

References

Adams MD, Celniker SE, Holt RA, Evans CA, Gocayne JD, Amanatides PG, Scherer SE, Li PW, Hoskins RA, Galle RF, George RA, Lewis SE, Richards S, Ashburner M, Henderson SN, Sutton GG, Wortman JR, Yandell MD, Zhang Q, Chen LX, Brandon RC, Rogers YH, Blazej RG, Champe M, Pfeiffer BD, Wan KH, Doyle C, Baxter EG, Helt G, Nelson CR, Gabor GL, Abril JF, Agbayani A, An HJ, Andrews-Pfannkoch C, Baldwin D, Ballew RM, Basu A, Baxendale J, Bayraktaroglu L, Beasley EM, Beeson KY, Benos PV, Berman BP, Bhandari D, Bolshakov S, Borkova D, Botchan MR, Bouck J, Brokstein P, Brottier P, Burtis KC, Busam DA, Butler H, Cadieu E, Center A, Chandra I, Cherry JM, Cawley S, Dahlke C, Davenport LB, Davies P, de Pablos B, Delcher A, Deng Z, Mays AD, Dew I, Dietz SM, Dodson K, Doupe LE, Downes M, Dugan-Rocha S, Dunkov BC, Dunn P, Durbin KJ, Evangelista CC, Ferraz C, Ferriera S, Fleischmann W, Fosler C, Gabrielian AE, Garg NS, Gelbart WM, Glasser K, Glodek A, Gong F, Gorrell JH, Gu Z, Guan P, Harris M, Harris NL, Harvey D, Heiman TJ, Hernandez JR, Houck J, Hostin D, Houston KA, Howland TJ, Wei MH, Ibegwam C, Jalali M, Kalush F, Karpen GH, Ke Z, Kennison JA, Ketchum KA, Kimmel BE, Kodira CD, Kraft C, Kravitz S, Kulp D, Lai Z, Lasko P, Lei Y, Levitsky AA, Li J, Li Z, Liang Y, Lin X, Liu X, Mattei B, McIntosh TC, McLeod MP, McPherson D, Merkulov G, Milshina NV, Mobarry C, Morris J, Moshrefi A, Mount SM, Moy M, Murphy B, Murphy L, Muzny DM, Nelson DL, Nelson DR, Nelson KA, Nixon K, Nusskern DR, Pacleb JM, Palazzolo M, Pittman GS, Pan S, Pollard J, Puri V, Reese MG, Reinert K, Remington K, Saunders RD, Scheeler F, Shen H, Shue BC, Siden-Kiamos I, Simpson M, Skupski MP, Smith T, Spier E, Spradling AC, Stapleton M, Strong R, Sun E, Svirskas R, Tector C, Turner R, Venter E, Wang AH, Wang X, Wang ZY, Wassarman DA, Weinstock GM, Weissenbach J, Williams SM, WoodageT, Worley KC, Wu D, Yang S, Yao QA, Ye J, Yeh RF, Zaveri JS, Zhan M, Zhang G, Zhao Q, Zheng L, Zheng XH, Zhong FN, Zhong W, Zhou X, Zhu S, Zhu X, Smith HO, Gibbs RA, Myers EW, Rubin GM, Venter JC (2000) The genome sequence of *Drosophila melanogaster*. Science 287: 2185-2195.

Arakawa S, Gocayne GD, McCombie WR, Urquhart DA, Hall LM, Fraser CM, Venter CJ (1990) Cloning, localization, and permanent expression of a *Drosophila* octopamine receptor. Neuron 2: 343-354.

Ayer R, Carlson JR (1991) *acj6*: A gene affecting olfactory physiology and behavior in *Drosophila*. Proc Natl Acad Sci USA 88: 5467-5471.

Ayer R, Carlson JR (1992) Olfactory physiology in the *Drosophila* antenna and maxillary palp: *acj6* distinguishes two classes of odorant pathways. J Neurobiol 23: 965-982.

Baumann O, Kuhnel D, Dames P, Walz B (2004) Dopaminergic and serotonergic innervation of cockroach salivary glands: distribution and morphology of synapses and release sites. *J Exp Biol* 207: 2565-2575.

