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# Termination pattern and excitatory amino acid content of the amygdalo-accumbens pathway in the rat and the domestic chicken.

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The amygdalo-accumbens pathway mediates fear- and stress-related responses to the subpallial decision making centers. Here we report on an analysis of anatomical relations comparing young domestic chicks and adult rats. The animals were stereotaxically injected with the pathway tracers HRP or BDA, deposited in the amygdaloid arcopallium or in the basolateral amygdala of the chick or the rat, respectively. Following anterograde transport of tracers, labelled axon terminals were detected by EM in the nucl. accumbens of rats and the equivalent ventral striatal region of chickens. Using postembedding immunogold labelling against the excitatory amino acid transmitters L-glutamate (Glu) and L-aspartate (Asp), the type and chemical nature of terminals of identified origin could be verified. In both species, the axon terminals containing the tracer were axodendritic or axospinous, with asymmetrical synaptic specialization. Immunoreactivity to both Glu and Asp was present in the rat, the boutons appearing morphologically similar but Glu labelling was more abundant. In the chick Asp labelling of arcopallial – ventral striatal afferents was intense, while Glu also occurred, some terminals being double labelled. Our results support the role of Asp as neurotransmitter in the amygdalo-accumbens pathway. The observations may reflect interspecies differences or a selective and differential participation of the excitatory amino acids in the behavioural response of the animal.

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