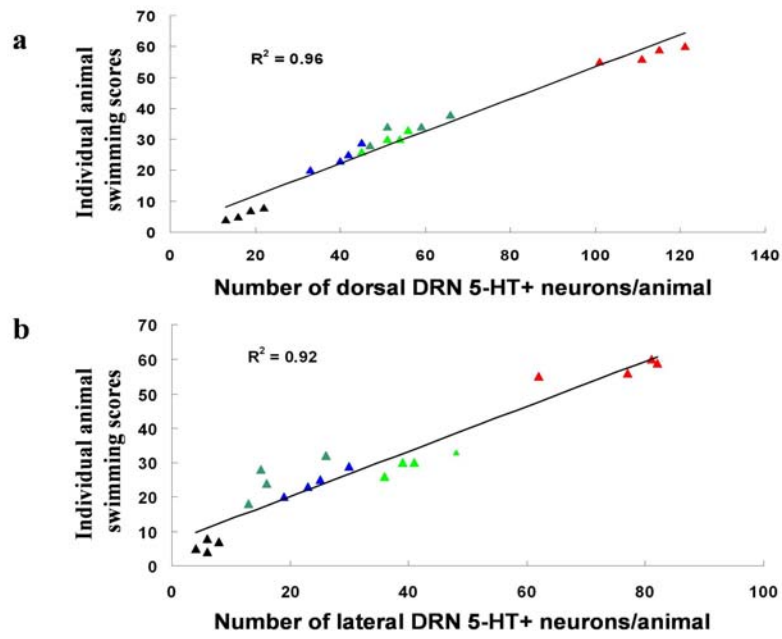
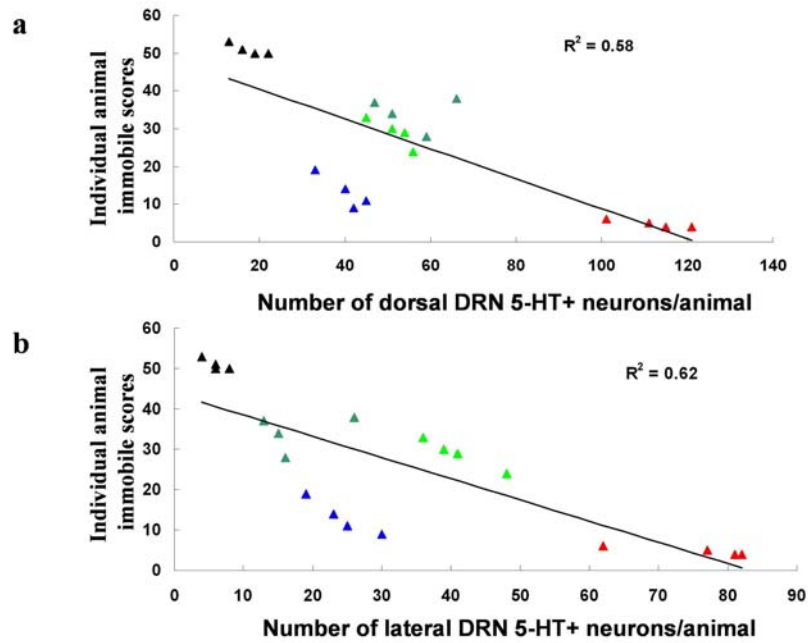