Beyenbach KW (1984) Water-permeable and -impermeable barriers of snake distal tubules. *Am J Physiol* 246: F290-F299.

Blenau W, Balfanz S, Baumann A (2000) *Amttyr1*: Characterization of a gene from honeybee (*Apis mellifera*) brain encoding a functional tyramine receptor. *J Neurochem* 74: 900-908.

Blenau W, Baumann A (2001) Molecular and pharmacological properties of insect biogenic amine receptors: Lessons from *Drosophila melanogaster* and *Apis mellifera*. *Arch Insect Biochem Physiol* 48: 13-38.

Blumenthal EM (2003) Regulation of chloride permeability by endogenously produced tyramine in the *Drosophila* Malpighian tubule. *Am J Physiol Cell Physiol* 284: C718-C728.

Borycz J, Borycz JA, Loubani M, Meinertzhagen IA (2002) tan and ebony genes regulate a novel pathway for transmitter metabolism at fly photoreceptor terminals. *J Neurosci* 22: 10549-10557.

Branchek TA, Blackburn TP (2003) Trace amine receptors as targets for novel therapeutics: legend, myth and fact. *Curr Opin Pharmacol* 3: 90-97.

Bruch RC, Kang J, Moore ML, Medler KF (1997) Protein kinase C and receptor kinase gene expression in olfactory receptor neurons. *J Neurobiol* 33: 387-394.

Buchner E, Buchner S, Burg MG, Hofbauer A, Pak WL, Pollack I (1993) Histamine is a major mechanosensory neurotransmitter candidate in *Drosophila melanogaster*. *Cell Tissue Res* 273: 119-125.

Cazzamali G, Klaerke DA, Grimmelikhuijen CJP (2005) A new family of insect tyramine receptors. *Biochem Biophys Res Commun* 338: 1189-1196.

Clyne PJ, Grant AJ, O'Connell RJ, Carlson JR (1997) Odorant response of individual sensilla on the *Drosophila* antenna. *Invertebrate Neurosci* 3: 127-135.

Colas JF, Launay JM, Vonesch JL, Hickel P, Maroteaux L (1999) Serotonin synchronises convergent extension of ectoderm with morphogenetic gastrulation movements in *Drosophila*. *Mech Dev* 87: 77-91.

Cole SH, Carney GE, McClung CA, Willard SS, Taylor BJ, Hirsh J (2005) Two functional but noncomplementing *Drosophila* tyrosine decarboxylase genes: distinct roles for neural tyramine and octopamine in female fertility. *J Biol Chem* 280: 14948-14955.

David JC, Coulon JF (1985) Octopamine in invertebrates and vertebrates. A review. Prog Neurobiol 24: 141-185.

de Bruyne M, Clyne PJ, Carlson JR (1999) Odor coding in a model olfactory organ: the *Drosophila* maxillary palp. J Neurosci 19: 4520-4532.

de Bruyne M, Foster K, Carlson JR (2001b) Odor coding in the *Drosophila* antenna. Neuron 30: 537-552.

de Bruyne M, Foster K, Carlson JR (2001a) Odor coding in the *Drosophila* antenna. Neuron 30: 537-552.

Devaud J-M, Acebes A, Ferrus A (2001) Odor exposure causes central adaptation and morphological changes in selected olfactory glomeruli in *Drosophila*. J Neurosci 21: 6274-6282.

Dolzer J, Krannich S, Fischer K, Stengl M (2001a) Oscillations of the transepithelial potential of moth olfactory sensilla are influenced by octopamine and serotonin. J Exp Biol 204: 2781-2794.

Dolzer J, Krannich S, Fischer K, Stengl M (2001b) Oscillations of the transepithelial potential of moth olfactory sensilla are influenced by octopamine and serotonin. J Exp Biol 204: 2781-2794.

Evans PD (1985) Regional differences in responsiveness to octopamine within a locust skeletal muscle. J Physiol 366: 331-341.

Feng G, Hannan F, Reale V, Hon YY, Kousky CT, Evans PD, Hall LM (1996) Cloning and functional characterization of a novel dopamine receptor from *Drosophila melanogaster*. J Neurosci 16: 3925-3933.

