PUBLICATIONS

John G. Hildebrand

h-Index 88; *i10*-index 188; >20,790 citations (8/26 – Google Scholar data)

Books

Hall ZW, Hildebrand JG, Kravitz EA (eds) (1974) *Chemistry of Synaptic Transmission: Essays and Sources*. Newton MA, Chiron Press

Sattelle DB, Hall LM, Hildebrand JG (eds) (1980) *Receptors for Neurotransmitters, Hormones and Pheromones in Insects*. Amsterdam, Elsevier/North Holland

Hagedorn HH, Hildebrand JG, Kidwell MG, Law JH (eds) (1990) *Molecular Insect Science*. New York, Plenum

Ciba Foundation Symposium 200 (1996) *Olfaction in Mosquito-Host Interactions*. West Sussex, UK, Wiley [meeting and book organized by JGH]

Meinwald J, Hildebrand JG (eds) (2010) *Science and the Educated American: A Core Component of Liberal Education.* American Academy of Arts and Sciences [available as a book or as a downloadable PDF: https://www.amacad.org/sites/default/files/publication/downloads/SLACweb.pdf

Original Reports

Hildebrand JG, Law JH (1964) Fatty acid distribution in bacterial phospholipids; The specificity of the cyclopropane synthetase reaction. Biochem 3:1304-1308

Hildebrand JG, Spector LB (1969) Succinyl phosphate and the succinyl Coenzyme A synthetase reaction. J Biol Chem 244:2606-2613

Hildebrand JG (1969) *Succinyl phosphate and the succinyl Coenzyme A synthetase reaction.* Ph.D. dissertation, Rockefeller University

Walsh CT, Hildebrand JG, Spector LB (1970) Succinyl phosphate: its non-enzymatic hydrolysis and reaction with Coenzyme A. J Biol Chem 245:5699-5708

Hildebrand JG, Barker DL, Herbert E, Kravitz EA (1971) Screening for neurotransmitters: a rapid radiochemical procedure. J Neurobiol 2:231-246

Barker DL, Herbert E, Hildebrand JG, Kravitz EA (1972) Acetylcholine and lobster sensory neurones. J Physiol (Lond) 226:205-229

Hildebrand JG, Townsel JG, Kravitz EA (1974) Distribution of acetylcholine, choline, choline acetyltransferase and acetylcholinesterase in regions and single, identified axons of the lobster nervous system. J Neurochem 23:951-963

Sanes JR, Hildebrand JG (1975) Nerves in the antennae of pupal *Manduca sexta* (Lepidoptera: Sphingidae). Wilhelm Roux' Archiv 178:71-78

Sanes JR, Hildebrand JG (1976) Structure and development of antennae in a moth, *Manduca sexta*. Devel Biol 51:282-299

Sanes JR, Hildebrand JG (1976) Origin and morphogenesis of sensory neurons in an insect antenna. Devel Biol 51:300-319

Sanes JR, Hildebrand JG (1976) Acetylcholine and its metabolic enzymes in developing antennae of the moth, *Manduca sexta*. Devel Biol 52:105-120

Sanes JR, Hildebrand JG, Prescott DJ (1976) Differentiation of insect sensory neurons in the absence of their normal synaptic targets. Devel Biol 52:121-127

Schweitzer ES, Sanes JR, Hildebrand JG (1976) Ontogeny of electroantennogram responses in the moth *Manduca sexta*. J Insect Physiol 22:955-960

Sanes JR, Prescott DJ, Hildebrand JG (1977) Cholinergic neurochemical development of normal and deafferented antennal lobes during metamorphosis of the moth, *Manduca sexta*. Brain Res 119:389-402

Prescott DJ, Hildebrand JG, Sanes JR, Jewett S (1977) Biochemical and developmental studies of acetylcholine metabolism in the central nervous system of the moth, *Manduca sexta*. Comp Biochem Physiol 56C:77-84

Maxwell GD, Tait JF, Hildebrand JG (1978) Regional synthesis of neurotransmitter candidates in the CNS of the moth *Manduca sexta*. Comp Biochem Physiol 61C:109-119

Hildebrand JG, Hall LM, Osmond BC (1979) Distribution of binding sites for ^{125}I-labeled α-bungarotoxin in normal and deafferented antennal lobes of *Manduca sexta*. Proc Natl Acad Sci USA 76:499-503

Starratt AN, Dahm KH, Allen N, Hildebrand JG, Payne TL, Röller H (1979) Bombykal, a sex pheromone of the sphinx moth *Manduca sexta*. Z Naturforsch 34C:9-12

Maxwell GD, Moore MM, Hildebrand JG (1980) Metabolism of tyramine in the central nervous system of the moth *Manduca sexta*. Insect Biochem 10:657-665

Maxwell GD, Hildebrand JG (1981) Anatomical and neurochemical consequences of deafferentation in the development of the visual system of the moth *Manduca sexta*. J Comp Neurol 195:667-680

Matsumoto SG, Hildebrand JG (1981) Olfactory mechanisms in the moth *Manduca sexta*: response characteristics and morphology of central neurons in the antennal lobes. Proc Roy Soc Lond B 213:249-277

Tolbert LP, Hildebrand JG (1981) Organization and synaptic ultrastructure of glomeruli in the antennal lobes of the moth *Manduca sexta*: a study using thin sections and freeze-fracture. Proc Roy Soc Lond B 213:279-301

Schneiderman AM, Matsumoto SG, Hildebrand JG (1982) Trans-sexually grafted antennae influence development of sexually dimorphic neurones in moth brain. Nature 298:844-846

Tolbert LP, Matsumoto SG, Hildebrand JG (1983) Development of synapses in the antennal lobes of the moth *Manduca sexta* during metamorphosis. J Neurosci 3:1158-1175

