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NEURAL ACTIVITIES IN AN AWAKE CHIMPANZEE IN RESPONSE TO AFFECTIVE AND SELF-RELEVANT STIMULI: VISUAL AND AUDITORY ERPs

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The environment is full of sensory stimuli. It is to our advantage to focus on adaptively significant stimuli. How are these stimuli processed in chimpanzee brain? This presentation reports on two ERP studies concerned with this topic (These studies were approved by the Animal Welfare and Animal Care Committee of the University of Tokyo and Hayashibara Biochemical Laboratories, Inc.). One is the study on neural processing of subject's own name. Event-related potentials of a fully awake chimpanzee were measured for each of the following auditory stimuli: vocal sound of subject's own name, familiar name of other group member, unfamiliar name, and non-vocal sound. Following stimulus onset, a negative shift at approximately 500ms latency was observed, in particular with response to subject's own name. Such specific ERP patterns suggested that a chimpanzee processes her name differently from other sounds. Another ERP study reveals brain activities in response to various kinds of pictures which are assumed to differ in affective valences for a subject. Following stimulus onset, ERPs differentiated at approximately 250 ms with regard to stimulus type. It was implied that a chimpanzee starts to process affective valence from such an early stage.

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