Fiala A, Diegelmann S, Eisermann B, Sachse S, Devaud J-M, Buchner E, Galizia CG (2002) Genetically expressed cameleon in *Drosophila melanogaster* is used to visualize olfactory information in projection neurons. Curr Biol 12: 1877-1884.

Georgopapadakou NH, Walsh JW (1994) Human Mycoses: Drugs and Targets for Emerging Pathogens. Science 264: 371-373.

Gerhardt CC, Bakker RA, Piek GJ, Planta RJ, Vreugdenhil E, Leysen JE, van Heerikhuizen H (1997a) Molecular cloning and pharmacological characterization of a molluscan octopamine receptor. Mol Pharmacol 51: 293-300.

Gerhardt CC, Lodder HC, Vincent M, Bakker RA, Planta RJ, Vreugdenhil E, Kits KS, van Heerikhuizen H (1997b) Cloning and expression of a complementary DNA encoding a molluscan octopamine receptor that couples to chloride channels in HEK293 cells. J Biol Chem 272: 6201-6207.

Gerhardt CC, van Heerikhuizen H (1997) Functional characteristics of heterologously expressed 5-HT receptors. *Eur J Pharmacol* 334: 1-23.

Gisselmann G, Pusch H, Hovemann BT, Hatt H (2002) Two cDNAs coding for histamine-gated ion channels in *D. melanogaster*. *Nat Neurosci* 5: 11-12.

Gotzes F, Balfanz S, Baumann A (1994) Primary structure and functional characterization of a *Drosophila* dopamine receptor with high homology to human D1/5 receptors. *Receptors Channels* 2: 131-141.

Gregson JD (1973) Tick Paralysis: An Appraisal of Natural and Experimental Data.

Grohmann L, Blenau W, Erber J, Ebert PR, Strunker T, Baumann A (2003) Molecular and functional characterization of an octopamine receptor from honeybee (*Apis mellifera*) brain. *J Neurochem* 86: 725-735.

Grosmaire X, Marion-Poll F, Renou M (2001a) Biogenic Amines Modulate Olfactory Receptor Neurons Firing Activity in *Mamestra brassicae*. *Chem Senses* 26: 653-661.

Grosmaire X, Marion-Poll F, Renou M (2001b) Biogenic amines modulate olfactory receptor neurons firing activity in *Mamestra brassicae*. *Chem Senses* 26: 653-661.

Haehnel, M. Contributions from odor responses in individual olfactory sensilla to the electroantennogram in wild type and mutant *Drosophila melanogaster*. 2005. Freie Universität Berlin.

Ref Type: Thesis/Dissertation

Hammer M (1993) An identified neuron mediates the unconditioned stimulus in associative olfactory learning in honeybees. *Nature* 366: 59-63.

Hammer M (1997) The neural basis of associative reward learning in honeybees. *Trends Neurosci* 20: 245-252.

Hammer M, Menzel R (1998) Multiple sites of associative odor learning as revealed by local brain microinjections of octopamine in honeybees. *Learning Memory* 5: 146-156.

Han K-A, Millar NS, Davis RL (1998) A novel octopamine receptor with preferential expression in *Drosophila* mushroom bodies. *J Neurosci* 18: 3650-3658.

Han KA, Millar NS, Grotewiel MS, Davis RL (1996) DAMB, a novel dopamine receptor expressed specifically in *Drosophila* mushroom bodies. *Neuron* 16: 1127-1135.

Hardie RC (1989) A histamine-activated chloride channel involved in neurotransmission at a photoreceptor synapse. *Nature* 339: 704-706.

Hartenstein V, Posakony JW (1989) Development of adult sensilla on the wing and notum of *Drosophila melanogaster*. *Development* 107: 389-405.

Heimbeck G, Bugnon V, Gendre N, Häberlin C, Stocker RF (1999) Smell and taste perception in *Drosophila melanogaster* larva: Toxin expression studies in chemosensory neurons. *J Neurosci* 19: 6599-6609.

Hevers W, Hardie RC (1995) Serotonin modulates the voltage dependence of delayed rectifier and Shaker potassium channels in *Drosophila* photoreceptors. *Neuron* 14: 845-856.

