

7. Literatur

Agricola H., Hertel W. und Penzlin H. (1988) Octopamine: neurotransmitter, neuromodulator and neurohormone. Zool. Jb. Physiol 92: 1-45

Alley K. E. und Omerza F. F. (1998) Reutilization of trigeminal motorneurons and metamorphic reorganization of the jaw myoneural systems in frogs. Brain Res 813: 187-190

Axelrod J. und Saavedra J. M. (1977) Octopamine. Nature 265: 501-504

Bacon J. P., Thompson K. S. J. und Stern M. (1995) Identified octopaminergic neurons provide an arousal mechanism in the locust brain. J Neurophysiol 74: 2739-2743

Bässler u. und Büschges A. (1998) Pattern generation for stick insect walking movements- multisensory control of a locomotor program. Brain Res Rev 27: 65-88

Baines D. und Downer R. G. (1994) Octopamine enhances phagocytosis in cockroach hemocytes: involvement of inositol trisphosphate. Arch Insect Biochem Physiol 26: 249-261

Baudoux S., Duch C. und Morris O. T. (1998) Coupling of efferent neuromodulatory neurons to rhythmical leg motor activity in the locust. J Neurophysiol 79: 361-370

Baudoux S. und Burrows M. (1998) Synaptic activation of efferent neuromodulatory neurones in the locust *Schistocerca gregaria*. J Exp Biol 201: 3339-3354

Becker A., Schlöder P., Steele J. E. und Wegener G. (1996) The regulation of trehalose metabolism in insects. Experientia 52: 433-439

Beenakkers A. M., Van der Horst D. J. und Van Marrewijk W. J. (1985) Insect lipids and lipoproteins, and their role in physiological processes. Prog Lipid Res 24: 19-67

- Blau C. und Wegener G. (1994) Metabolic integration in locust flight: the effect of octopamine on fructose 2,6-bisphosphate content of flight muscle in vivo. *J Comp Physiol B* 164: 11-15
- Blau C., Wegener G. und Candy D. J. (1994) The effect of octopamine on the glycolytic activator fructose 2,6-bisphosphate in perfused locust flight muscle. *Insect Biochem Molec Biol* 24: 677-683
- Bollenbacher W. E., Smith S. L., Goodman W. und Gilbert L. I. (1981) Ecdysteroid titer during the larval -pupal -adult development of the tobacco hornworm, *Manduca sexta*. *Gen Comp Endocrinol* 44: 302-306
- Burrows M. (1995) Motor patterns during kicking movements in the locust. *J Comp Physiol A* 176: 289-305
- Burrows M. (1996) The neurobiology of an insect brain. Oxford University Press, Oxford New York Tokyo
- Burrows M. und Pflüger H. J. (1995) Action of locust neuromodulatory neurons is coupled to specific motor patterns. *J Neurophysiol* 74: 347-357
- Burns M. D. (1979) The control of walking in Orthoptera. I Leg movement in normal walking. *J Exp Biol* 58: 45-58
- Burns M. D. und Usherwood P. N. R. (1979) The control of walking in Orthoptera. II Motoneuron activity in normal free walking animals. *J Exp Biol* 123: 285-306
- Bräunig P., Stevenson P. A. und Evans P.D. (1994) A locust octopamin-immunoreactive dorsal unpaired median neuron forming terminal networks on sympathetic nerves. *J Exp Biol* 192: 225-238
- Bräunig P. (1997) The peripheral branching pattern of identified dorsal unpaired median (DUM) neurones of the locust. *Cell Tissue Res* 290: 641-654

