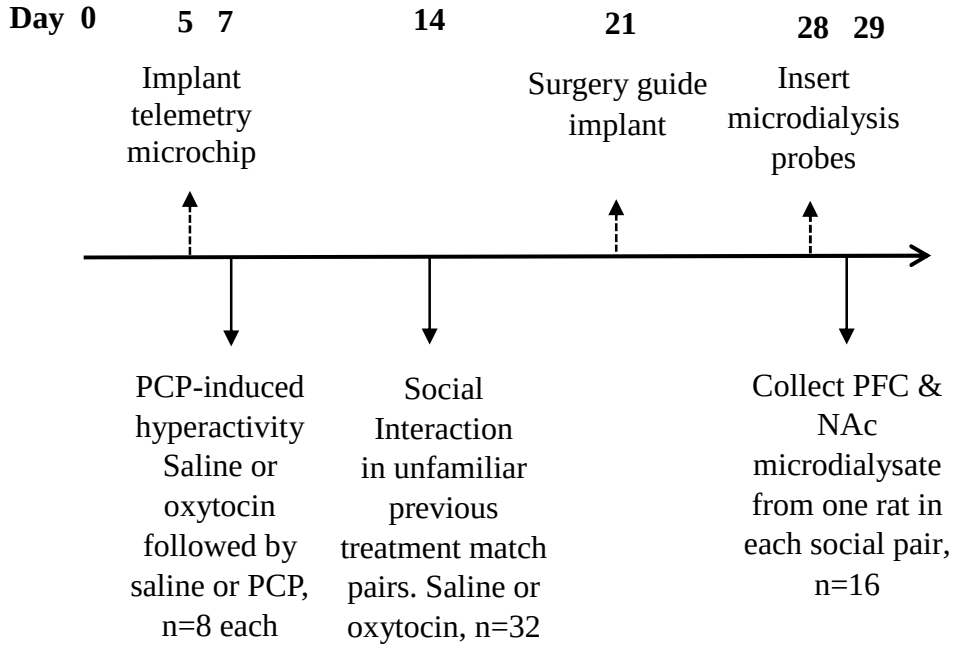
Supplementary Figure 1S



Summary of experimental protocol.

Thirty two male Lister hooded rats were used to examine the effect of oxytocin on phencyclidine (PCP)-induced hyperactivity, social interaction and prefrontal cortex (PFC) and nucleus accumbens (NAc) dopamine and 5-HT efflux by microdialysis. Rats were implanted with a subcutaneous temperature microchip (Bio-Thermo idENTICHIP; AnimalCare Ltd; York, UK) five days after arrival. On day 7 rats received oxytocin **(**0.03 or 0.1mg/kg s.c.; selected because of minimal effect on activity and body temperature in dose-response studies) or vehicle after 30min arena habituation, and vehicle or PCP (5.6 mg/kg i.p.; an established dose to examine 'antipsychotic-like' activity) 30min later (n=8 per group). Locomotor activity was assessed using a photobeam activity system (San Diego instruments, CA, USA). One week later (day 14) two weight- and treatment-matched rats from different litters rats received 0.1 mg/kg oxytocin or vehicle 45 min before placement into an unfamiliar circular arena (75cm diameter) under low light conditions (40LUX) for 10 min and Ethovision (Noldus) used to record interactive behaviors and an electret microphone (Emkay, Avisoft Bioacoustics, Germany) and Avisoft software (SAS-Lab Pro, v 4.38, Avisoft Bioacoustic) used to simultaneously record 50 kHz USVs. Body temperature was recorded by telemetry immediately before and after social interaction. On day 21 one rat from each interaction pair (n=16 in total) was implanted with a guide cannulae (Linton Instrumentation; Diss, UK) above the PFC and NAc (AP +3.2, L -0.7, V -2.3 and AP +1.7, L +1.6, V -3.8 respectively from Bregma) under anaesthesia. One week later, rats were briefly re-anaesthetised to insert microdialysis probes

(0.5mm x 4.0mm long, molecular cut-off 20,000 Da; CMA 12, Linton Instrumentation) into the guide cannulae. Probes were perfused with aCSF (125mM NaCl, 1.25mM KCl, 0.5mM $MgCl_2$, 13.5mM $NaHCO_3$, 0.2mM NaH_2PO_4, 0.90mM Na_2HPO_4, 0.30mM Na_2SO_4 and 1.2mM $CaCl_2$) at 1 µl/min with rats placed into an arena (50cm diameter, 45cm height, containing sawdust bedding) allowing free movement. The following day, three baseline samples were collected at 20min intervals before and for 2h after injection of either oxytocin 0.1mg/kg s.c. or saline (1mg/ml). The percent change in each microdialysate molecule from the baseline value was calculated for each individual rat. At the end of the study, rats were euthanised with sodium pentobarbital (Euthatal) i.p. and brains removed for histological verification of probe placement. One week was left between each of the three protocols to ensure complete drug wash-out and minimise any carry over effects from the previous procedure.