Hodgetts RB, O'keefe SL (2005) Dopa Decarboxylase: A Model Gene-Enzyme System for Studying Development, Behavior, and Systematics. *Annu Rev Entomol*.

Kaissling K-E (1986) Chemo-electrical transduction in insect olfactory receptors. *Annu Rev Neurosci* 9: 121-145.

Kaissling K-E (1995) Single unit and electroantennogram recordings in insect olfactory organs. In: Experimental cell biology of taste and olfaction, current techniques and protocols (Spielman AI, Brand JG, eds), pp 361-377. Boca Raton: CRC Press.

Keil TA (1992) Fine structure of a developing insect olfactory organ: morphogenesis of the silkworm antenna. *Microsc Res Tech* 22: 351-371.

Klein U, Zimmermann B (1991) The vacuolar-type ATPase from insect plasma membrane: Immunocytochemical localization in insect sensilla. *Cell Tissue Res* 266: 265-273.

Kreissl S, Eichmuller S, Bicker G, Rapus J, Eckert M (1994) Octopamine-like immunoreactivity in the brain and subesophageal ganglion of the honeybee. *J Comp Neurol* 348: 583-595.

Kutsukake M, Komatsu A, Yamamoto D, Ishiwa-Chigusa S (2000) A tyramine receptor gene mutation causes a defective olfactory behavior in *Drosophila melanogaster*. *Gene* 245: 31-42.

Larsson M, Domingos AI, Jones WD, Chiappa ME, Amrein H, Vosshall LB (2004) Or83b encodes a broadly expressed odorant receptor essential for *Drosophila* olfaction. *Neuron* 43: 703-714.

Laughlin SB (2001) Energy as a constraint on the coding and processing of sensory information. *Curr Opin Neurobiol* 11: 475-480.

Laughlin, SB and Attwell, D. *J Physiol* . 2000.
Ref Type: Abstract

Ledent V, Gaillard F, Gautier P, Ghysen A, Dambly-Chaudiere C (1998) Expression and function of *tap* in the gustatory and olfactory organs of *Drosophila*. Int J Dev Biol 42: 163-170.

McClung C, Hirsh J (1999) The trace amine tyramine is essential for sensitization to cocaine in *Drosophila*. Curr Biol 9: 853-860.

Meola SM, Clottens FL, Holman GM, Nachman RJ, Nichols R, Schoofs L, Wright MS, Olson JK, Hayes TK, Pendleton MW (1998) Isolation and immunocytochemical characterization of three tachykinin-related peptides from the mosquito, *Culex salinarius*. Neurochem Res 23: 189-202.

Meola SM, Sittertz-Bhatkar H (2002) Neuroendocrine modulation of olfactory sensory neuron signal reception via axo-dendritic synapses in the antennae of the mosquito, *Aedes aegypti*. J Mol Neurosci 18: 239-245.

Miller GM, Verrico CD, Jassen A, Konar M, Yang H, Panas H, Bahn M, Johnson R, Madras BK (2005) Primate trace amine receptor 1 modulation by the dopamine transporter. J Pharmacol Exp Ther 313: 983-994.

Monastirioti M, Linn CE, White K (1996) Characterization of *Drosophila tyramine β-hydroxylase* gene and isolation of mutant flies lacking octopamine. J Neurosci 16: 3900-3911.

Nagaya Y, Kutsukake M, Ishiwa-Chigusa S, Komatsu A (2002) A trace amine, tyramine, functions as a neuromodulator in *Drosophila melanogaster*. Neurosci Lett 329: 324-328.

Nassel DR (1999) Histamine in the brain of insects: a review. Microsc Res Tech 44: 121-136.

Natynczuk S, Bradshaw JWS, Macdonald DW (1989) Chemical constituents of the anal sacs of domestic dogs. Biochem Syst Ecol 17: 83-87.

Neckameyer W, O'Donnell J, Huang Z, Stark W (2001) Dopamine and sensory tissue development in *Drosophila melanogaster*. J Neurobiol 47: 280-294.