- Bräunig P. und Eder M. (1998) Locust dorsal unpaired median (DUM) neurones directly innervate and modulate hindleg proprioceptors. *J Exp Biol* 201: 3333-3338
- Bräunig P. und Pflüger H.J. (2001) The unpaired median neurons of insects *Adv Insect Physiol* 28: 185-266
- Buddenbrock W. v. (1921) Der Rhythmus bei der Schreitbewegung der Stabheuschrecke *Dixippus*. *Biol Zentralbl.* 41: 41-28
- Budnik V., Zhong Y. und Wu C. F. (1990) Morphological plasticity of motor axons in *Drosophila* mutants with altered excitability. *J Neurosci* 10: 3754-3768
- Campbell H. R., Thompson K. J. und Siegler M. V. S. (1995) Neurons of the median neuroblast lineage of the grasshopper: a population study of the efferent DUM neurons. *J Comp Neurol* 358: 541-551
- Candy D. J., Becker a. und Wegener G. (1997) Coordination and integration of metabolism in insect flight. *Comp Biochem Physiol* 117: 497-512
- Cheeseman P. und Goldsworthy G. J. (1979) The release of adipokinetic hormone during flight and starvation in *Locusta*. *Gen Comp Endocrinol* 37: 35-43
- Chiel H.J., Weiss K. R. und Kupfermann I. (1990) Multiple roles of a histaminergic afferent neuron in the feeding behavior of *Aplysia*. *Trends in Neurosci* 13: 223-227
- Clausen T. und Flatman J. A. (1977) The effect of catecholamines on Na-K transport and membrane potential in rat soleus muscle. *J Physiol* 270: 283-414
- Consoulas C., Duch C., Bayline R. J. und Levine R. B. (2000) Behavioral transformations during metamorphosis: Remodeling of neural and motor systems. *Brain Res Bull* 53: 571-583

- Cromarty S. I., Cobb J. S. und Kass-Simon G. (1991) Behavioral analysis of the escape response in the juvenile lobster *Homarus americanus* over the molt cycle. *J Exp Biol* 158: 565-581
- Delcomyn F. (1972) The locomotion of the cockroach, *Periplaneta americana*. *J Exp Biol* 59: 629-642
- Dominick O. S. und Truman J. W. (1984a) The physiology of wandering behavior in *Manduca sexta*. I Temporal organization and the influence of the internal and external environments. *J Exp Biol* 110: 35-51
- Dominick O. S. und Truman J. W. (1984b) The physiology of wandering behavior in *Manduca sexta*. II The endocrine control of wandering behavior. *J Exp Biol* 110: 35-51
- Duch C. (1997) Aktivierung der modulatorischen, oktopaminergen dorsalen ungepaarten medianen (DUM) Neurone bei der afrikanischen Wüstenheuschrecke, *Schistocerca gregaria* Forskål, Doktorarbeit, Freie Universität Berlin
- Duch C. und Pflüger H. J. (1995) Motor patterns for horizontal and upside down walking and vertical climbing in the locust. *J Exp Biol* 198(Pt 9):1963-1976
- Duch C. und Pflüger (1999) DUM neurons in locust flight: a model system for amine-mediated peripheraal adjustments to the requirements of a central motor program. *J Comp Physiol* 184: 489-499
- Duch C., Bayline R. J. und Levine R. B. (2000) Postembryonic development of the dorsal longitudinal flight muscle and its innervation in *Manduca sexta*. *J Comp Neurol* 422: 1-17
- Duch C. und Levine R. B. (2000) Remodeling of membrane properties and dendritic architecture accompanies the postembryonic conversion of a slow into a fast motoneuron. *J Neurosci* 20: 6950-6961

- Duch C. und Levine R. B. (2002) Changes in calcium signaling during postembryonic dendritic growth in *Manduca sexta*. *J Neurophysiol* 87: 1415-1425
- Duch C., Mentel T. und Pflüger H. J. (1999) Distribution and activation of different types of octopaminergic DUM neurons in the locust. *J Comp Neurol* 403: 119-134
- Ersparmer V. und Boretti G. (1951) Identification and characterization by paper chromatography of enteramine, octopamine, tyramine, histamine, and allied substances in extracts of the posterior salivary glands of Octopoda and in other tissues of vertebrates and invertebrates. *Arch Int Pharmacodyn* 88: 296-332
- Evans P.D. (1981) Multiple receptor types for octopamine in the locust. *J Physiol* 318: 99-122
- Evans P. D. (1984a) A modulatory octopaminergic neurone increases cyclic nucleotide levels in locust skeletal muscle. *J Physiol* 348: 307-324
- Evans P. D. (1984b) The role of cyclic nucleotides and calcium in the mediation of the modulatory effects of octopamine on locust skeletal muscle. *J Physiol* 348: 325-340
- Evans P. D. (1985) Octopamine. In 'Comprehensive Insect Physiology, Biochemistry, and Pharmacology', eds. Kerkut G. A. und Gilbert G., Pergamon Press, Oxford, pp. 499-530
- Evans P. D. (1993) Molecular studies on insect octopamine receptors. *EXS* 63: 286-296
- Evans P. D. und Myers C. M. (1986) Peptidergic and aminergic modulation of insect skeletal muscle. *J Exp Biol* 124: 143-176
- Evans P. D. und O'Shea M. (1977) An octopaminergic neurone modulates neuromuscular transmission in the locust. *Nature* 270: 257-259
- Evans P. D. und O'Shea M. (1978) The identification of an octopaminergic neurone and the modulation of a myogenic rhythm in the locust. *J Exp Biol* 73: 235-260

