

**SPATIALLY CONGRUENT AUDITORY AND VISUAL RESPONSES IN MACAQUE AREA VIP.** A. Schlack\*, S. Sterbing, K. Hartung, K.-P. Hoffmann, F. Bremmer. Department of Zoology & Neurobiology, Ruhr-University, D-44780 BOCHUM, Germany

The macaque ventral intraparietal area (VIP) is thought to play an important role in navigating the head in near extrapersonal space. As many neurons in area VIP are multimodal it is most likely that the available polysensory information is used for this purpose. Up to now neuronal responses to visual, tactile and vestibular stimuli have been shown. However, information provided by the auditory system may also be useful and important for the guidance of movements. We were therefore interested in whether neurons in area VIP respond to auditory stimulation.

We recorded single unit activity in area VIP of one awake behaving monkey (*M. mulatta*) during exposure to auditory and visual stimuli. The monkey was seated in a primate chair with the head fixed and the eyes fixating a central target. For auditory stimulation white noise bursts (80 ms duration, 5 ms ramps), which were filtered with individually measured head-related transfer functions, were presented via calibrated headphones. The stimuli could thus be positioned at various distinct virtual positions in the environment. The visual receptive fields (RFs) were mapped with stimulation patches of 10°x10° visual angle presented at non-overlapping locations on a projection screen. With this experimental setup we were able to measure both the auditory and the visual RFs and compare their spatial locations.

Reliable visual and auditory RFs could be measured for 85% of the neurons. About 60% of these responsive cells revealed a similar response pattern, i.e. RFs in the two sensory domains were spatially congruent. In addition 20% of the neurons showed a complementary tuning, i.e. auditory stimuli led to an inhibition at the spatial position of the visual RF and vice versa. The remaining 20% of the neurons showed no clear relationship between the RFs in the two modalities.

We conclude that cells in area VIP process also auditory spatial information and that their spatial code is congruent across sensory modalities.

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