

GOOGLE SCHOLAR (11/2025):

H-Index: 39 / Citations: 8147 (since 2020: 3250)

Peer-reviewed publications (*senior author):

1. Keeseey, I., Doll, G., Das Chakraborty, S., Baschwitz, A., Lemoine, M., Kaltenpoth, M., Svatoš, A., **Sachse, S.**, Knaden, M.*, Hansson, B. S.* (2025). Neuroecology of alcohol risk and reward: Methanol boosts pheromones and courtship success in *Drosophila melanogaster*. *Science Advances* 11 (14), eadi9683.
2. Dzialo, M. C.; Arumugam, S.; Piampongsant, S.; Cool, L.; Vanderaa, C.; Herrera-Malaver, B.; Opsomer, T.; Dehaen, W.; Wenseleers, T.; Roncoroni, M.; Alawamleh, A.; Wäckers, F.; Lievens, B.; Hansson, B.S.; Voordeckers, K.; **Sachse S.***; Verstrepen, K.J.* (2024). *Drosophila suzukii* and *Drosophila melanogaster* prefer distinct microbial and plant aroma compounds in a complex fermented matrix. *iScience* 25 (11), 111141.
3. Jiang, X.; Dimitriou, E.; Grabe, V.; Sun, R.; Chang, H.; Zhang, Y.; Gershenzon, J.; Rybak, J.; Hansson, B. S.*; **Sachse, S.*** (2024). Ring-shaped odor coding in the antennal lobe of migratory locusts. *Cell* 187 (15), pp. 13973-3991.
4. Schuh, E.; Cassau, S.; Ismaieel, A. R.; Stieber, R.; Krieger, J.; Hansson, B. S.; **Sachse, S.**; Bisch-Knaden, S. (2024). Females smell differently: characteristics and significance of the most common olfactory sensilla of female silkmths. *Proceedings of the Royal Society B: Biological Sciences* 291 (2015), 0232578.
5. Depetris-Chauvin, A.; Galagovsky, D.; Keeseey, I. W.; Hansson, B. S.; **Sachse, S.***; Knaden, M.* (2023). Evolution at multiple processing levels underlies odor-guided behavior in the genus *Drosophila*. *Current Biology* 33 (22), pp. 4771-4785.
6. Bandyopadhyay, P.; **Sachse, S.*** (2023). Mixing things up! — How odor blends are processed in *Drosophila*. *Current Opinion in Insect Science* 101099.
7. Fischer, M. L.; Fabian, B.; Pauchet, Y.; Wielsch, N.; **Sachse, S.**; Vilcinskas, A.; Vogel, H.* (2023). An assassin's secret: multifunctional cytotoxic compounds in the predation venom of the assassin bug *Psytalla horrida* (Reduviidae, Hemiptera). *Toxins* 15 (4), 302.
8. Fabian, B.; **Sachse, S.*** (2023). Experience-dependent plasticity in the olfactory system of *Drosophila melanogaster* and other insects. *Frontiers in Cellular Neuroscience* 17, 1130091.
9. Anton, S.; **Sachse, S.**; Huber, R. (2023). Editorial: Insights in invertebrate physiology 2021. *Frontiers in Physiology* 14, 1157932.
10. Thiagarajan, D.; Eberl, F.; Grabe, V.; Hansson, B. S.; Knaden, M.; **Sachse, S.*** (2022). Aversive bimodal associations impact visual and olfactory memory performance in *Drosophila*. *iScience* 25, 105485.
11. Das Chakraborty, S.; Chang, H.; Hansson, B. S.*; **Sachse, S.*** (2022). Higher-order olfactory neurons in the lateral horn supports odor valence and odor identity coding in *Drosophila*. *eLife* 11, e74637.
12. Thiagarajan, D.; **Sachse, S.*** (2022). Multimodal information processing and associative learning in the insect brain. *Insects* 13 (4), 332.
13. Rihani, K.; **Sachse, S.*** (2022). Shedding light on inter-individual variability of olfactory circuits in *Drosophila*. *Frontiers in Behavioral Neuroscience* 16, 835680.

