

# Reflex Suppression in the Anti-Saccade Task Is Dependent on Prestimulus Neural Processes

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Everling, Stefan, Michael C. Dorris, and Douglas P. Munoz. Reflex suppression in the anti-saccade task is dependent on prestimulus neural processes. *J. Neurophysiol.* 80: 1584–1589, 1998. Reflexive responses often must be suppressed to correctly execute a voluntary behavior. It is largely unknown why this control sometimes fails. To examine the neural processes responsible for these failures, we recorded single-neuron activity in the superior colliculus (SC) in behaving monkeys during an anti-saccade task in which they had to suppress a saccade to a visual stimulus that suddenly appeared in the periphery and generate a saccade to the opposite side. We found that the level and distribution of prestimulus activity of buildup neurons in the SC was highly predictive of whether a correct response or an error occurred. A high level of prestimulus activity in buildup neurons at the location in the SC where the visual stimulus was represented was associated with the generation of a reflexive saccade to the stimulus. These findings suggest that the successful suppression of reflexive saccades is dependent on prestimulus neural processes in the SC.