

Olfactory sensitivity in CD-1 mice for “green” odors

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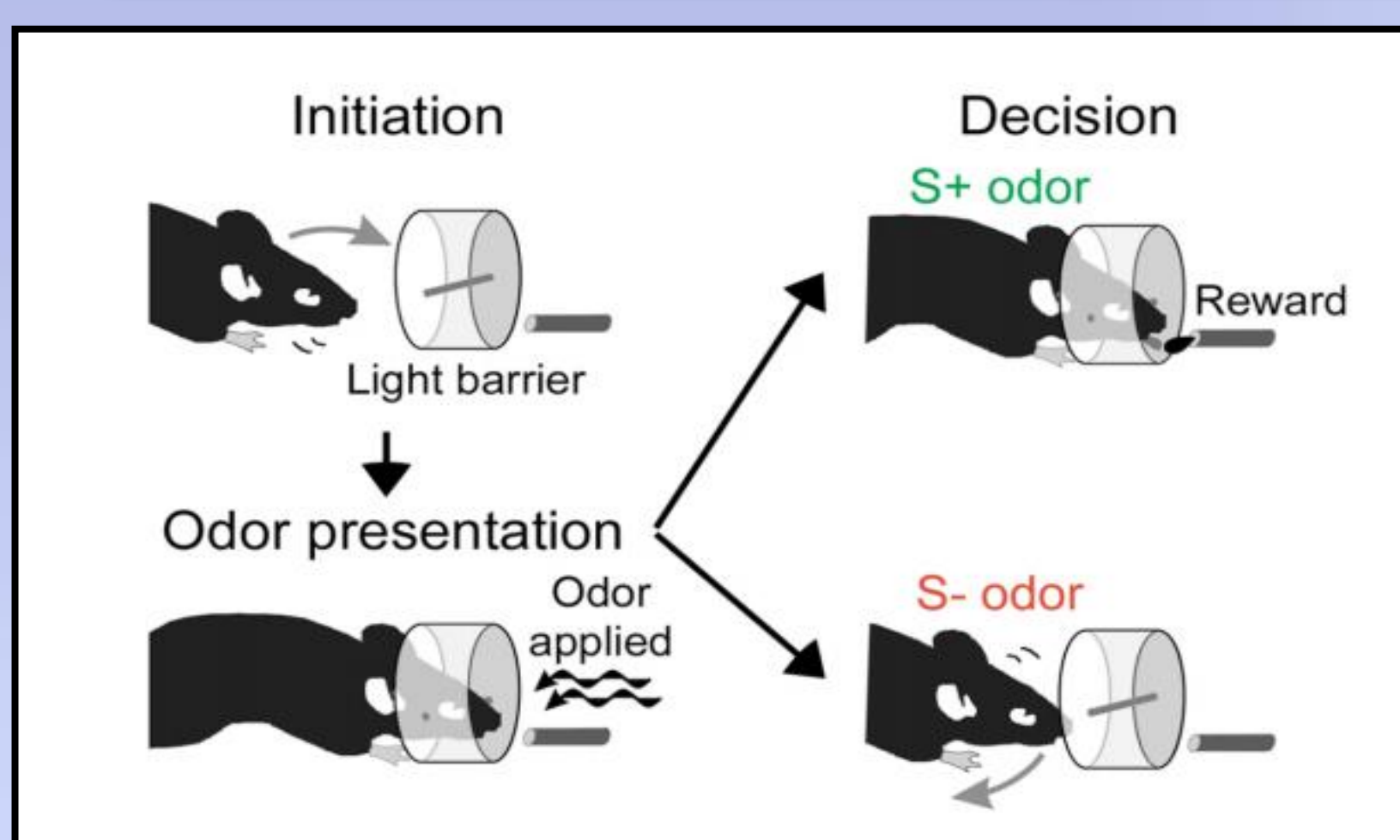
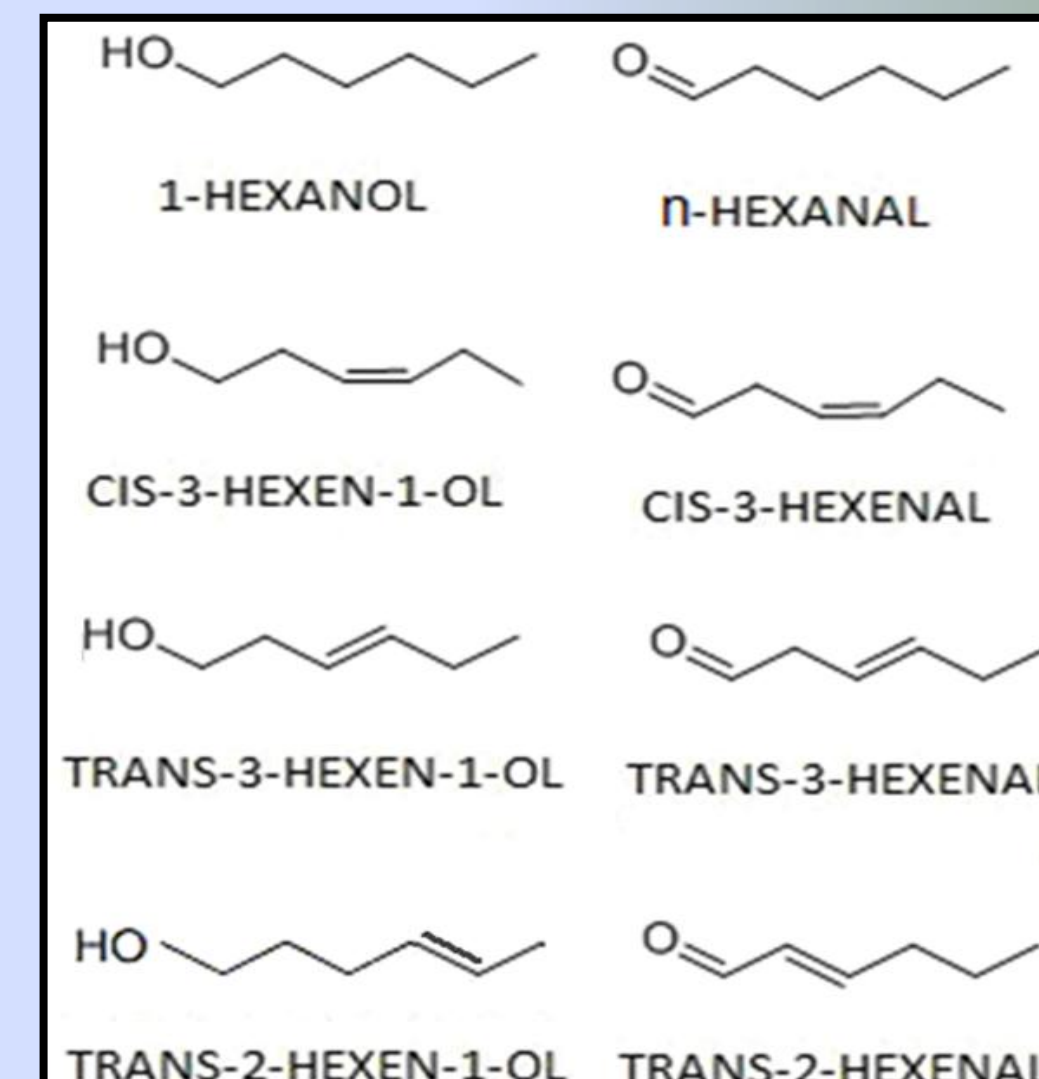
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Background and Aim:

