Title: Novel foveal representations in human ventro-lateral cortex

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Abstract:

INTRODUCTION. Human lateral occipital cortex has historically been described as a region that does not contain retinotopic organization. Recently, Larsson *et al.* (2006) have defined two hemifield maps on the dorsal aspect of lateral visual cortex, LO-1 and LO-2. We have now identified an additional map ventral to these regions. Here we further investigate the organization and stimulus selectivity of this region.

METHODS. We used traveling wave fMRI measurements to investigate retinotopic organization in ventro-lateral visual cortex. Rotating wedge and expanding ring stimuli with contrast reversing radial checkerboards 3° in radius were used as the stimuli. We additionally measured the population receptive fields in this foveal map and surrounding cortex (Dumoulin and Wandell, 2008). Finally, overlapping color, face and object-responsive regions were isolated with standard localizer scans.

RESULTS. There are novel foveal representations located on the ventro-lateral surface of the extrastriate cortex abutting the previously defined regions VO-1 and VO-2 (e.g., Brewer *et al.*, 2005). In addition, the population receptive field sizes are larger across this region in comparison to early visual cortex.

CONCLUSION. These results suggest that ventro-lateral occipital cortex contains additional foveal representations in regions previously thought to be non-retinotopic.

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