Kingan TG, Hildebrand JG (1985) γ-Aminobutyric acid in the central nervous system of metamorphosing and mature *Manduca sexta.* Insect Biochem 15:667-675

Hoskins SG, Homberg U, Kingan TG, Christensen TA, Hildebrand JG (1986) Immunocytochemistry of GABA in the antennal lobes of the sphinx moth *Manduca sexta*. Cell Tiss Res 244:243-252

Kent KS, Harrow ID, Quartararo P, Hildebrand JG (1986) An accessory olfactory pathway in Lepidoptera: the labial pit organ and its central projections in *Manduca sexta* and certain other sphinx moths and silk moths. Cell Tiss Res 245:237-245

Schneiderman AM, Hildebrand JG, Brennan MM, Tumlinson JH (1986) Trans-sexually grafted antennae alter pheromone-directed behavior in a moth. Nature 323:801-803

Kent KS, Hildebrand JG (1987) Cephalic sensory pathways in the central nervous system of larval *Manduca sexta* (Lepidoptera: Sphingidae). Phil Trans Roy Soc B 315:1-35

Homberg U, Kingan TG, Hildebrand JG (1987) Immunocytochemistry of GABA in the brain and suboesophageal ganglion of the sphinx moth *Manduca sexta*. Cell Tiss Res 248:1-24

Christensen TA, Hildebrand JG (1987) Male-specific, sex pheromone-selective projection neurons in the antennal lobes of the moth *Manduca sexta*. J Comp Physiol A 160 553-569

Waldrop B, Christensen TA, Hildebrand JG (1987) GABA-mediated synaptic inhibition of projection neurons in the antennal lobes of the sphinx moth *Manduca sexta*. J Comp Physiol A 161:23-32

Kent KS, Hoskins SG, Hildebrand JG (1987) A novel serotonin-immunoreactive neuron in the antennal lobe of the sphinx moth *Manduca sexta* persists throughout postembryonic life. J Neurobiol 18:451-465

Hishinuma A, Hockfield S, McKay R, Hildebrand JG (1988) Monoclonal antibodies reveal cell-type-specific antigens in the sexually dimorphic olfactory system of *Manduca sexta*. I. Generation of monoclonal antibodies and partial characterization of the antigens. J Neurosci 8:296-307

Hishinuma A, Hockfield S, McKay R, Hildebrand JG (1988) Monoclonal antibodies reveal cell-type-specific antigens in the sexually dimorphic olfactory system of *Manduca sexta*. II. Expression of antigens during postembryonic development. J Neurosci 8:308-315

Christensen TA, Hildebrand JG (1988) Frequency coding by central olfactory neurons in the sphinx moth *Manduca sexta*. Chem Senses 13:123-130

Homberg U, Montague RA, Hildebrand JG (1988) Anatomy of antenno-cerebral pathways in the brain of the sphinx moth *Manduca sexta*. Cell Tiss Res 254:255-281

Waldrop B, Hildebrand JG (1989) Physiology and pharmacology of acetylcholinergic responses of interneurons in the antennal lobe of the moth *Manduca sexta*. J Comp Physiol A 164:433-441

Christensen TA, Mustaparta H, Hildebrand JG (1989) Discrimination of sex pheromone blends in the olfactory system of the moth. Chem Senses 14:463-477

Kingan TG, Hildebrand JG (1989) Sexually dimorphic polypeptides in developing insect olfactory receptor cells. J Neurosci 9:1951-1960

Homberg U, Hildebrand JG (1989) Serotonin-immunoreactive neurons in the median protocerebrum and suboesophageal ganglion of the sphinx moth *Manduca sexta*. Cell Tiss Res 258:1-24

Homberg U, Hildebrand, J (1989) Serotonin-immunoreactivity in the optic lobes of the sphinx moth *Manduca sexta* and colocalization with FMRFamide- and SCP_B-immunoreactivities. J Comp Neurol 288:243-253

Kanzaki R, Arbas EA, Strausfeld NJ, Hildebrand JG (1989) Physiology and morphology of projection neurons in the antennal lobe of the male moth *Manduca sexta*. J Comp Physiol A 165:427-453

Kaissling K-E, Hildebrand JG, Tumlinson JH (1989) Pheromone receptor cells in the male moth *Manduca sexta*. Arch Insect Biochem Physiol 10:273-279

Christensen TA, Hildebrand JG, Tumlinson JH, Doolittle RE (1989) The sex-pheromone blend of *Manduca sexta*: Responses of central olfactory interneurons to antennal stimulation in male moths. Arch Insect Biochem Physiol 10:281-291

Homberg U, Kingan TG, Hildebrand JG (1990) Distribution of FMRFamide-like immunoreactivity in the brain and suboesophageal ganglion of the sphinx moth *Manduca sexta* and colocalization with SCP_B-, BPP-, and GABA-like immunoreactivity. Cell Tiss Res 259:401-419

Stengl M, Hildebrand JG (1990) Insect olfactory neurons *in vitro*: morphological and immunocytochemical characterization of male-specific antennal receptor cells from developing antennae of male *Manduca sexta*. J Neurosci 10:837-847

Hayashi JH, Hildebrand JG (1990) Insect olfactory neurons *in vitro*: morphological and physiological characterization of cells from the developing antennal lobe of *Manduca sexta*. J Neurosci 10:848-859

Christensen TA, Geoffrion SC, Hildebrand JG (1990) Physiology of interspecific chemical communication in *Heliothis* moths. Physiol Entomol 15:275-283

Kingan TG, Teplow DB, Phillips JM, Riehm JP, Rao KR, Hildebrand JG, Homberg U, Kammer AE, Jardine I, Griffin PR, Hunt DF (1990) A new peptide in the FMRFamide family isolated from the CNS of the hawkmoth, *Manduca sexta*. Peptides 11:849-856

