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Supplemental Data
Neural circuitry underlying the regulation of conditioned fear and its relation to extinction

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Supplementary Information

Results

Additional analyses were conducted on the emotion regulation of fear ROIs. In the manuscript, we identified our ROIs using a Regulate vs. Attend contrast for CS+ trials only. This was done in order for our analysis of the BOLD data to be analogous to other studies of emotion regulation. We then determined individual subjects' beta weights from these ROIs for additional analyses. Given this, the only aspect of the data that was not examined in the contrast used to define the ROI was the comparison of the CS- trials for both Attend and Regulate, thus a t-test comparing responses to the CS- trials across conditions was performed.

However, additional ANOVAs were conducted in the mean beta weights for both the dlPFC and amygdala. These repeated measures ANOVAs were similar to the SCR analysis with type of trial (Attend, Regulate) and type of stimulus (CS+, CS-) as within-subjects factor. For the dlPFC ROI, no interaction between type of instruction (Attend, Regulate) and type of CS (CS+, CS-) ($F(1,11)=0.18, p=0.68$). Instead, a main effect of type of instruction $F(1,11)=7.78, p < 0.05$ was observed. For the amygdala the reverse pattern was detected. There is an interaction between

type of instruction and type of CS ($F(1,11)=6.61, p<0.05$). However, there is no main effect of type of instruction ($F(1,11)=1.47, p = 0.25$).

Additional Table

The ventromedial prefrontal cortex (vmPFC) has been previously linked to extinction of fear (e.g., Milad et al., 2005; Milad and Quirk, 2002; Phelps et al., 2004). Although less frequently emphasized, several of these studies also report activation in regions of foci in the vmPFC (i.e., the subgenual ACC or immediately adjacent vmPFC region) similar to that observed in the present study vmPFC and studies of extinction (Phelps et al., 2004; for review and plots of coordinates of various studies see Ochsner and Gross, 2005). Here, we list some coordinates of other ventromedial PFC findings in emotional regulation tasks for purposes of comparisons with

<u>Study</u>	<u>Type of Contrast</u>	<u>Type of Stimuli</u>	<u>Brodman Area</u>	<u>Talairach Coordinates</u>		
				<u>x</u>	<u>y</u>	<u>z</u>
Delgado et al. 2008	Regulation > attend	Aversive CS	32	0	35	-8
Simpson et al., 2001	Anticipation of shock > baseline	Anticipation of shock	25	-1	17	-8
Simpson et al., 2001	Anticipation of shock > baseline	Anticipation of shock	32/10	1	41	-8
Harenski et al., 2006	Regulate: Moral > Non-moral	Negative pictures	32	3	36	-3
Eippert et al., 2007	Up > down regulation (masked)	Threat related pictures	24	0	24	-6
Kim & Hamann, 2007	Regulate > baseline	Negative pictures	47	-48	30	-9
Ochsner et al., 2002	Reappraisal > attend	Negative pictures	44/10	-48	46	4
Levesque et al., 2003	Suppression > baseline	Sad film excerpts	11	24	46	-17

the current data (Delgado et al., 2008; Eippert et al., 2007; Kim and Hamann, 2007; Levesque et al., 2003; Ochsner et al., 2002; Simpson et al., 2001)

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