- Evans P. D. und Robb S. (1993) Octopamine receptor subtypes and their modes of action. *Neurochem Res* 18: 869-874
- Evans P. D. und Siegler (1982) Octopamine mediated relaxation of maintained and catch tension in locust skeletal muscle. *J Physiol* 324: 93-112
- Fernandes J. J. und VijayRhaghavan K. (1993) The development of indirect flight muscle innervation in *Drosophila melanogaster*. *Development* 118: 215-227
- Flamm R. E. und Harris-Warrick R. M. (1986) Aminergic modulation in lobster stomatogastric ganglion. II Target neurons of dopamine, octopamine and serotonin within the pyloric circuit. *J Neurophysiol* 55:847-865
- Gammie S. C. und Truman J. W. (1997) Neuropeptide hierarchies and the activation of sequential motor behaviors in the hawkmoth, *Manduca sexta*. *J Neurosci* 17: 4389-4397
- Goosey M. W. und Candy D. J. (1980) The D-octopamine content of the haemolymph of the locust, *Schistocerca gregaria americana*, and its elevation during flight. *Insect Biochem* 10: 393-397
- Goosey M. W. und Candy D. J. (1982) The release and removal of octopamine by tissues of the locust, *Schistocerca gregaria*. *Insect Biochem* 12: 681-685
- Graham D. (1985) Pattern and control of walking insects. *Adv Insect Physiol* 18: 31-140
- Gras H., Hörner M., Runge L. und Schürmann F.-W. (1990) Prothoracic DUM neurons of the cricket, *Gryllus bimaculatus*. Responses to natural stimuli and aktivity in walking behavior. *J Comp Physiol A* 166: 901-914
- Grillner S. (1985) Neurobiological bases of rhythmic motor acts in vertebrates. *Science* 228: 143-149

- Grillner S. und Wallén P. (1985) Central pattern generators for locomotion, with spezial reference to vertebrates. *Ann Rev Neurosci* 8: 233-261
- Grillner S. und Zanger P. (1979) On the central generation of locomotion in the low spinal cat. *Exp Brain Res* 34: 241-261
- Hancox J. C. und Pitman R. M. (1991) Plateau potentials drive axonal bursts in insect motoneurons. *Proc R Soc Lond B* 244: 33-38
- Hammer M. (1993) An identified neuron mediates the unconditioned stimulus in associative olfactory learning in honeybees. *Nature* 366:59-63
- Harris-Warrick R. M. und Marder E. (1991) Modulation of neural networks for behavior. *Annu Rev Neurosci* 14: 39-57
- Harris-Warrick R. M., Nagy F. und Nusbaum M. P. (1992) Neuromodulation of stomatogastric networks by identified neurons and transmitters. In: 'Dynamic Biological Networks', eds. Harris-Warrick R. M., Marder E., Selverston A. I. Und Moulins M., Cambridge MA: MIT press
- Heitler W. J. und Burrows M. (1977) The locust jump. I. The motor programme. *J Exp Biol* 66: 203-19
- Heitler W. J. Und Goodman C. S. (1978) Multiple sites of spike initiation in a bifurcating locust neuron. *J Exp Biol* 76:73-84
- Hoyle G. (1978) The dorsal unpaired median neurons of the locust metathoracic ganglion. *J Neurobiol* 9: 43-57
- Howell K. M. und Evans P. D. (1998) The characterization of presynaptic octopamine receptors modulating octopamine release from an identified neurone in the locust. *J Exp Biol* 201: 2053-2060