Itagaki H, Hildebrand JG (1990) Olfactory interneurons in the brain of the larval sphinx moth *Manduca sexta*. J Comp Physiol A 167:309-320

Stengl M, Homberg U, Hildebrand JG (1990) Acetylcholinesterase activity in antennal receptor neurons of the sphinx moth *Manduca sexta*. Cell Tiss Res 262:245-252

Homberg U, Davis NT, Hildebrand JG (1991) Peptide-immunocytochemistry of neurosecretory cells in the brain and retrocerebral complex of the sphinx moth *Manduca sexta*. J Comp Neurol 303:35-52

Zufall F, Stengl M, Franke C, Hildebrand JG, Hatt H (1991) Ionic currents of cultured olfactory receptor neurons from antennae of male *Manduca sexta*. J Neurosci 11:956-965

Kanzaki R, Arbas EA, Hildebrand JG (1991) Physiology and morphology of protocerebral olfactory neurons in the male moth *Manduca sexta*. J Comp Physiol A 168:281-298

Homberg U, Hildebrand JG (1991) Histamine-immunoreactive neurons in the midbrain and sub-oesophageal ganglion of the sphinx moth *Manduca sexta*. J Comp Neurol 307:647-657

Christensen TA, Itagaki H, Teal PEA, Jasensky RD, Tumlinson JH, Hildebrand JG (1991) Innervation and neural regulation of the sex pheromone gland in female *Heliothis* moths. Proc Natl Acad Sci USA 88:4971-4975

Kanzaki R, Arbas EA, Hildebrand JG (1991) Physiology and morphology of descending neurons in pheromone-processing olfactory pathways in the male moth *Manduca sexta*. J Comp Physiol A 169:1-14

Hansson B, Christensen TA, Hildebrand JG (1991) Functionally distinct subdivisions of the macroglomerular complex in the antennal lobes of the sphinx moth *Manduca sexta*. J Comp Neurol 312:264-278

Christensen TA, Mustaparta H, Hildebrand JG (1991) Chemical communication in heliothine moths. II. Central processing of intra- and interspecific olfactory messages in the male corn earworm moth *Helicoverpa zea*. J Comp Physiol A 169:259-274

Davis NT, Hildebrand JG (1992) Vasopressin-immunoreactive neurons and neurohemal systems in cockroaches and mantids. J Comp Neurol 320:381-393

Stengl M, Zufall F, Hatt H, Hildebrand JG (1992) Olfactory receptor neurons from antennae of developing male *Manduca sexta* respond to components of the species-specific sex pheromone *in vitro*. J Neurosci 12:2523-2531

Rospars JP, Hildebrand JG (1992) Anatomical identification of glomeruli in the antennal lobes of the male sphinx moth *Manduca sexta*. Cell Tiss Res 270:205-227

Christensen TA, Lehman H, Teal PEA, Itagaki H, Tumlinson JH, Hildebrand JG (1992) Diel changes in the presence and physiological actions of octopamine in the female sex-pheromone glands of Heliothine moths. Insect Biochem Molec Biol 22:841-849

Lehman HK, Murgiuc CM, Miller TA, Lee TD, Hildebrand JG (1993) Crustacean cardioactive peptide in the sphinx moth, *Manduca sexta*. Peptides 14:735-741

Sun XJ, Tolbert LP, Hildebrand JG (1993) Ramification pattern and ultrastructural characteristics of the serotonin immunoreactive neuron in the antennal lobe of the moth *Manduca sexta*: a laser scanning confocal and electron microscopic study. J Comp Neurol 338:5-16

Christensen TA, Waldrop BR, Harrow ID, Hildebrand JG (1993) Local interneurons and information processing in the olfactory glomeruli of the moth *Manduca sexta*. J Comp Physiol A 173:385-399

Davis NT, Homberg U, Dircksen H, Levine RB, Hildebrand JG (1993) Crustacean cardioactive peptide-immunoreactive neurons in the hawkmoth *Manduca sexta* and changes in their immunoreactivity during postembryonic development. J Comp Neurol 338:612-627

Homberg U, Hildebrand JG (1994) Postembryonic development of GABA-like immunoreactivity in the brain of the sphinx moth *Manduca sexta*. J Comp Neurol 339:132-149

Christensen TA, Lashbrook JM, Hildebrand JG (1994) Neural activation of the sex-pheromone gland in the moth *Manduca sexta*: real-time measurement of pheromone release. Physiol Entomol 19:265-270

Homberg U, Hoskins SG, Hildebrand JG (1995) Distribution of acetylcholinesterase activity in the deutocerebrum of the sphinx moth *Manduca sexta*. Cell Tiss Res 279:249-259

Novak MG, Ribeiro JMC, Hildebrand JG (1995) 5-Hydroxytryptamine in the salivary glands of adult female *Aedes aegypti* and its role in regulation of salivation. J Exp Biol 198:167-174

Sun XJ, Tolbert LP, Hildebrand JG (1995) Using laser scanning confocal microscopy as a guide for electron microscopic study: a simple method for correlation of light and electron microscopy. J Histochem Cytochem 43:329-335

Kloppenburg P, Hildebrand JG (1995) Neuromodulation by 5-hydroxytryptamine in the antennal lobe of the sphinx moth *Manduca sexta*. J Exp Biol 198:603-611

Mercer AR, Hayashi JH, Hildebrand JG (1995) Modulatory effects of 5-hydroxytryptamine on voltage-activated currents in cultured antennal-lobe neurons of the sphinx moth *Manduca sexta*. J Exp Biol 198:613-627

Christensen TA, Harrow ID, Cuzzocrea C, Randolph PW, Hildebrand JG (1995) Distinct projections of two populations of olfactory receptor axons in the antennal lobe of the sphinx moth *Manduca sexta*. Chem Senses 20:313-323