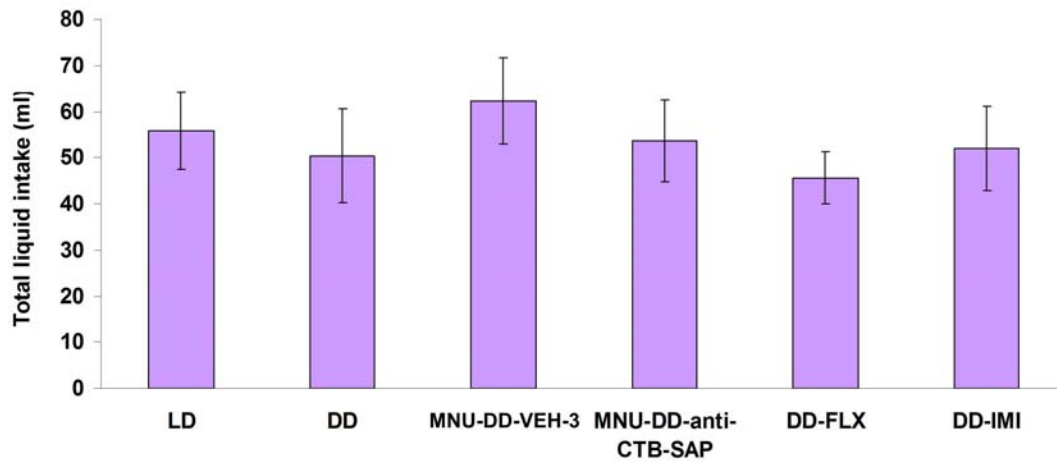
Supplementary Figure 1: Relationship between FST climbing scores and DRN 5-HT+ neurons in experimental groups. Climbing behavior is not correlated with the number of neurons expressing detectable levels of 5-HT in the DRN. LD (▲), DD (▲), MNU-DD (▲), MNU-DD-TTX (▲) and MNU-DD-SAP (▲).



Supplementary Figure 2: Relationship between FST swimming scores and DRN 5-HT+ neurons in experimental groups. Swimming behavior is positively correlated with the number of neurons expressing detectable levels of 5-HT in the dorsal (a) and lateral (b) regions of the DRN. LD (\blacktriangle), DD (\blacktriangle), MNU-DD (\blacktriangle), MNU-DD-TTX (\blacktriangle) and MNU-DD-SAP (\blacktriangle).



Supplementary Figure 3: Relationship between individual animal immobile scores in FST and DRN 5-HT+ neurons. Immobile behavior is negatively correlated with the number of neurons expressing detectable levels of 5-HT in the dorsal (a) and lateral (b) regions of the DRN. LD (\blacktriangle), DD (\blacktriangle), MNU-DD (\blacktriangle), MNU-DD-TTX (\blacktriangle) and MNU-DD-SAP (\blacktriangle).



Supplementary Figure 4: Total liquid intake of different groups in SPT. Total liquid intake (water plus sucrose solution) during 48 hour SPT was unchanged between each experimental groups (LD, DD, MNU-DD-VEH-3, MNU-DD-anti-CTB-SAP, DD-FLX, DD-IMI) ($F_{5,30}=0.58$, $p=0.72$). Results are presented as mean of total liquid intake \pm SEM.

Number of DRN-projecting alpha cells needed to tile up the retinal surface:	
Average dendritic field diameter (mm)	0.335±0.134
Number of alpha cells	57
Retinal area (mm ²) (5)	64
Average RF radius (mm)	0.168±0.067
Average RF area mm ²	0.089
Number of cells needed to cover the entire retinal surface	719

Supplementary Table 1: Number of DRN-projecting alpha RGCs needed to tile the retinal surface. Calculations used to determine the number of alpha RGCs needed to tile the retinal surface. Values in red from Berton and Nestler (2006); retinal surface area from Fite *et al.*, (1999); approximately 700 DRN-projecting alpha RGCs tile the retinal surface, a criterion to be considered a type of RGC (Luan *et al.*, 2011).

Movie S1-5.

1. Animals kept in normal 12L/12D condition for 14 days (LD).
2. Animals were light deprived for 14 days (DD).
3. Animals received MNU treatment and kept in DD for 14 days (MNU-DD).
4. MUN treated animals and DRN-projecting RGCs were eliminated (MNU-DD-anti-CTB-SAP).
5. Animals kept in DD and received FLX chronic treatment before FST (DD-FLX).
6. Animals kept in DD and received IMI chronic treatment before FST (DD-IMI).

References:

- Berton O, Nestler EJ (2006) New approaches to antidepressant drug discovery: beyond monoamines. *Nat. Rev. Neurosci* 7:137-51.
- Fite KV, Janusonis S, Foote W, Bengston L (1999) Retinal afferents to the dorsal raphe nucleus in rats and Mongolian gerbils. *J. Comp. Neurol* 414:469-84.
- Luan L, et al. (2011) Y-like retinal ganglion cells innervate the dorsal raphe nucleus in the Mongolian gerbil (*Meriones unguiculatus*). *PLoS One* 6:e18938.