlPFC 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

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