Christensen TA, Mustaparta H, Hildebrand JG (1995) Chemical communication in heliothine moths. VI. Parallel pathways for information processing in the macroglomerular complex of the male tobacco budworm moth *Heliothis virescens*. J Comp Physiol A 177:545-557

Mercer AR, Kloppenburg P, Hildebrand JG (1996) Serotonin-induced changes in the excitability of cultured antennal-lobe neurons of the sphinx moth *Manduca sexta*. J Comp Physiol A 178:21-31

Mercer AR, Kirchhof BS, Hildebrand JG (1996) Enhancement by serotonin of the growth *in vitro* of antennal lobe interneurons of the sphinx moth *Manduca sexta*. J Neurobiol 29:49-64

Davis NT, Homberg U, Teal PEA, Altstein M, Hildebrand JG (1996) Neuroanatomy and immunocytochemistry of the median neurosecretory cells of the subesophageal ganglion of the tobacco hawkmoth, *Manduca sexta*: immunoreactivity to PBAN and other neuropeptides. Microscopy Res & Technique 35:201-229

Tolbert LP, Sun XJ, Hildebrand JG (1996) Combining laser scanning confocal microscopy and electron microscopy in studies of the insect nervous system. J Neurosci Meth 69:25-32

Christensen TA, Heinbockel T, Hildebrand JG (1996) Olfactory information processing in the brain: encoding the chemical and temporal features of odors. J Neurobiol 30:82-91

Kloppenburg P, Camazine SM, Sun XJ, Randolph P, Hildebrand JG (1997) Organization of the antennal motor system in the sphinx moth *Manduca sexta*. Cell Tiss Res 287:425-433

Christensen TA, Hildebrand JG (1997) Coincident stimulation with pheromone components improves temporal pattern resolution in central olfactory neurons. J Neurophysiol 77:775-781

Sun XJ, Tolbert LP, Hildebrand JG (1997) Synaptic organization of the uniglomerular projection neurons of the antennal lobe of the moth *Manduca sexta*: a laser scanning confocal and electron microscopic study. J Comp Neurol 379:2-20

Davis NT, Veenstra JA, Feyereisen R, Hildebrand JG (1997) Allatostatin-immunoreactive neurons of the tobacco hornworm, *Manduca sexta*, and isolation and identification of a new neuropeptide of the allatostatin family. J Comp Neurol 385:265-284

Sun XJ, Tolbert LP, Hildebrand JG, Meinertzhagen IA (1998) A rapid method for combined laser scanning confocal microscopic and electron microscopic visualization of biocytin- or Neurobiotin-labelled neurons. J Histochem Cytochem 46:263-274

Rössler W, Tolbert LP, Hildebrand JG (1998) Early formation of sexually dimorphic glomeruli in the developing olfactory lobe of the brain of the moth *Manduca sexta*. J Comp Neurol 396:415-428

Heinbockel T, Kloppenburg P, Hildebrand JG (1998) Pheromone-evoked potentials and oscillations in the antennal lobes of the sphinx moth *Manduca sexta*. J Comp Physiol A 182:703-714

Christensen TA, Waldrop BR, Hildebrand JG (1998) Multitasking in the olfactory system: context-dependent responses to odors reveal dual GABA-regulated coding mechanisms in single olfactory projection neurons. J Neurosci 18:5999-6008

Heinbockel T, Hildebrand JG (1998) Antennal receptive fields of pheromone-responsive projection neurons in the antennal lobes of the male sphinx moth *Manduca sexta*. J Comp Physiol A 183:121-133

Nighorn A, Gibson NJ, Rivers DM, Hildebrand JG, Morton DB (1998) The nitric oxide-cGMP pathway may mediate communication between sensory afferents and projection neurons in the antennal lobe of *Manduca sexta*. J Neurosci 18:7244-7255

Vickers NJ, Christensen TA, Hildebrand JG (1998) Combinatorial odor discrimination in the brain: attractive and antagonist odor blends are represented in distinct combinations of uniquely identifiable glomeruli. J Comp Neurol 400:35-56

Rössler W, Randolph PW, Tolbert LP, Hildebrand JG (1999) Axons of olfactory receptor cells of trans-sexually grafted antennae induce development of sexually dimorphic glomeruli in *Manduca sexta*. J Neurobiol 38:521-541

Heinbockel T, Christensen TA, Hildebrand JG (1999) Temporal tuning of odor responses in pheromone-responsive projection neurons in the brain of the sphinx moth *Manduca sexta*. J Comp Neurol 409:1-12

Shields VDC, Hildebrand JG (1999) Fine structure of antennal sensilla of the female sphinx moth, *Manduca sexta*. I. trichoid and basiconic sensilla. Canad J Zool 77:290-301

Shields VDC, Hildebrand JG (1999) Fine structure of antennal sensilla of the female sphinx moth *Manduca sexta.* II. auriculate, coeloconic, and composite sensilla. Canad J Zool 77:302-313

Kent KS, Oland LA, Hildebrand JG (1999) Development of the labial pit organ glomerulus in the antennal lobe of the moth, *Manduca sexta*: the role of afferent projections in the formation of identifiable olfactory glomeruli. J Neurobiol 40:28-44

Teal PEA, Davis NT, Meredith JA, Christensen TA, Hildebrand JG (1999) Role of the ventral nerve cord and terminal abdominal ganglion in the regulation of sex pheromone production in the Tobacco Budworm (Lepidoptera: Noctuidae). Ann Ent Soc Am 92:891-901

Rössler W, Oland LA, Higgins MR, Hildebrand JG, Tolbert LP (1999) Development of a glia-rich axon-sorting zone in the olfactory pathway of the moth *Manduca sexta.* J Neurosci 19:9865-9877

Strausfeld NJ, Hildebrand JG (1999) Olfactory systems: common design, uncommon origins? Curr Opin Neurobiol 9:634-639