14. Knaden, M.; Anderson, P.; Andersson, M. N.; Hill, S. R.; **Sachse, S.**; Sandgren, M.; Stensmyr, M. C.; Löfstedt, C.; Ignell, R.; Hansson, B. S.* (2022). Human impacts on insect chemical communication in the Anthropocene. *Frontiers in Ecology and Evolution* 10, 791345.
15. Campetella, F.; Ignell, R.; Beutel, R.; Hansson, B. S.; **Sachse, S.*** (2021). Comparative dissection of the peripheral olfactory system of the Chagas disease vectors *Rhodnius prolixus* and *Rhodnius brethesi*. *PLoS Neglected Tropical Diseases* 15 (4), e0009098.
16. Das Chakraborty, S., **Sachse, S.*** (2021). Olfactory processing in the lateral horn of *Drosophila*. *Cell and Tissue Research*, 383, pp. 113-123.
17. **Sachse, S.***, Manzini, I.* (2021). Editorial for the special issue "Olfactory coding and circuitries". *Cell and Tissue Research*, 383, pp. 1-6.
18. Vulpe, A.; Kim, H. S.; Ballou, S.; Wu, S.-T.; Grabe, V.; Gonzales, C. N.; **Sachse, S.**; Jeanne, J. M.; Su, C.-Y.; Menuz, K.* (2021). An ammonium transporter is a non-canonical olfactory receptor for ammonia. *Current Biology* 31 (15), pp. 1-9.
19. Grabe, V., Schubert, M., Strube-Bloss, M., Reinert, A., Trautheim, S., Lavista-Llanos, S., Fiala, A., Hansson, B. S., **Sachse, S.*** (2020). Odor-induced multi-level inhibitory maps in *Drosophila*. *eNeuro*, 7(1), 1-18.
20. Khallaf, M. A., Auer, T. O., Grabe, V., Depetris-Chauvin, A., Ammagarahalli, B., Zhang, D.-D., Lavista-Llanos, S., Kaftan, F., Weißflog, J., Matzkin, L. M., Rollmann, S. M., Löfstedt, C., Svatoš, A., Dweck, H., **Sachse, S.**, Benton, R., Hansson, B. S.*, Knaden, M.* (2020). Mate discrimination among subspecies through a conserved olfactory pathway. *Science Advances*, 6(25): eaba5279.
21. Mohamed, A., **Sachse, S.*** (2020). Everyone on their own! Individualization of synaptic boutons. *Neuron*, 106(6), 875-878.
22. Miazzi, F., Hoyer, C., **Sachse, S.**, Knaden, M., Wicher, D., Hansson, B. S., Lavista Llanos, S.* (2019). Optimization of insect odorant receptor trafficking and functional expression via transient transfection in HEK293 cells. *Chemical Senses*, 44(9), 673-682.
23. Mohamed, A., Hansson, B. S., **Sachse, S.*** (2019). Third-order neurons in the lateral horn enhance bilateral contrast of odor inputs through contralateral inhibition in *Drosophila*. *Frontiers in Physiology*, 10: 851.
24. Mohamed, A. M. M., Retzke, T., Das Chakraborty, S., Fabian, B., Hansson, B. S., Knaden, M.*, **Sachse, S.*** (2019). Odor mixtures of opposing valence unveil inter-glomerular crosstalk in the *Drosophila* antennal lobe. *Nature Communications*, 10: 1201.
25. Bisch-Knaden, S., Dahake, A., **Sachse, S.**, Knaden, M., Hansson, B. S.* (2018). Spatial representation of feeding and oviposition odors in the brain of a hawkmoth. *Cell Reports*, 22(9), 2482-2492.
26. Grabe, V., **Sachse, S.*** (2018). Fundamental principles of the olfactory code. *Biosystems*, 164, 94-101.
27. Das, S., Trona, F., Khallaf, M. A., Schuh, E., Knaden, M., Hansson, B. S., **Sachse, S.*** (2017). Electrical synapses mediate synergism between pheromone and food odors in *Drosophila melanogaster*. *PNAS*, 114(46), E9962-E9971.
28. Seki, Y.*, Dweck, H., Rybak, J., Wicher, D., **Sachse, S.**, Hansson, B. S.* (2017). Olfactory coding from the periphery to higher brain centers in the *Drosophila* brain. *BMC Biology*, 15: 56.