- Hoyle G., Dagan D., Moberly B. und Colquhoun W. (1974) Dorsal unpaired median insect neurons make neurosecretory endings on skeletal muscle. *J Exp Zool.* 187: 159-165
- Hoyle G. und Dagan D. (1978) Physiological characteristics and reflex activation of DUM (octopaminergic) neurons of locust metathoracic ganglion. *J Neurobiol* 9: 59-79
- Johnsson B. R., Peck J. H. und Harris-Warrick R. M. (1993) Amine modulation of electrical coupling in the pyloric network of the lobster stomatogastric ganglion. *J Comp Physiol* 172: 715-732
- Johnston R. M. und Levine R. B. (1996) Crawling motor patterns induced by pilocarpine in isolated larval nerve cords of *Manduca sexta*. *J Neurophysiol* 14: 335-360
- Jutsum A. R. und Goldsworthy G. J. (1976) Fuels for flight in *Locusta*. *J Insect Physiol* 22: 243-249
- Kaczmarek L. K. und Levitan I.B. (1987) Neuromodulation: The biochemical control of neuronal excitability. Oxford University Press, New York, Oxford
- Kalogianni E. und Pflüger H. J. (1992) The identification of motor and unpaired median neurones innervating the locust oviduct. *J Exp Biol* 168: 177-198
- Kalogianni E. und Theophilidis G. (1993) Centrally generated rhythmic activity and modulatory function of the oviductal dorsal unpaired median (DUM) neurons in two orthopteran species (*Calliptamus* sp. and *Decticus albifrons*). *J Exp Biol.* 174:123-138
- Kammer A. E. und Heinrich B. (1978) Insect flight metabolism. *Adv Insect Physiol* 13: 133-228
- Keshishian H., Chiba A., Chang T. N., Halfon M. S., Harkins E. W., Jarecki J., Wang L., Anderson M., Cash S. und Halpern M. E. (1993) Cellular mechanisms governing synaptic development in *Drosophila melanogaster*. *J Neurobiol* 24: 757-787

- Knop G., Denzer L. und Büschges A. (2001) A central pattern-generating network contributes to "reflex-reversal"-like leg motoneuron activity in the locust. *J Neurophysiol* 86: 3065-3068
- Knop G. (2000) Untersuchungen zur Erzeugung und Aufrechterhaltung rhythmischer Aktivität in den Beinmotoneuronen des isolierten Mesothorakalganglions der Wanderheuschrecke *Locusta migratoria m.* Diplomarbeit, Universität zu Köln
- Kravitz E. A. (1988) Hormonal control of behavior: amines and the biasing of behavioral output in lobsters. *Science* 241: 1775-1781
- Krause U. und Wegener G. (1996) Control of glycolysis in vertebrate skeletal muscle during exercise. *Am J Physiol* 270: R821-R829
- Kuba K. (1970) Effects of catecholamines on the neuromuscular junction in the rat diaphragm. *J Physiol* 211: 551-570
- Kutsch W. und Schneider H. (1987) Histological characterisation of neurons innervating functionally different muscles of *Locusta*. *J Comp Neurol* 261: 515-528
- Levine R. B., Morton D. B. und Restifo L. L. (1995) Remodeling of the insect nervous system. *Curr Opin Neurobiol* 5: 28-35
- Levine R. B. und Weeks J. C. (1996) Cell culture approaches to understanding the actions of steroid hormones on the insect nervous system. *Dev Neurosci* 18: 73-86
- Liberat F. und Duch C. (2002) Morphometric analysis of dendritic remodeling in an identified motoneuron during postembryonic development. *J Comp Neurol* 450: 153-66
- Malamud J. G., Mizisin A.P. und Josephson R. K. (1988) The effects of octopamine on contraction kinetics and power output of a locust flight muscle. *J Comp Physiol* 162: 827-835

