

## Supplemental Materials for

### *Prenatal hormone influences on the brain: A review, critique, and illustration*

#### **Illustration: Personalized Reward Processing Networks in Women with CAH**

**Methods: Neuroimaging data collection and scan sequences.** Neuroimaging data were collected on a 3T Siemens Trio (upgraded to a Magnetom Prisma Fit) Scanner at the same site. Structural data consisted of 160 sagittal slices from a magnetization prepared rapid gradient echo sequence (1mm<sup>3</sup> voxels, TR=1650ms, TE=2.03ms, FOV=256mm, Flip angle=9°), and functional data consisted of 34 interleaved axial slices collected during an echo-planar imaging sequence (3mm<sup>3</sup> voxels, TR=2000ms, TE=25ms, FOV=192mm, Flip angle=80°).

**Methods: Reward processing task.** Functional data were collected during a monetary incentive task adapted from prior research (Delgado et al., 2000) in which participants won or lost money in each trial of a card guessing game. Specifically, participants saw a question mark choice cue for 2500ms during which they guessed whether an upcoming playing card would be higher or lower than 5. The card was revealed for 750ms, followed by a green up arrow (if participants guessed correctly to win \$1) or a red down arrow (if participants guessed incorrectly to lose \$.50) for 750ms. Finally, there was a 12s or 14s inter-trial interval. Participants won \$20 in the task because they started with a \$5 bank and response options were fixed at 10 *win* and 10 *loss* trials in each of 3 runs.

**Methods: Functional data preprocessing.** Functional data were preprocessed in FSL ([www.fmrib.ox.ac.uk/fsl](http://www.fmrib.ox.ac.uk/fsl); FMRI Expert Analysis Tool Version 6.00) using a standard pipeline: registration to high resolution structural and standard MNI space using linear registration with a 12 degree of freedom search; motion correction; slice-timing correction using Fourier-space

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3 time-series phase shifting; non-brain removal; spatial smoothing using a Gaussian kernel of 6mm  
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5 FWHM; grand-mean intensity normalization of the entire 4D dataset by a single multiplicative  
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7 factor; and highpass temporal filtering (Gaussian-weighted least-squares straight line fitting, with  
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9 sigma=50.0s).

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12 **Methods: Region of interest (ROI) definitions.** The *regulatory system* consisted of the  
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14 bilateral dorsolateral prefrontal cortex (dlPFC) and the anterior cingulate cortex (ACC), which  
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16 are implicated in cognitive maintenance and error monitoring (Apps et al., 2016; Szczepanski &  
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18 Knight, 2014). The *approach system* consisted of the bilateral ventral striatum (VS), bilateral  
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20 orbitofrontal cortex (OFC), and the ventromedial PFC (vmPFC), as the VS and vmPFC are  
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22 implicated in affect during approach states, especially monetary rewards (Knutson & Greer,  
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24 2008), and the OFC is vital for stimulus-outcome learning and economic decisions (Haber &  
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26 Behrens, 2014; Padoa-Schioppa & Conen, 2017). The *salience system* consisted of the bilateral  
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28 insula and bilateral amygdala; both are vital to valence and affective processing (Knutson &  
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30 Greer, 2008; Posner et al., 2005).  
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