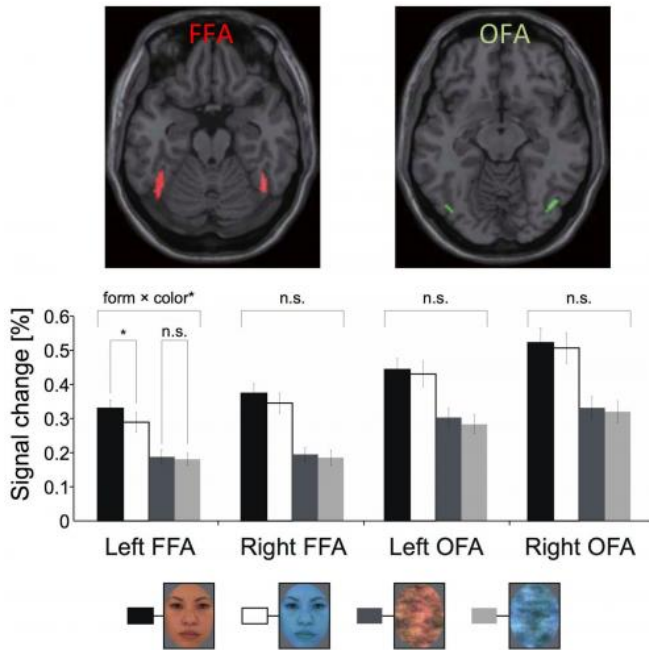


Brain regions sensitive to facial color processing

25 June 2014



Results of fMRI scanning human brains. Only left FFA is sensitive to facial color differences.

Toyohashi Tech researchers in cooperation with researchers at National Institute for Physiological Sciences have found brain regions sensitive to natural-colored faces rather than bluish-colored face. These regions may contribute to improve understanding others' affection and health from faces.

Facial color provides important clues to recognize a person's emotion and health, and is therefore facial color contains important information for social communication.

Previous research published by Tetsuto Minami and colleagues at the Electronics-Inspired Interdisciplinary Research Institute (EIIRIS) at Toyohashi Tech based on electroencephalography (EEG) has shown that the face-sensitive event

related potential (ERP) component (N170) is modulated by facial color, which suggests that face color is important for face detection (Minami et al. *Neuroscience*, 176, 265-73, (2011)). Moreover, the sensitivity of N170 was found at the left occipito-temporal site (Nakajima et al., *Neuropsychologia*, 50, 2499-505, (2012)).

However, it is not clear which region of the brain is involved in facial color processing because spatial resolution of EEG is not sufficient.

Here, Tetsuto Minami and colleagues at Electronics-Inspired Interdisciplinary Research Institute (EIIRIS) at Toyohashi Tech and at National Institute for Physiological Sciences, report on the [brain regions](#) sensitive to color information for face processing.

The present study aimed to identify the brain regions related to facial color processing by using functional magnetic resonance imaging (fMRI). The researchers measured the brain activity from 25 participants during the presentation of natural- and bluish-colored [faces](#) and other scrambled images. Face-selective regions of interest (ROIs) were identified separately for each subject and hemisphere of the brain.

As a result, the bilateral fusiform face area (FFA) and occipital face area (OFA) were identified as brain areas that were activated more to natural-colored faces than to natural-colored scrambled images. The ROI analysis showed that the left FFA was sensitive to facial color, whereas the right FFA was not. Furthermore, the right and left OFA were insensitive to facial color. Thus, we have a special neural processing for facial color information at the left fusiform area of the cortex.

More information: Kae Nakajima et al. "Facial color processing in the face-selective regions: An fMRI study." *Human Brain Mapping* Published online ahead of print, 23 Apr 2014). [DOI:](#)

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