- Matheson T. (1997) Octopamine modulates the responses and presynaptic inhibition of proprioceptive sensory neurones in the locust *Schistocerca gregaria* J Exp Biol 200: 1317-25.
- Marder E. (1991) Modifiability of pattern generation. Curr Opin Neurobiol 1: 571- 576
- Marder E. (2001) Moving rhythms. Nature 410: 755
- Marder E. und Bucher D. (2001) Central pattern generators and the control of rhythmic movements. Curr Biol 11: R986-R996
- Marder E. und Calabrese R. L. (1996) Principles of rhythmic motor pattern generation. Physiol Rev 76: 687-717.
- Matheson T. (1994) Octopamine enhances the response of thoracic but not phasic neurons of a locust proprioceptor. J Physiol 480: 99-102
- Matheson T. (1997) Octopamine modulates the responses and presynaptic inhibition of proprioceptive sensory neurones in the locust *Schistocerca gregaria*. J Exp Biol 200: 1317-1325
- Mesce K. A. und Fahrbach S. E. (2002) Integration of endocrine signals that regulate insect ecdysis. Front Neuroendocrinol 23: 179-199
- Miles C. I. Und Weeks J. C. (1991) Developmental attenuation of pre-ecdysis motor pattern in the tobacco hornworm, *Manduca sexta*. J Comp Physiol A 168: 179-190
- Nathanson J. A. und Greengard P. (1973) Octopamine-sensitive adenylylate cyclase: evidence for a biological role of octopamine in nervous tissue. Science 180: 308-310
- Orchard I. (1987) Adipokinetic hormones- an update. J Insect Physiol 33: 451-463
- Orchard I. (1982) Octopamine in insects: neurotransmitter, neurohormone and neuromodulator. Can J Zool 60: 659-669

- Orchard I., Carlisle J. A., Loughton B. G., Gole J. W. D. und Downer R. G. H. (1982) In vitro studies on the effects of octopamine on locust fat body. *Gen Comp Endocrinol* 48: 7-13
- Orchard I. und Lange A. B. (1983) The hormonal control of haemolymph lipid during flight in *Locusta migratoria*. *J Insect Physiol* 29: 639-642
- Orchard I. und Lange A. B. (1984) Cyclic AMP in locust fat body: Correlation with octopamine and adipokinetic hormones during flight. *J Insect Physiol* 30: 901-904
- Orchard I. und Lange A. B. (1985) Evidence for octopaminergic modulation of an insect visceral muscle. *J Neurobiol* 16: 171-181
- Orchard I., Ramirez J.-M. und Lange A. B. (1993) A multifunctional role for octopamine in locust flight. *Annu Rev Entomol* 38: 227-249
- O'Shea M. und Evans P. D. (1979) Potentiation of neuromuscular transmission by an octopaminergic neuron in the locust. *J Exp Biol* 79: 169-190
- Parker D. (1996) Octopaminergic modulation of locust motor neurones. *J Comp Physiol* 178: 243-252
- Pasztor V. M. und Bush B. M. H. (1989) Primary afferent responses of a crustacean mechanoreceptor are modulated by proctolin, octopamin, and serotonin. *J Neurobiol* 20: 234-254
- Pearson K. G. (1995) Proprioceptive regulation of locomotion. *Curr Opin Neurobiol* 5: 786-791
- Pfaff D., Frohlich J. und Morgan M. (2002) Hormonal and genetic influences on arousal-sexual and otherwise. *Trends Neurosci* 25: 45-50
- Pflüger und H. J. Watson A. H. D. (1995) GABA and glutamate-like immunoreactivity at synapses received by dorsal unpaired median neurones in the abdominal nerve cord of the locust. *Cell Tissue Res* 280: 325-333

- Pflüger H. J. (1999) Neuromodulation during motor development and behavior. *Curr Opin Neurobiol* 9: 683-689
- Plotnikova S. I. (1969) Effector neurons with several axons in the ventral nerve cord of the asian grasshopper *Locusta migratoria*. *J Evol Biochem Physiol* (englische Übersetzung) 5: 276-277
- Ramirez J.-M. und Orchard I. (1990) Octopaminergic modulation of the forewing stretch receptor in the locust, *Locusta migratoria*. *J Exp Biol* 149: 255-279
- Ramirez J.-M. und Pearson K. G. (1991a) Octopamine induces bursting and plateau potentials in insect neurons. *Brain Res* 549: 332-337
- Ramirez J.-M. und Pearson K. G. (1991b) Octopaminergic modulation of interneurons in the flight system of the locust. *J Neurophysiol* 66: 1522-1537
- Ramirez J.-M., Büschges A. und Kittmann R. (1993) Octopaminergic modulation of the femoral chordotonal organ in the stick insect. *J Comp Physiol* 173: 209-219
- Reinecke j. P., Buckner J. S. und Grugel S. R. (1980) Life cycle of laboratory reared tobacco hornworm, *Manduca sexta*, a study of development and behavior, using time lapse cinematography. *Biol Bull mar lab Woods Hole* 158: 129-140
- Rheuben M. B. (1995) Specific associations of neurosecretory or neuromodulatory axons with insect skeletal muscle. *Am Zool* 35: 227-249
- Roeder T. (1992) A new octopamine receptor class in locust nervous tissue, the octopamine 3 (OA3) receptor. *Life Sci* 50: 21-28
- Roeder T. (1995) Pharmacology of the octopamine receptor from locust central nervous tissue (OAR3). *Br J Pharmacol* 114: 210-216
- Roeder T. und Gewecke M. (1990) Octopamine receptors in locust nervous tissue. *Biochem Pharmacol* 39: 1793-1797