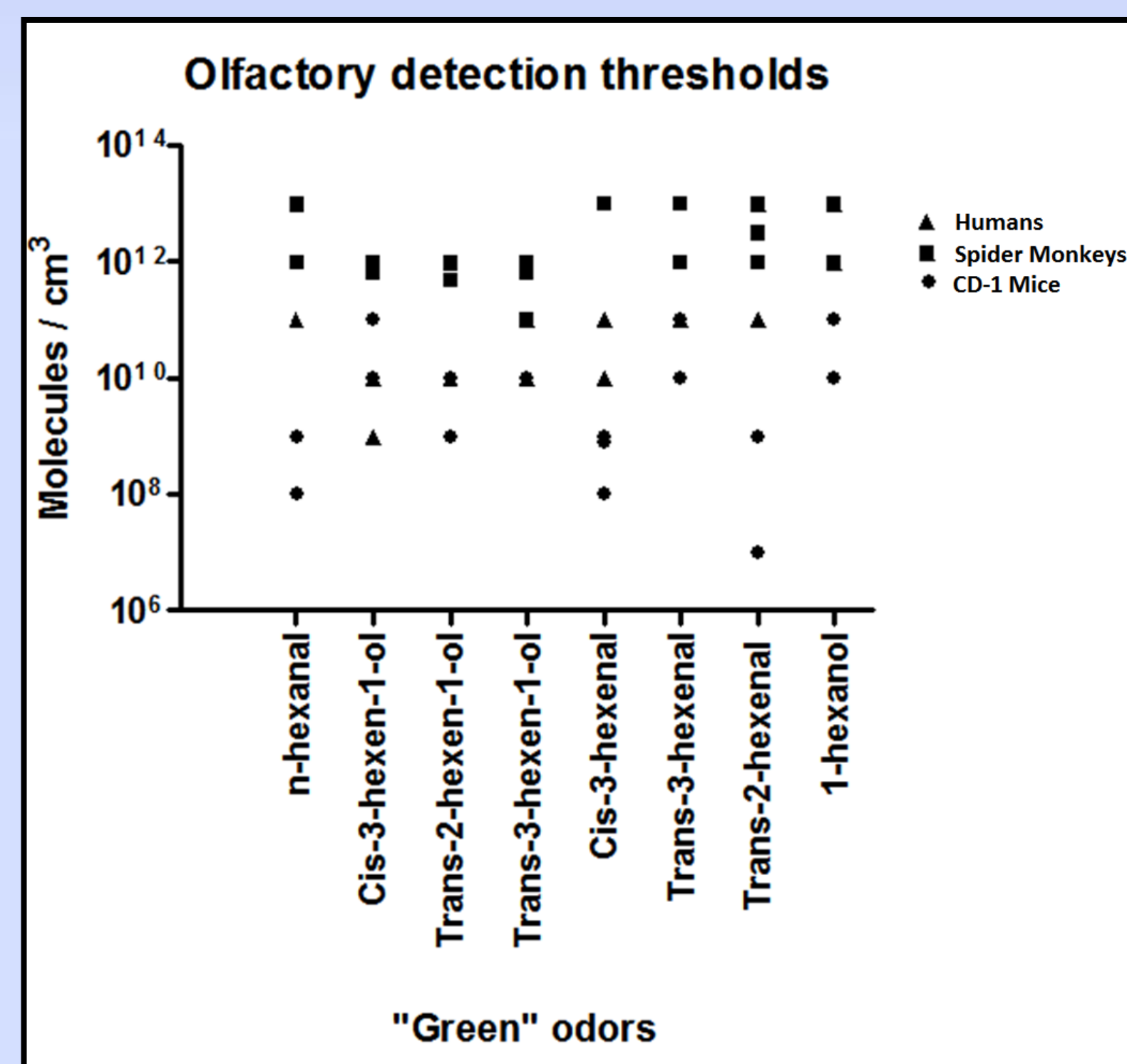
The mouse is used as a model organism to study the anatomy, physiology, development, genetics of olfaction and also the basic mechanism underlying the neural coding of olfactory sensitivity. “Green” odors are characteristic for the odor of a wide variety of plant materials. The aim of the present study is

