

# Neural correlates of emotional face processing: the role of the cerebellum

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The posterior cerebellum has recently gained attention as a crucial structure of the social brain, mediating the processing of different social cues, including emotional facial expressions. Nevertheless, many open questions still remain regarding its causal contribution and functional role in this process. To address this gap in cerebellar knowledge, we performed a series of studies employing different transcranial magnetic stimulation (TMS) approaches, to explore the topographical organization of the causal contribution of the posterior cerebellum during the processing of facial expressions, the temporal course of its recruitment as well as its causal connectivity between other regions of the social brain (i.e., the posterior superior temporal sulcus, pSTS). We demonstrated the existence of a medial-to-lateral gradient in the functional topography of the cerebellar response to affective functions, with regions dedicated to the processing of emotional features of facial expressions located medially and those involved in higher-level social inferences located in more lateral sectors of the cerebellum. Moreover, we revealed, for the first time, that when processing emotional faces the posterior cerebellum is recruited in a specific time window (ranging from 120-220 ms from the face onset), with this recruitment being simultaneous to that of the pSTS. Lastly, we showed that pSTS recruitment during the perception of facial expressions is contingent on the level of cerebellar activation, providing evidence that cerebellar-to-pSTS communication is instrumental to processing emotions in others' faces.

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I molti volti del processamento dei volti

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No

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