- Roeder T. und Nathanson J. A. (1993) Characterization of insect neuronal octopamine receptors (OA3 receptors). *Neurochem Res* 18: 921-935
- Roeder T. (1999) Octopamine in invertebrates. *Prog Neurobiol* 59: 533-561
- Ruffner M. E., Cromarty S. I. Und Cooper R. L. (1999) Depression of synaptic efficacy in high- and low- output *Drosophila* neuromuscular junctions by the molting hormone (20-HE). *J Neurophysiol* 81: 788-794
- Ryckebusch S. und Laurent G. (1993) Rhythmic patterns evoked in locust leg motor neurons by the muscarinic agonist pilocarpine. *J Neurophysiol* 69: 1583-1595
- Ryckebusch S. und Laurent G. (1994) Interactions between segmental leg central pattern generators during fictive rhythms in the locust. *J Neurophysiol* 72: 2771-2785
- Selverston A. I. (1993) Neuromodulatory control of rhythmic behavior in invertebrates. *Int Rev Cytol* 147: 1-24
- Shapiro J. P., Law J. H. und Wells M. A. (1988) Lipid transport in insects. *Ann Rev Entomol* 33: 297-318
- Sombati S. und Hoyle G. (1984a) Central nervous sensitization and dishabituation of reflex action in an insect by the neuromodulator octopamine. *J Neurobiol* 15: 455-480
- Sombati S. und Hoyle G. (1984b) Generation of specific behaviors in a locust by local release into neuropil of the natural neuromodulator octopamine. *J Neurobiol* 15: 481-506
- Stevenson P. A. und Kutsch W. (1987) A reconsideration of the central pattern generator concept for locust flight. *J Comp Physiol A* 161: 115-129
- Stevenson P. A. und Kutsch W. (1988) Demonstration of functional connectivity of the flight motor system in all stages of the locust. *J Comp Physiol A* 162: 247-259

- Stevenson P. A. und Meuser S. (1997) Octopaminergic innervation and modulation of a locust flight steering muscle. *J Exp Biol* 200: 633-642
- Stevenson P. A., Pflüger H. J., Eckert M. und Rapus J. (1992) Octopamine immunoreactive cell populations in the locust thoracic-abdominal nervous system. *J Comp Neurol* 315: 382-397
- Stevenson P. A. und Spörhase-Eichmann U. (1995) Localization of octopaminergic neurones in insects. *Comp Biochem Physiol A* 110: 203-215
- Tissot M. und Stokker R. F. (2000) Metamorphosis in *Drosophila* and other insects: the fate of neurons throughout the stages. *Prog Neurobiol* 62: 89-111
- Truman J. W., Taghert P. H. und Reynolds S. E. (1980) Physiology of pupal ecdysis in the tobacco hornworm, *Manduca sexta*. *J Exp Biol* 88: 327-337
- Truman J. W. (1990) Metamorphosis of the insect nervous system. In: Gilbert L. I., Tata J. R., Aktinson B. G., eds. *Metamorphosis: Postembryonic reprogramming of gene expression in amphibian and insect cells*. San Diego: Academic Press, 238-320
- Truman J. W. (1996) Metamorphosis of the CNS of *Drosophila*. *J Neurobiol* 21: 1072-1084
- Truman J. W. und Riddiford L. M. (2002) Endocrine insights into the evolution of metamorphosis in insects. *Annu Rev Entomol* 47: 467-500
- Truman J. W., Talbot W. S., Fahrbach S. E. und Hognass D. S. (1994) Ecdysone receptor expression in the CNS correlates with stage-specific responses to ecdysteroids during *Drosophila* and *Manduca* development. *Development* 120: 219-234
- Tuschik S. (1994) Pharmakologische Charakterisierung von muskarinischen Ach-Rezeptoren von isolierten DUM Neuronen der Wanderheuschrecke. Diplomarbeit, Freie Universität Berlin