1. to determine olfactory detection thresholds in CD-1 mice for “green” odors,
2. to assess the impact of molecular structural features on detectability of the odorants tested,
3. to compare the threshold data obtained here to those of other species tested previously on the same set of odorants.



Methods

Using an automated olfactometer, the olfactory detection thresholds for eight “green” odors were determined in six CD-1 mice.



Results:

➤ Threshold values of the best performed animal reached as low as 3ppb (Parts per billion) for 1-hexanol, Cis-3-hexen-1-ol, trans-3-hexen-1-ol and trans-3-hexenal; 0.3ppb for trans-2-hexen-1-ol; 0.03 ppb for n-hexanal and cis-3-hexenal ; 0.003 ppb for trans-2-hexenal

➤ Statistical analysis shows that the CD-1 mice scored significantly lower thresholds for aldehyde “green” odors than the alcohol “green” odors. No statistical difference between the threshold values of “green” odors with double bond and without double bond and between the threshold values of cis-configuration and trans-configuration “green” odors was found (Wilcoxon signed rank test; $p < 0.05$).

➤ CD-1 mice are more sensitive towards all the “green” odors than humans and spider monkeys except for cis-3-hexen-1-ol.

Conclusion:

➤ CD-1 mice have lower detection thresholds for “green” odors compared to human subjects and spider monkeys except for cis-3-hexen-1-ol.

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