**ULTRASTRUCTURAL ANALYSIS OF CORTICOTROPIN-RELEASING FACTOR REGULATION OF DOPAMINERGIC SIGNaling IN THE MIdRIBNAIN OF THE MACAQUE**

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**BACKGROUND**

- Dopamine (DA) is important in many fundamental behaviors including positive and negative reinforcement, decision making, working memory, incentive and stimulus salience and purposeful movement.
- This behavioral heterogeneity is due, in part, to the diverse phenotypic characteristics of DA neurons and of the brain structures with which they are connected.
- DA neurons receive excitatory, inhibitory and modulatory input from diverse sources.
- Corticotropin-releasing factor (CRF) is a neuropeptide shown to regulate dopaminergic signaling by modulating its signaling capabilities.
- DA is a key target of CRF in the ventral midbrain (fig. 4).
- Mesodiencephalic analysis in rodents has primarily focused on the ventral tegmental area (VTA) due to predominant efferent and afferent projections through this subregion (fig. 5).
- Evolutionary expansion of the ventral midbrain in primates results in differential efferent/afferent patterns (fig. 6).

- Progressive anatomic positional shifts in the main striatal paths in the primate. Neuropsychopharmacology 42, 1563-1576.

**RESULTS**

**Stereological analysis of TH/GAD-67 cells in PBP/A10 and RRF/A8**

- Pre-embedding dual-immunoperoxidase reactivity labels CRF+ axons and TH+ dendrites in the macaque midbrain.

**Extended Amygdala innervates PBP and RRF**

Extended amygdala is a CRF source

**What is the synaptic profile of CRF contacts onto DA+non-DA cells in PBP/A10 and RRF/A8 in midbrain of non-human primates?**

**Hypothesis**

- CRF+ fibers predominantly make symmetric contacts on NON-DA+ cells in PBP/A10 and RRF/A8 subpopulations in the macaque midbrain.

**CONCLUSIONS**

- Dopaminergic (TH+) vs GABAergic (GAD-67+) cell comparisons show significantly more DA+ cells in the parabrachial nucleus of the macaque midbrain. GAD-67+ were equally distributed across regions.
- CRF+ axons predominantly make symmetric (inhibitory) contacts on NON-DA+ cells in both PBP and RRF.

**REFERENCES**


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