29. Strube-Bloss, M., Grabe, V., Hansson, B. S., **Sachse, S.*** (2017). Calcium imaging revealed no modulatory effect on odor-evoked responses of the *Drosophila* antennal lobe by two populations of inhibitory local interneurons. *Scientific Reports*, 7: 7854.
30. Badeke, E., Haverkamp, A., Hansson, B. S., **Sachse, S.*** (2016). A challenge for a male noctuid moth? Discerning the female sex pheromone against the background of plant volatiles. *Frontiers in Physiology*, 7: 143.
31. Grabe, V., Baschwitz, A., Dweck, H., Lavista Llanos, S., Hansson, B. S., **Sachse, S.*** (2016). Elucidating the neuronal architecture of olfactory glomeruli in the *Drosophila* antennal lobe. *Cell Reports*, 16, 3401-3413.
32. **Sachse, S.***, Beshel, J.* (2016). The good, the bad, and the hungry: how the central brain codes odor valence to facilitate food approach in *Drosophila*. *Current Opinion in Neurobiology*, 40, 53-58.
33. Zielonka, M., Gehrke, P., Badeke, E., **Sachse, S.**, Breer, H., Krieger, J.* (2016). Larval sensilla of the moth *Heliothis virescens* respond to sex pheromone components. *Insect Molecular Biology*, 25(5), 666-678.
34. Campetella, F., **Sachse, S.*** (2015). To mate or not to mate. *Elife*, 4: e13093.
35. Dweck, H., Ebrahim, S., Thoma, M., Mohamed, A., Keeseey, I., Trona, F., Lavista Llanos, S., Svatoš, A., **Sachse, S.**, Knaden, M., Hansson, B. S.* (2015). Pheromones mediating copulation and attraction in *Drosophila*. *PNAS*, 112(21), E2829-E2835.
36. Ebrahim, S. A. M., Dweck, H., Stökl, J., Hofferberth, J. E., Trona, F., Weniger, K., Rybak, J., Seki, Y., Stensmyr, M. C., **Sachse, S.**, Hansson, B. S.*, Knaden, M.* (2015). *Drosophila* avoids parasitoids by sensing their semiochemicals via a dedicated olfactory circuit. *PLoS Biology*, 13(12): e1002318.
37. Grabe, V., Strutz, A., Baschwitz, A., Hansson, B. S., **Sachse, S.*** (2015). A digital in vivo 3D atlas of the antennal lobe of *Drosophila melanogaster*. *The Journal of Comparative Neurology*, 523(3), 530-544.
38. Lébreton, S., Trona, F., Borrero-Echeverry, F., Bilz, F., Grabe, V., Becher, P. G., Carlsson, M. A., Nässel, D. R., Hansson, B. S., **Sachse, S.**, Witzgall, P.* (2015). Feeding regulates sex pheromone attraction and courtship in *Drosophila* females. *Scientific Reports*, 5: 13132.
39. Bisch-Knaden, S., Daimon, T., Shimada, T., Hansson, B. S.*, **Sachse, S.*** (2014). Anatomical and functional analysis of domestication effects on the olfactory system of the silkmoth *Bombyx mori*. *Proceedings of the Royal Society B: Biological Sciences*, 281: 20132582.
40. Lébreton, S., Grabe, V., Omondi, A. B., Ignell, R., Becher, P. G., Hansson, B. S., **Sachse, S.**, Witzgall, P.* (2014). Love makes smell blind: mating suppresses pheromone attraction in *Drosophila* females via Or65a olfactory neurons. *Scientific Reports*, 4: 7119.
41. Schubert, M., Hansson, B. S.*, **Sachse S.*** (2014). The Banana Code – Natural Blend Processing in the Olfactory Circuitry of *Drosophila melanogaster*. *Frontiers in Physiology*, 5, (59) *share last authorship equally.
42. Strutz, A., Soelter, J., Baschwitz, A., Farhan, A., Grabe, V., Rybak, J., Knaden, M., Schmuker, M., Hansson, B. S., **Sachse, S.*** (2014). Decoding odor quality and intensity in the *Drosophila* brain. *Elife*, 3: e04147.
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45. Gabler, S., Soelter, J., Hussain, T., **Sachse, S.**, Schmuker, M.* (2013). Physicochemical vs. vibrational descriptors for prediction of odor receptor responses. *Molecular Informatics*, 32(9-10), 855-865.
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50. Stensmyr, M.C., Dweck, H., Farhan, A., Ibba, I., Strutz, A., Mukunda, L., Linz, J., Grabe, V., Steck, K., Lavista Llanos, S., Wicher, D., **Sachse, S.**, Knaden, M., Becher, P.G., Seki, Y., Hansson, B.S.* (2012). A conserved dedicated olfactory circuit for detecting harmful microbes in *Drosophila*. *Cell*, 151(6), 1345-1357.
51. Reinert, A., Barapatre, N., **Sachse, S.**, Reinert, T.* (2011). μ PIXE for a μ Brain: The vinegar fly's brain, antenna, sensilla hairs and eye ion concentrations. *Nuclear Instruments and Methods in Physics Research Section B*, 269, 2292-2296.
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53. Seki, Y., Rybak, J., Wicher, D., **Sachse, S.**, Hansson, B.S.* (2010). Physiological and morphological characterization of local interneurons in the *Drosophila* antennal lobe. *Journal of Neurophysiology*, 104, 1007-1019.
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55. Hansson, B., Knaden, M., **Sachse, S.**, Stensmyr, M., Wicher, D. (2010). Towards plant-odor-related olfactory neuroethology in *Drosophila*. *Chemoecology*, 20, 51-61.
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58. Benton, R., **Sachse, S.**, Michnick, S.W., Vosshall, L.B.* (2006). Atypical membrane topology and heteromeric function of *Drosophila* odorant receptors in vivo. *PLoS Biology*, 4, 240-257.
59. Galizia, C.G., Kunze, J., Gumbert, A., Borg-Karlson, A.-K., **Sachse, S.**, Markl, C., Menzel, R.* (2005). Relationship of visual and olfactory signal parameters in a food-deceptive flower mimicry system. *Behavioral Ecology* 16, 159-168.