King J Roche, Christensen TA, Hildebrand JG (2000) Response characteristics of an identified, sexually dimorphic olfactory glomerulus. J Neurosci 20:2391-2399

Rospars JP, Hildebrand JG (2000) Sexually dimorphic and isomorphic glomeruli in the antennal lobes of the sphinx moth *Manduca sexta*. Chem Senses 25:119-129

Lehman HK, Murgiuc CM, Hildebrand JG (2000) Characterization and developmental regulation of octopamine biosynthesis in the CNS of the moth, *Manduca sexta.* Insect Biochem Molec Biol 30:377-386

Mechaber WL, Hildebrand JG (2000) Novel, non-solanaceous hostplant record for *Manduca sexta* (Lepidoptera: Sphingidae) in the southwestern United States. Ann Ent Soc Am 93:447-451

Christensen TA, Pawlowski VM, Lei H, Hildebrand JG (2000) Multi-unit recordings reveal context-dependent modulation of synchrony in odor-specific neural ensembles. Nature Neurosci 3:927-931

Rössler W, Tolbert LP, Hildebrand JG (2000) Importance of timing of olfactory receptor-axon outgrowth for glomerulus development in *Manduca sexta*. J Comp Neurol 425:233-243

Shields VDC, Hildebrand JG (2001) Responses of a population of antennal olfactory receptor cells in the female moth *Manduca sext*a to plant-associated volatile organic compounds. J Comp Physiol A 186:1135-1151

Vickers NJ, Christensen TA, Baker TC, Hildebrand JG (2001) Odour-plume dynamics influence the brain's olfactory code. Nature 410:466-470

Davis NT, Dulcis D, Hildebrand JG (2001) Innervation of the heart and aorta of *Manduca sexta*. J Comp Neurol 440:245-260

Dulcis D, Davis NT, Hildebrand JG (2001) Neuronal control of heart reversal in the hawkmoth *Manduca sexta*. J Comp Physiol A 187:837-848

Christensen TA, D'Alessandro G, Lega J, Hildebrand JG (2001) Morphometric modeling of olfactory circuits in the insect antennal lobe: I. simulation of spiking local interneurons. BioSystems 61:143-153

Gibson NJ, Rössler W, Nighorn AJ, Oland LA, Hildebrand JG, Tolbert LP (2001) Neuron-glia communication via nitric oxide is essential in establishing antennal-lobe structure in *Manduca sexta*. Devel Biol 240:326-339

Mechaber WL, Capaldo CT, Hildebrand JG (2002) Behavioral responses of adult female tobacco hornworms, *Manduca sexta*, to hostplant volatiles change with age and mating status. J Insect Sci 2: no. 5. *[Available online: insectscience.org/2.5]*

Mercer AR, Hildebrand JG (2002) Developmental changes in the electrophysiological properties and response characteristics of *Manduca* antennal-lobe neurons. J Neurophysiol 87:2650-2663

Mercer AR, Hildebrand JG (2002) Developmental changes in the density of ionic currents in antennal-lobe neurons of the sphinx moth, *Manduca sexta*. J Neurophysiol 87:2664-2675

Lei H, Christensen TA, Hildebrand JG (2002) Local inhibition modulates synchronization of glomerulus-specific output neurons in the moth antennal lobe. Nature Neurosci 5:557-565

Davis NT, Blackburn MB, Golubeva EG, Hildebrand JG (2003) Localization of myoinhibitory peptide immunoreactivity in *Manduca sexta*: indications that the peptide has a role in molting and ecdysis. J Exp Biol 206:1449-1460

Shiga S, Davis NT, Hildebrand JG (2003) Role of neurosecretory cells in the photoperiodic induction of pupal diapause of the tobacco hornworm *Manduca sexta*. J Comp Neurol 462:275-285

Fraser AM, Mechaber WL, Hildebrand JG (2003) Electroantennographic responses of the sphinx moth *Manduca sexta* to host plant headspace volatiles. J Chem Ecol 29:1813-1833

Christensen TA, Lei H, Hildebrand JG (2003) Coordination of central odor representations through transient, non-oscillatory synchronization of glomerular output neurons. Proc Natl Acad Sci USA 100:11076-11081

Reisenman CE, Christensen TA, Francke W, Hildebrand JG (2004) Enantioselectivity of projection neurons innervating identified olfactory glomeruli. J Neurosci 24:2602-2611

Thom C, Guerenstein PG, Mechaber WL, Hildebrand JG (2004) Floral CO_2 reveals flower profitability to moths. J Chem Ecol 30:1285-1288

Guerenstein PG, Yepez E, van Haren J, Williams DG, Hildebrand JG (2004) Floral CO_2 emission may signal food abundance to nectar-feeding moths. Naturwissenschaften 91:329-333

Gibson NJ, Hildebrand JG, Tolbert LP (2004) Glycosylation patterns are sexually dimorphic throughout development of the olfactory system in *Manduca sexta*. J Comp Neurol 476:1-18

Daly KC, Christensen TA, Lei H, Smith BH, Hildebrand JG (2004) Learning modulates the ensemble representations for odors in primary olfactory networks. Proc Natl Acad Sci USA 101:10476-10481

Guerenstein PG, Christensen TA, Hildebrand JG (2004) Sensory processing of ambient-CO_2 information in the brain of the moth *Manduca sexta*. J Comp Physiol A 190:707-725

Heinbockel T, Christensen TA, Hildebrand JG (2004) Representation of binary pheromone blends by glomerulus-specific olfactory projection neurons. J Comp Physiol A 190:1023-1037

Lei H, Christensen TA, Hildebrand JG (2004) Spatial and temporal organization of ensemble representations for different odor classes in the moth antennal lobe. J Neurosci 24:11108-11119

Mercer AR, Kloppenburg P, Hildebrand JG (2005) Plateau potentials in developing antennal-lobe neurons of the moth, *Manduca sexta.* J Neurophysiol 93:1949-1958