Neckameyer WS, Quinn WG (1989) Isolation and characterization of the gene for *Drosophila* tyrosine hydroxylase. Neuron 2: 1167-1175.

Neckameyer WS, White K (1992) A single locus encodes both phenylalanine hydroxylase and tryptophan hydroxylase activities in *Drosophila*. J Biol Chem 267: 4199-4206.

Nicolson SW, Isaacson LC (1987) Transepithelial and intracellular potentials in isolated Malpighian tubules of tenebrionid beetle. Am J Physiol 252: F645-F653.

Ohta H, Utsumi T, Ozoe Y (2003) B96Bom encodes a *Bombyx mori* tyramine receptor negatively coupled to adenylate cyclase. Insect Mol Biol 12: 217-223.

Okada Y, Miyamoto T, Toda K (2003) Dopamine modulates a voltage-gated calcium channel in rat olfactory receptor neurons. Brain Res 968: 248-255.

Page RE, Erber J, Fondrk MK (1998) The effect of genotype on response thresholds to sucrose and foraging behavior of honey bees (*Apis mellifera* L.). J Comp Physiol A Sens Neural Behav Physiol 182: 489-500.

Pass G, Agricola H, Birkenbeil H, Penzlin H (1988) Morphology of neurones associated with the antennal heart of *Periplaneta americana* (Blattodea, Insecta). Cell Tissue Res 253: 319-326.

Pelz, D. Functional Characterization of *Drosophila melanogaster* Olfactory Receptor Neurons. 2005. Freie Universität Berlin.

Ref Type: Thesis/Dissertation

Perez JA, Dominguez JN, Angel JE, Duerto dP, Salazar-Bookaman MM, Acosta H, Charris JE (1997) N-aralkyl substitution of 2-aminoindans. Synthesis and their inotropic and chronotropic activity in isolated guinea pig atria. Arzneimittelforschung 47: 1208-1210.

Pikielny CW, Hasan G, Rouyer F, Rosbash M (1994) Members of a family of *Drosophila* putative odorant-binding proteins are expressed in different subsets of olfactory hairs. Neuron 12: 35-49.

Pophof B (2000) Octopamine modulates the sensitivity of silkworm pheromone receptor neurons. J Comp Physiol A Sens Neural Behav Physiol 186: 307-313.

Pophof B (2002) Octopamine enhances moth olfactory responses to pheromones, but not those to general odorants. J Comp Physiol A Sens Neural Behav Physiol 188: 656-662.

Reale V, Hannan F, Midgley JM, Evans PD (1997) The expression of a cloned *Drosophila* octopamine/tyramine receptor in *Xenopus* oocytes. Brain Res 769: 309-320.

Rex E, Komuniecki RW (2002) Characterization of a tyramine receptor from *Caenorhabditis elegans*. J Neurochem 82: 1352-1359.

Richardt A, Kemme T, Wagner S, Schwarzer D, Marahiel MA, Hovemann BT (2003) Ebony, a novel nonribosomal peptide synthetase for beta-alanine conjugation with biogenic amines in *Drosophila*. J Biol Chem 278: 41160-41166.

Roeder T (2002) Biochemistry and molecular biology of receptors for biogenic amines in locusts. Microsc Res Tech 56: 237-247.

Saraswati S, Fox LE, Soll DR, Wu CF (2004) Tyramine and octopamine have opposite effects on the locomotion of *Drosophila* larvae. *J Neurobiol* 58: 425-441.

Saudou F, Amlaiky N, Plassat JL, Borrelli E, Hen R (1990a) Cloning and characterization of a *Drosophila* tyramine receptor. *EMBO J* 9: 3611-3617.

Saudou F, Amlaiky N, Plassat J-L, Borreli E, Hen R (1990b) Cloning and characterization of a *Drosophila* tyramine receptor. *EMBO J* 11: 3611-3617.

Sayeed O, Benzer S (1996) Behavioral genetics of thermosensation and hygrosensation in *Drosophila*. *Proc Natl Acad Sci USA* 93: 6079-6084.

Scheiner R, Pluckhahn S, Oney B, Blenau W, Erber J (2002) Behavioural pharmacology of octopamine, tyramine and dopamine in honey bees. *Behav Brain Res* 136: 545-553.