- Van Heusden M. C., Van der Horst D. J. und Beenakkers A. M. (1984) In vitro studies on hormone-stimulated lipid mobilisation from fat body and interconversion of haemolymph lipoproteins of *Locusta migratoria*. *J Insect Physiol* 30: 685-693
- Van der Horst D. J. (1990) Lipid transport functions of lipoproteins in flying insects. *Biochem Biophys Acta* 1047: 195-211
- Van der Horst D. J., Van Marrewijk W. J. A. und Diederens H. B. (2001) Adipokinetic hormones of insect: release, signal transduction, and responses. *Int Rev Cytol* 211: 179-240
- Watson A. H. D. (1984) The dorsal unpaired median neurons of the locust metathoracic ganglion: neuronal structure and diversity, and synapse distribution. *J Neurocytol* 13: 303-327
- Walker R. J. und Kerkut G. A. (1978) The first family (adrenaline, noradrenaline, dopamine, octopamine, tyramine, phenylethanolamine and phenylethylamine). *Comp Biochem Physiol C* 61: 261-266
- Wang J.W., Sylvester A. W., Reed D., Wu D. A., Soll D. R. und We C. F. (1997) Morphometric description of the wandering behavior in *Drosophila* larvae: aberrant locomotion in Na and K channel mutants revealed by computer-assisted motion analysis. *J Neurogent* 3-4: 321-254
- Wang Z., Hayakawa Y. und Downer R. G. H. (1990) Factors influencing cyclic AMP and diacylglycerol levels in fat body of *Locusta migratoria*. *Insect Biochem* 20: 325-330
- Weeks J. C. und Truman J. W. (1986) Steroid control of neurons and muscle development during the metamorphosis of an insect. *J Neurobiol* 17: 249-267
- Wegener G. (1990) Elite invertebrate athletes: flight in insects, its metabolic requirements and regulation and its effects on life span. In: 'International perspectives in exercise physiology'. Eds. Nazar K., Tesjung R. L., Kaciuba-Uscirko H. und Budohoski L., Human Kinetics Books, Campaign, Illinois, pp. 83-87

Wegener G. (1996) Flying insects: model systems in exercise physiology. *Experimentia* 52: 404-412

Wegener G., Michel R. und Newsholme E. A. (1986) Fructose 2,6-bisphosphate as a signal for changing from sugar to lipid oxidation during flight in locusts. *FEBS Lett.* 201: 129-132

Wegener G., Beinhauer I., Klee A. und Newsholme E. A. (1987) Properties of locust muscle 6-phosphofructokinase and their importance in the regulation of glycolytic flux during prolonged flight. *J Comp Physiol B* 157: 315-326

Wegener G., Bolas N. M. und Thomas A. A. G. (1991) Locust flight metabolism studied in vivo by ^{31}P NMR spectroscopy. *J Comp Physiol B* 161: 247-256

Wegener G. Und Krause U. (2002) Different modes of activating phosphofructokinase, a key regulatory enzyme of glycolysis, in working vertebrate muscle. *Biochem Soc Trans* 30: 264-270

Weisel-Eichler A. und Libersat F. (1996) Neuromodulation of flight initiation by octopamine in the cockroach, *Periplaneta americana*. *J Comp Physiol A* 179: 103-112

Whim M. D. und Evans P. D. (1988) Octopaminergic modulation of flight muscle in the locust. *J Exp Biol* 134: 247-266

Wilson D. M. (1966) Insect walking. *Ann Rev Entomol II*: 103-122

Zee M. C. und Weeks J. C. (2001) Developmental change in the steroid hormone signal for cell autonomous, segment specific programmed cell death of a motoneuron. *Dev Biol* 235: 45-61

Zitnan D., Ross L. S., Zitnanova I., Hermesman J. L., Gill S. S. Und Adams M. E. (1999) Steroid induction of a peptide hormone gene leads to orchestration of a defined behavioral sequence. *Neuron* 23: 523-535