Dacks AM, Christensen TA, Agricola H-J, Wollweber L, Hildebrand JG (2005) Octopamine-immunoreactive neurons in the brain and subesophageal ganglion of the hawkmoth *Manduca sexta*. J Comp Neurol 488:255-268

Reisenman CE, Christensen TA, Hildebrand JG (2005) Chemosensory selectivity of output neurons innervating an identified, sexually isomorphic olfactory glomerulus. J Neurosci 25:8017-8026

Abrell L, Guerenstein PG, Mechaber WL, Stange G, Christensen TA, Nakanishi K, Hildebrand JG (2005) Effect of elevated atmospheric CO_2 on oviposition behavior in *Manduca sexta* moths. Global Change Biol 11:1272-1282

Davis NT, Hildebrand JG (2006) Neuroanatomy of the sucking pump of the moth, *Manduca sexta* (Sphingidae, Lepidoptera). Arthropod Struc Devel 35:15-33

Dacks AM, Christensen TA, Hildebrand JG (2006) Phylogeny of a serotonin-immunoreactive neuron in the primary olfactory center of the insect brain. J Comp Neurol 498:727-746

Riffell JA, Alarcón R, Abrell L, Davidowitz G, Bronstein JL, Hildebrand JG (2008) Behavioral consequences of innate preferences and olfactory learning in hawkmoth-flower interactions. Proc Natl Acad Sci USA 105:3404-3409

Dacks AM, Christensen TA, Hildebrand JG (2008) Modulation of olfactory processing in the antennal lobe of *Manduca sexta* by serotonin. J Neurophysiol 99:2077-2085

Reisenman CE, Heinbockel T, Hildebrand JG (2008) Inhibitory interactions among olfactory glomeruli do not necessarily reflect spatial proximity. J Neurophysiol 100:554-564

Riffell JA, Abrell L, Hildebrand JG (2008) Physical processes and real-time chemical measurement of the insect olfactory environment. J Chem Ecol 34:837-853

Lei H, Riffell JA, Gage SL, Hildebrand JG (2009) Contrast enhancement of stimulus intermittency in a primary olfactory network and its behavioral significance. J Biol 8:21, 1-21

Riffell JA, Lei H, Christensen TA, Hildebrand JG (2009) Characterization and coding of behaviorally significant odor mixtures. Curr Biol 19:335-340

Riffell JA. Lei H, Hildebrand JG (2009) Neural correlates of behavior in the moth *Manduca sexta* in response to complex odors. Proc Natl Acad Sci USA 106:19219-19226

Reisenman CE, Riffell JA, Hildebrand JG (2009) Neuroethology of oviposition behavior in the moth *Manduca sexta*. Ann NY Acad Sci 1170:462-467

Daly DC, Mercier PP, Bhardwaj M, Stone AL, Aldworth ZN, Daniel TL, Voldman J, Hildebrand JG, Chandrakasan AP (2010) A Pulsed UWB receiver SoC for insect motion control. IEEE J Solid-State Circuits 45:153-166

Reisenman CE, Lawrence G, Guerenstein PG, Gregory T, Dotson E, Hildebrand JG (2010) Infection of kissing bugs with *Trypanosoma cruzi*, Tucson, Arizona, USA. Emerg Infect Dis 16:400-405

Reisenman CE, Riffell JA, Bernays E, Hildebrand JG (2010) Antagonistic effects of floral scent in an insect-plant interaction. Proc Roy Soc B 277:2371-2379

Tsang WM, Stone AL, Aldworth ZN, Hildebrand JG, Daniel TL, Akinwande AI, Voldman J (2010) Flexible split-ring electrode for insect flight biasing using multisite neural stimulation. IEEE Trans Biomed Eng 57:1757-1764

Kalberer NM, Reisenman CE, Stein HL, Mechaber WL, Hildebrand JG (2010) Male moths bearing transplanted female antennae express characteristically female behaviour and central neural activity. J Exp Biol 213:1272-1280

Alarcón R, Riffell JA, Davidowitz G, Hildebrand JG, Bronstein JL (2010) Sex-dependent variation in the floral preferences of the hawkmoth *Manduca sexta*. Anim Behav 80:289-296

Reisenman CE, Dacks AM, Hildebrand JG (2011) Local interneuron diversity in the primary olfactory center of the moth *Manduca sexta*. J Comp Physiol A 197:653-665

Reisenman CE. Gregory T, Guerenstein PG, Hildebrand JG (2011) Feeding and defecation behavior of *Triatoma rubida* and its potential role as a vector of Chagas Disease in Arizona, USA. Am J Trop Med Hygiene 85:648-656

Lei H, Reisenman CE, Wilson C, Gabbur P, Hildebrand JG (2011) Spiking patterns and their functional implications in the antennal lobe of the Tobacco Hornworm *Manduca sexta*. PLoS One 6(8): e23382

Tsang WM, Stone AL, Otten D, Aldworth ZN, Daniel TL, Hildebrand JG, Levine RB, Voldman J (2012) Insect-machine interface: a carbon nanotube-enhanced flexible neural probe. J Neurosci Meth 204:355-365

Reisenman CE, Savary W, Cowles J, Gregory TL, Hildebrand JG (2012) The distribution and abundance of triatomine insects, potential vectors of Chagas Disease, in a metropolitan area in Southern Arizona, United States. J Med Entomol 49:1254-1261

Hinterwirth AJ, Medina B, Lockey J, Otten D, Voldman J, Lang JH, Hildebrand JG, Daniel TL (2012) Wireless stimulation of antennal muscles in freely flying hawkmoths leads to flight path changes. PLoS One 7(12): e52725. doi:10.1371/journal.pone.0052725

Riffell JA, Lei H, Abrell L, Hildebrand JG (2013) Neural basis of a pollinator's buffet: olfactory specialization and learning in the *Manduca sexta* moth. Science 339:200-204 *Published online 6 December 2012 [DOI:10.1126/science.1225483]*