Supplementary Figure 2

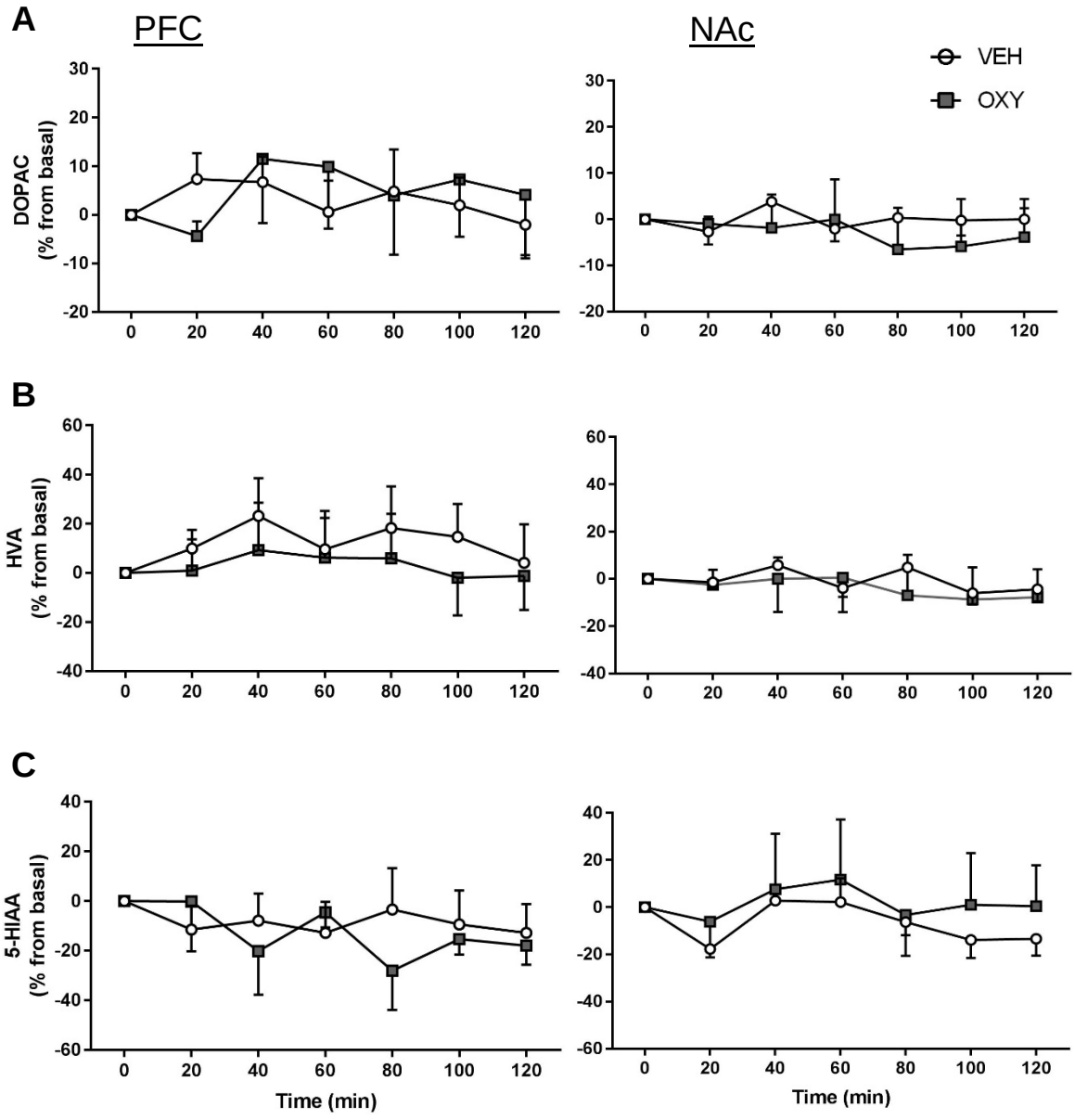


Figure 2S. Comparison of the effect of oxytocin (OXY, 0.1mg/kg; s.c.) and vehicle (VEH, 0.154M saline 1ml/kg) on the overflow (mean±SEM, as a percentage change from pre-drug baseline) of the monoamine metabolites A; DOPAC, B; HVA and C; 5-HIAA in the prefrontal cortex (PFC) and nucleus accumbens (NAc) measured by microdialysis in freely-moving rats. Oxytocin at a dose of 0.1mg/kg s.c. significantly elevated dopamine overflow in the NAc but not in the PFC, and had no effect on 5-HT efflux (see Figure 5 in the manuscript). This supplementary information shows that the selective elevation of NAc DA overflow produced by oxytocin was not accompanied by any concomitant significant alteration in any of the major metabolites of DA or 5-HT compared to that in vehicle-treated rats. Basal levels of A; DOPAC in the PFC (97.424 pmol/ml) and NAc (158.986 pmol/ml), B; HVA in the PFC (159.949 pmol/ml) and NAc (346.933 pmol/ml) and C; 5-HIAA in the PFC (56.364 pmol/ml) and NAc (68.460 pmol/ml) were unaltered over 2h post-injection (ANOVA revealed no significant effect of treatment or time ($p<0.05$)). DOPAC= 3,4-Dihyroxyphenylacetic acid, HVA=Homovanillic acid, 5-HIAA=5-hydroxyindoleacetic acid, VEH=saline vehicle, OXY=0.1mg/kg oxytocin; NAc n=8 per group and PFC n=7 VEH and 6 OXY.