Representation and processing of odor information in the antennal lobe of *Drosophila melanogaster*

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Ana Florencia Silbering
aus Buenos Aires, Argentinien

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1. Gutachter: Prof. Dr. Randolf Menzel
2. Gutachter: Prof. Dr. C. Giovanni Galizia

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Chapters I and II are based on the following manuscripts:

I. Odor concentration coding in the antennal lobe of *Drosophila melanogaster*

Silbering, A.F.; Okada, R.; Ito, K. and Galizia, C.G.

II. Global inhibition and glomerulus specific connections shape the output of the antennal lobe in *Drosophila*

Silbering, A.F. and Galizia, C.G.

The following people contributed to these manuscripts:

I. I performed all PN and LN recordings and some OSN recordings, analyzed the data and wrote the manuscript. R. Okada and K. Ito obtained and provided LN fly strains. Beate Eisermann performed most OSN recordings. Experimental design, data analysis and the manuscript were discussed with Giovanni Galizia.

II. I performed all experiments and data analysis, and wrote the manuscript. Experimental design data analysis and the manuscript were discussed with Giovanni Galizia.

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Abbreviations

ACh	Acetyl choline
AL	Antennal lobe
cAMP	cyclic adenosine monophosphate
GABA	γ-amino butyric acid
GPCR	G-protein coupled receptor
IP_3	Inositol triphosphate
KC	Kenyon cell
LN	Local neuron
MC	Mitral cell
OB	Olfactory bulb
Or	Odorant receptor gene
OR	Odorant receptor protein
OSN	Olfactory sensory neuron
PN	Projection neuron
Q_{25}	First quartile
Q_{75}	Third quartile