Chem. Senses 28: 267, 2003

CORRIGENDUM

Sensitivity-dependent Hierarchical Receptor Codes for Odors

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Chemical Senses, 28, 87–104

Regrettably, an error occurred in the abstract of this article. The third sentence was incorrect and should have read 'The chiral-non-discriminating receptors were newly recruited 3.7 times of *R*(–)-carvone-sensitive receptors and totally became 2.8 times (39/14) of *R*(–)-carvone-sensitive receptors in the subpopulations when the stimulus concentration was increased 10-fold.'

The complete corrected abstract is printed below:

Abstract

In order to comprehend the strategy of odor encoding by odorant receptors, we isolated 2740 mouse receptor neurons from four olfactory epithelial zones and classified them in terms of their sensitivities and tuning specificities to a chiral pair of odorants, *S*(+)-carvone (caraway-like odor) and *R*(–)-carvone (spearmint-like odor). Our approach revealed that the majority of receptors at the lowest effective stimulus concentration represented the principal odor qualities characteristic of each enantiomer by means of the principal odor qualities of the odorants for which the receptors were most sensitive. The chiral-non-discriminating receptors were newly recruited 3.7 times of *R*(–)-carvone-sensitive receptors and totally became 2.8 times (39/14) of *R*(–)-carvone-sensitive receptors in the subpopulations when the stimulus concentration was increased 10-fold. More than 80% of the responsive receptors (an estimated 70 $\pm$ α types) exhibited overlapping sensitivities between the enantiomers. The signals from the non-discriminating receptors may be reduced to decode the characteristic odor identity for *R*(–)-carvone in the brain over an adequate range of stimulus strengths. The information processing of odors appears to involve the selective weighting of the signals from the most sensitive receptors. An analysis of the overall receptor codes to carvones indicated that the system employs hierarchical receptor codes: principal odor qualities are encoded by the most sensitive receptors and lower-ranked odor qualities by less sensitive receptors.