Schröter, U. 2002. Freie Universität Berlin.

Ref Type: Thesis/Dissertation

Schulz DJ, Robinson GE (2001) Octopamine influences division of labor in honey bee colonies. *J Comp Physiol [A]* 187: 53-61.

Schwaerzel M, Monastirioti M, Scholz H, Friggi-Grelin F, Birman S, Heisenberg M (2003) Dopamine and octopamine differentiate between aversive and appetitive olfactory memories in *Drosophila*. *J Neurosci* 23: 10495-10502.

Shanbhag SR, Müller B, Steinbrecht RA (1999) Atlas of olfactory organs of *Drosophila melanogaster* 1. Types, external organization, innervation and distribution of olfactory sensilla. *Int J Insect Morphol Embryol* 28: 377-397.

Shanbhag SR, Müller B, Steinbrecht RA (2000) Atlas of olfactory organs of *Drosophila melanogaster* 2. Internal organization and cellular architecture of olfactory sensilla. *Arthropod Struct Dev* 29: 211-229.

Spivak M, Masterman R, Ross R, Mesce KA (2003) Hygienic behavior in the honey bee (*Apis mellifera* L.) and the modulatory role of octopamine. *J Neurobiol* 55: 341-354.

Steinbrecht RA (1999) Olfactory receptors. In: *Atlas of arthropod sensory receptors, dynamic morphology in relation to function* (Eguchi E, Tominaga Y, eds), pp 156-176. Tokyo: Springer.

Stengl M, Hatt H, Breer H (1992) Peripheral processes in insect olfaction. *Annu Rev Physiol* 54: 665-681.

Störtkuhl KF, Kettler R (2001) Functional analysis of an olfactory receptor in *Drosophila melanogaster*. *Proc Natl Acad Sci USA* 98: 9381-9385.

Thurm U (1965) An insect mechanoreceptor. II. Receptor potentials. Cold Spring Harb Symp Quant Biol 30: 83-94.

Thurm U, Küppers J (1980) Epithelial physiology of insect sensilla. In: Insect biology in the future (Locke M, Smith D, eds), pp 735-763. New York: Academic Press.

True JR, Edwards KA, Yamamoto D, Carroll SB (1999) *Drosophila* wing melanin patterns form by vein-dependent elaboration of enzymatic prepatterns. Curr Biol 9: 1382-1391.

Vacher C, Pellegrini E, Anglade I, Ferriere F, Saligaut C, Kah O (2003) Distribution of dopamine D2 receptor mRNAs in the brain and the pituitary of female rainbow trout: an in situ hybridization study. J Comp Neurol 458: 32-45.

Valles AM, White K (1988) Serotonin-containing neurons in *Drosophila melanogaster*: development and distribution. J Comp Neurol 268: 414-428.

von Nickisch-Rosenegk E, Krieger J, Kubick S, Laage R, Strobel J, Strotmann J, Breer H (1996) Cloning of biogenic amine receptors from moths (*Bombyx mori* and *Heliothis virescens*). Insect Biochem Mol Biol 26: 817-827.

Vosshall LB, Wong AM, Axel R (2000) An olfactory sensory map in the fly brain. Cell 102: 147-159.

Walter MF, Zeineh LL, Black BC, McIvor WE, Wright TR, Biessmann H (1996) Catecholamine metabolism and in vitro induction of premature cuticle melanization in wild type and pigmentation mutants of *Drosophila melanogaster*. Arch Insect Biochem Physiol 31: 219-233.

Yao CA, Ignell R, Carlson JR (2005) Chemosensory coding by neurons in the coeloconic sensilla of the *Drosophila* antenna. J Neurosci 25: 8359-8367.

Yellman C, Tao H, He B, Hirsh J (1997) Conserved and sexually dimorphic behavioral responses to biogenic amines in decapitated *Drosophila*. Proc Natl Acad Sci USA 94: 4131-4136.

Zack, C. Sensory adaptation in the sex pheromone receptor cells of saturniid moths. 1979. Ludwig-Maximilians-Universität, München, Germany.

Ref Type: Thesis/Dissertation