Martin JP, Lei H, Riffell JA, Hildebrand JG (2013) Synchronous firing of antennal-lobe projection neurons encodes the behaviorally effective ratio of sex-pheromone components in male *Manduca sexta*. J Comp Physiol A 199:963-979

Lei H, Chiu H-Y, Hildebrand JG (2013) Responses of protocerebral neurons in male *Manduca sexta* to sex-pheromone mixtures. J Comp Physiol A 199:997-1014

Goldman-Huertas B, Mitchell RF, Lapoint RT, Faucher CP, Hildebrand JG, Whiteman NK (2015) Evolution of herbivory in Drosophilidae linked to loss of behaviors, antennal responses, odorant receptors and ancestral diet. Proc Natl Acad Sci USA 112:3026-3031

Mitchell RF, Hall LP, Reagel PF, McKenna DD, Baker TC, Hildebrand JG (2017) Odorant receptors and antennal lobe morphology offer a new approach to understanding olfaction in the Asian longhorned beetle. J Comp Physiol A 203:99-109

Wilson JK, Tseng AS, Potter KA, Davidowitz G, Hildebrand JG (2017) The effects of the alkaloid scopolamine on the performance and behavior of two caterpillar species. Arthropod-Plant Interactions, https://doi.org/10.1007/s11829-017-9548-y

Reviews, Chapters, and Published Lectures

Hildebrand JG (1974) Acetylcholine and choline. In: Bergmeyer HU (ed) *Methods of Enzymatic Analysis*, vol 4. Berlin, Verlag Chemie, pp 1819-1824

Hildebrand JG, Kravitz EA (1974) Transmitter biochemistry of single, identified neurons. In: Richter D (ed) *Lipmann Symposium: Energy, Biosynthesis and Regulation in Molecular Biology*. Berlin, deGruyter Verlag, pp 298-307

Hildebrand JG, Maxwell GD (1980) Neurochemical explorations of the central nervous system of the moth *Manduca sexta* and especially of the antennal and visual pathways. In: *Insect Neurobiology and Pesticide Action (Neurotox 79)*. London, Soc Chem Ind, pp 101-107

Hildebrand JG, Matsumoto SG, Camazine SM, Tolbert LP, Blank S, Ferguson H, Ecker V (1980) Organisation and physiology of antennal centres in the brain of the moth *Manduca sexta*. In: *Insect Neurobiology and Pesticide Action (Neurotox 79)*. London, Soc Chem Ind, pp 375-382

Hildebrand JG (1980) Development of putative acetylcholine receptors in normal and deafferented antennal lobes during metamorphosis of *Manduca sexta*. In: Sattelle D, Hall LM, Hildebrand JG (eds) *Receptors for Neurotransmitters, Hormones and Pheromones in Insects*. Amsterdam, Elsevier/North Holland, pp 209-220

Hildebrand JG (1982) Chemical signalling in the insect nervous system. In: *Neuropharmacology of Insects* (Ciba Foundation Symposium 88). London, Pitman, pp 5-11

Hildebrand JG, Matsumoto SG, Tolbert LP, Schneiderman AM, Camazine SM (1982) Postembryonic development of the antennal lobes in the moth *Manduca sexta*. In: Goodman CS, Pearson KG (eds) *Neuronal Development: Cellular Approaches in Invertebrates*. Neurosci Res Prog Bull 20:891-900

Hildebrand JG, Kent KS, Harrow ID, Camazine SM, Montague RA, Quartararo P, Imperato M (1984) Functional organization of chemical-sensory pathways in larval and adult *Manduca sexta*. In: Borkovec AB, Kelly TJ (eds) *Insect Neurochemistry and Neurophysiology*. New York, Plenum, pp 377-380

Kingan TG, Hildebrand JG (1985) Screening and assays for neurotransmitters in the insect nervous system. In: Breer H, Miller TA (eds) *Neurochemical Techniques in Insect Research.* Berlin, Springer Verlag, pp 1-24

Hoskins SG, Homberg U, Kingan TG, Hildebrand JG (1985) Neurochemical anatomy of the brain of the sphinx moth *Manduca sexta*. In: *Neuropharmacology and Pesticide Action (Neurotox 85)*. London, Soc Chem Ind, pp 84-87

Hildebrand JG (1985) Metamorphosis of the insect nervous system: influences of the periphery on the postembryonic development of the antennal sensory pathway in the brain of *Manduca sexta*. In: Selverston A (ed) *Model Neural Networks and Behavior*. New York, Plenum, pp 129-148

Schneiderman AM, Hildebrand JG (1985) Sexually dimorphic development of the insect olfactory pathway. Trends Neurosci 8:494-499

Hildebrand JG, Montague RA (1986) Functional organization of olfactory pathways in the central nervous system of *Manduca sexta*. In: Payne TL, Birch MC, Kennedy CEJ (eds) *Mechanisms in Insect Olfaction*. Oxford, Oxford Univ Press, pp 279-285

Hildebrand JG, Homberg U, Kingan TG, Christensen TA, Waldrop BR (1986) Neurotransmitters and neuropeptides in the olfactory pathway of the sphinx moth *Manduca sexta*. In: Borkovec AB, Gelman DB (eds) *Insect Neurochemistry and Neurophysiology 1986.* Clifton, NJ, The Humana Press, pp 255-258

Hildebrand JG (1987) From semiochemical to behavior: olfaction in the sphinx moth *Manduca sexta*. In: Law JH (ed) *Molecular Entomology*. New York, Alan R. Liss, pp 21-31

Christensen TA, Hildebrand JG (1987) Functions, organization, and physiology of the olfactory pathways in the lepidopteran brain. In: Gupta AP (ed) *Arthropod Brain: Its Evolution, Development, Structure and Functions*. New York, John Wiley, pp 457-484