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62. **Sachse, S.**, Galizia, C.G.* (2003). The coding of odour-intensity in the honeybee antennal lobe: local computation optimizes odour representation. *European Journal of Neuroscience*, 18, 2119-2132.
63. **Sachse, S.** & Galizia, C.G. (2003). Duftrepräsentation im Antennallobus der Honigbiene *Apis mellifera*. *Neuroforum* 2/03:58-63.
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Manuscripts on Preprint Server:

1. Campetella, F., Huber, R., Klappenbach, M., Warnecke, C., Locatelli, F., Felsenberg, J., Hansson, B. S., Knaden, M., **Sachse, S.***. Olfactory learning modulates a neural circuit mediating innate odor-guided behavior in *Drosophila*. *BioRxiv*. doi: 10.1101/2023.09.20.558596.
2. Fabian, B., Grabe, V., Beutel, R. G., Hansson, B. S., **Sachse, S.***. Experience-dependent plasticity of a highly specific olfactory circuit in *Drosophila melanogaster*. *BioRxiv*. doi: 10.1101/2023.07.26.550642.

Book Chapters:

1. **Sachse, S.**, Hansson, B. S. (2016). Research spotlight: Olfactory coding in *Drosophila melanogaster*. In A. Schmidt-Rhaesa, S. Harzsch, G. Purschke (Eds.), *Structure and Evolution of Invertebrate Nervous Systems* (pp. 640-645). Oxford: Oxford University Press.
2. Strutz, A., Völler, T., Riemensperger, T., Fiala, A.*, **Sachse, S.*** (2012). Calcium imaging of neural activity in the olfactory system of *Drosophila*. In J.-R. Martin (Ed.), *Neuromethods / Genetically Encoded Functional Indicators*, New York, NY, USA: Springer Science+Business Media, LLC (Vol. 72, pp. 43-70).

3. Galizia C.G., **Sachse S.** (2010). Odor Coding in Insects. In A. Menini (Ed.), *Frontiers in Neuroscience / The Neurobiology of Olfaction*, Sidney A.S, Miguel A. L (Eds.), CRC Press (Taylor & Francis Group), Boca Raton - London - New York (pp. 35-70).
4. Friedrich, R.W., Firestein, S., Galizia, C.G., Greer, C.A., Laurent, G., Lledo, P.M., Mombaerts, P., **Sachse, S.** (2006). Group Report: Olfactory Microcircuits. In S. Grillner (Ed.), *Dahlem Workshop Report / Microcircuits: The interface between neurons and global brain function*, Cambridge, MA: The MIT Press, (pp. 275-294).
5. **Sachse, S.** & Galizia, C.G. (2006). Topography and dynamics of the olfactory system. In S. Grillner (Ed.), *Dahlem Workshop Report / Microcircuits: The interface between neurons and global brain function*, Cambridge, MA: The MIT Press, (pp. 251-274).
6. **Sachse, S.** & Galizia, C.G. (2003). Duftrepräsentation im Antennallobus der Honigbiene *Apis mellifera*. *Neuroforum* 2/03:58-63.
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