

## **P6.02.**

### **Extracellular L-glutamate and L-aspartate responses in medial striatum (MSt) of freely behaving domestic chicks as revealed by capillary electrophoresis-coupled in vivo microdialysis.**

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In MSt, a coincidence between excitatory amino acid-related and dopaminergic inputs is necessary for memory consolidation. Furthermore, the extracellular L-glutamate (Glu) level in the MSt is sensitive to stress. Recent work from our laboratory has also revealed the presence of L-aspartate (Asp) in excitatory synapses of the MSt/nucl. accumbens of domestic chicks, presumably arising from the amygdala-equivalent arcopallium. In the present study we used in vivo capillary electrophoresis-coupled microdialysis to monitor the simultaneous changes of the extracellular levels of Asp and Glu. Microdialysis probes were stereotaxically implanted into the MSt/ nucl. accumbens of one-day-old chicks. Microdialysis samples were collected at 5 minute intervals, and analysed off-line. Event-related elevations of extracellular Glu and Asp concentrations in response to handling stress (150-200%) and to high KCl (300-1000%) were observed. In most cases, the amino acids showed correlated changes, Asp concentrations being consistently smaller at resting but approaching Glu during stimulation. We developed a novel method to detect neurochemical correlates of behaviour by in vivo microdialysis, coupled to capillary electrophoresis of high sensitivity and temporal resolution, in freely moving chicks. The results support the suggestion that Asp is co-released with Glu and may play a signaling role (as distinct from that of glutamate) in the striatum of birds.

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