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MEETING ABSTRACT

A7.1
Regulation of ribosomal S6 phosphorylation in D1R- and D2R-expressing striatal neurons
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The striatum and its ventral part, the nucleus accumbens (NAc) are critical input structures of the basal ganglia, an ensemble of subcortical nuclei enabling adaptive control of behavior. The output neurons of these structures, the GABAergic medium-sized spiny neurons (MSNs), comprising the striatonigral (D1R-MSNs) and striatopallidal MSNs (D2R-MSNs) are tightly modulated by dopamine-ergic inputs. Dysfunction of these circuits participates in various neurological and psychiatric disorders including Parkinson’s disease, obsessive–compulsive disorder, schizophrenia and addiction.

Regulation of gene transcription and mRNA translation are key mechanisms by which dopamine can control physiological and pathological striatal plasticity. We will present data showing that modulation of DA tone can induce a rapid regulation of the state of phosphorylation of the ribosomal protein S6 (rpS6), a component of the 40S ribosomal subunit. We also discuss recent findings suggesting that neither basal nor drug-induced transient rpS6 phosphorylation correlate with changes in global mRNA translation of global or 5’-terminal oligopyrimidine tract mRNAs. Finally, we will provide evidences that despite the lack of causal relationship between both events, rpS6 phosphorylation plays an important role in striatal plasticity.

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