

Table S4. Functional neuroimaging studies (conducted during 2000-2010) studying effects of abstinence and self-regulation on PFC activity.

	Subjects	Abstinence length	Tool/Task	Task performance / Craving	PFC results	PFC correlations with task or drug use
Nicotine						
Wilson, Sayette et al. 2005	10 exp 10 nexp	8 hours	fMRI viewing and holding D, N	D+N craving	Expecting group D>N L vmPFC 10 D<N B DLPFC 9, R DLPFC 46, R midFG 10, L vIPFC 47 No expectation group D>N R SFG 10, R midFG 10	NR
McBride, Barrett et al. 2006	19 S	S: as usual A: 12 hours	fMRI passive video viewing D, N	D craving	D>N L ACC 24/32, B dmPFC 9/10, L mOFC 11, L INS 13 D>N S L ACC 24/32 D>N A=S	NR
Brody, Mandelkern et al. 2007	42 S	25 min	fMRI video cues Dc, Di, N	Dc/Di>N craving	Di>N B SFG, L dACC Di>Dc L SFG, L pgACC, L dACC	Craving (+) B ACC/SFG, B IFG/INS, L MidFG
Wang, Faith et al. 2007	14 S	S: 1 hour A: 12 hours	Resting state arterial spin labeling: global CBF	A>S craving	A>S ↑ ACC/mOFC, ↑ L OFC, ↓ R PFC	Craving (+) A>S ACC, B OFC, mOFC, B DLPFC, R INS Withdrawal R DLPFC
Janes, Frederick et al. 2009	13 S	S: as usual A: 8 days	fMRI passive picture viewing D, N	NR	D>N A>S R SFG 9,46, L MidFG 6,9, L IFG 6,44, B ACC	NR

	Subjects	Abstinence length	Tool/Task	Task performance / Craving	PFC results	PFC correlations with task or drug use
					24,32	
McClernon, Kozink et al. 2009	18 S	S: as usual A: 24 hours	fMRI passive picture viewing D, N	D craving	D>N A L SFG 8,9 D>N A>S L SFG 6	Craving (+) D>N A R SFG 6,10, R ACC 32
Azizian, Nestor et al. 2010	20 S	S: 15 min A: 12 hours	fMRI color-word Stroop	A>S craving, RT (longer)	A>S T>N R ACC A<S T>N R MidFG 9	NS
Kober, Kross et al. 2010	21 S	2 hours	fMRI picture viewing NOW or LATER consequences D, F	Now>Later D>F craving	Now>Later L mPFC/mOFC, L dACC, L rACC, R ACC Now<Later L dmPFC, B IFG, L DLPFC, vIPFC	Craving (+) R dACC Craving (-) L DLPFC
Kozink, Kollins et al. 2010	15 S	S: as usual A: 24 hours	fMRI go/no-go	A<S accuracy	A>S T>BL ↑ R IFC	NR
Kushnir, Menon et al. 2010	18 S	S: 30 minutes A: 10-12 hours (same day)	fMRI passive picture viewing D, N	A>S craving	NR	Depression (+) D>N R IFG, B MidFG, L ACC, L SFG, L MedFG, R ACC Depression (-) D>N R SFG
Alcohol						
Filbey, Claus et al. 2008	37 S	24 hours	fMRI preferred taste D, N	D=N Urge	D>BL & D>N B OFC, vmPFC, B IFG 45 D>N L ACC 24, L OFC 47, L MidFG 6, R IFG 45	Drug use (+) D>N B OFC, vmPFC Craving D>BL

	Subjects	Abstinence length	Tool/Task	Task performance / Craving	PFC results	PFC correlations with task or drug use
						R OFC, mPFC
Heroin						
Langleben, Ruparel et al. 2008	15 S	S: 90 min A: ~24 hours	fMRI passive picture viewing D, N	A>S D craving	D A>S B OFC, B INS	NR
Cocaine						
Volkow, Fowler et al. 2010	24 S	3 days	FDG video viewing D, Di	D>Di craving	Di, D<BL ↑ R ACC 32 Di<BL ↑ R INS, ↑ R mOFC 25, L OFC 25 Di<D ↑ R mOFC 25	Craving D>Di mPFC 8,10
Non-drug						
Pelchat, Johnson et al. 2004	10 S 10 C	1.5 days	fMRI imagine foods S, A	A>S craving to liked foods	A>S L ACC 24, L INS	NR

C controls, S subjects, exp expecting to smoke, nexp not expecting to smoke, fMRI functional magnetic resonance imaging, CBF Cerebral Blood Flow, NR not reported, NA not applicable, NS not significant, A Abstinence, S Satiety

D drug (within respective category), N neutral, F food, Dc instruction to crave drug, Di instruction to inhibit/resist craving, T Task, BL baseline, RT reaction time

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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