Hildebrand JG (1987) *Manduca* metamorphosis: postembryonic development and reorganization of neurons and behavior. In: Easter SS, Reichardt LF (eds) *1987 Short Course 1 Syllabus. The Roles of Cell Lineage and Epigenetic Factors in Neuronal Development*. Washington, DC, Society for Neuroscience, pp 82-93

Christensen TA, Hildebrand JG (1987) Pheromonal information coding by projection neurons in the antennal lobes of the sphinx moth *Manduca sexta*. In: Roper SD, Atema J (eds) *Olfaction and Taste IX*. Ann NY Acad Sci 510:224-228

Hildebrand JG (1988) Summing up and looking ahead -- Insect neurobiology and the future of pest control. In: Lunt GG (ed) *Neurotox '88, Molecular Basis of Drug & Pesticide Action*. Amsterdam, Excerpta Medica, Elsevier, pp 583-588

Homberg U, Christensen TA, Hildebrand JG (1989) Structure and function of the deutocerebrum in insects. Annu Rev Entomol 34:477-501

Hildebrand JG (1989) Mechanisms of olfactory control of moth behavior. In: Erber J, Menzel R, Pflüger H-J, Todt D (eds) *Neural Mechanisms of Behavior - Proceedings of the 2nd International Congress of Neuroethology*. Stuttgart, Georg Thieme Verlag, pp 241-242

Christensen TA, Hildebrand JG (1990) Representation of sex-pheromonal information in the insect brain. In: Døving KB (ed) *ISOT X. Proceedings of Tenth International Symposium on Olfaction and Taste*. Oslo, University of Oslo, pp 142-150

Kanzaki R, Shibuya T, Arbas EA, Hildebrand JG (1991) Neural processing of the higher order neurons in the olfactory pathways of the insect brain: responses and pathways of olfactory descending neurons. In: *Proceedings of the 25th Japanese Symposium on Taste and Smell*, Japanese Association for the Study of Taste and Smell (JASTS), pp 77-80

Hildebrand JG, Christensen TA, Arbas EA, Hayashi JH, Homberg U, Kanzaki R, Stengl M (1992) Olfaction in *Manduca sexta*: cellular mechanisms of responses to sex pheromone. In: Duce IR (ed) *Proceedings of NEUROTOX 91 - Molecular Basis of Drug & Pesticide Action.* London, Elsevier Applied Science, pp 323-338

Hildebrand JG, Christensen TA, Harrow ID, Homberg U, Matsumoto SG, Waldrop BR (1992) The roles of local interneurons in the processing of olfactory information in the antennal lobes of the moth *Manduca sexta*. In: *Proceedings of the Seventh International Symposium on Invertebrate Neurobiology* (Tihany, Hungary). Acta Biologica Hungarica 43:167-174

Christensen TA, Hildebrand JG (1994) Neuroethology of sexual attraction and inhibition in heliothine moths. In: Schildberger K, Elsner N (eds) *Neural Basis of Behavioral Adaptations*, Fortschr Zool 39, Stuttgart, New York, Gustav Fischer Verlag, pp. 37-46

Hildebrand JG, Hayashi JH, Kloppenburg P, Mercer A, Sun XJ, Christensen TA (1994) Serotonin in the antennal lobe of *Manduca sexta*: possible function as a neuromodulator. In: Borkovec AB, Loeb MJ (eds) *Insect Neurochemistry and Neurophysiology 1993*. Boca Raton, FL, CRC Press, Inc., pp 133-136

Hildebrand JG, Christensen TA (1994) Olfactory mechanisms underlying processing of sex-pheromonal information in moths. In: Kurihara K, Suzuki N, Ogawa H (eds), *Olfaction and Taste XI* -- Proceedings of ISOT XI / JASTS XXVII. Tokyo, Springer-Verlag, pp. 827-830

Hildebrand JG (1995) Analysis of chemical signals by nervous systems. Proc Natl Acad Sci USA 92:67-74

Christensen TA, Hildebrand JG (1995) Neural regulation of sex-pheromone glands in Lepidoptera. Invert Neurosci 1:97-103

Hildebrand JG (1996) King Solomon Lecture -- Olfactory control of behavior in moths: central processing of odor information and the functional significance of olfactory glomeruli. J Comp Physiol A 178:5-19

Hildebrand JG, Christensen TA (1996) Olfactory mechanisms underlying sex-pheromonal information processing in moths. In: Koike H, Kidokoro Y, Takahashi K, Kanaseki T (eds), *Basic Neuroscience in Invertebrates*. Tokyo, Japan Scientific Societies Press, pp. 357-362

Hildebrand JG, Shepherd GM (1997) Mechanisms of olfactory discrimination: converging evidence for common principles across phyla. Annu Rev Neurosci 20:595-631

Hildebrand JG (1997) Sensory processing of pheromone signals. In: Cardé R, Minks A (eds), *Pheromone Research: New Directions*. New York, Chapman and Hall, pp 111-114

Hildebrand JG, Rössler W, Tolbert LP (1997) Postembryonic development of the olfactory system in the moth *Manduca sexta*: primary-afferent control of glomerular development. Sem Cell Devel Biol 8:163-170

Heinbockel T, Hildebrand JG (1997) Processing of intensity and temporal structure of pheromonal signals in the brain of the sphinx moth, *Manduca sexta* (L.). Mitt Dtsch Ges Allg Angew Ent 11:501-504

Vickers NJ, Christensen TA, Hildebrand JG (1998) Primary processing of pheromone odours. The Biochemist: August 1998, pp 22-25

Christensen TA, Waldrop BR, Hildebrand JG (1998) GABAergic mechanisms that shape the temporal response to odors in moth olfactory projection neurons. In: Murphy C (ed), *Olfaction and Taste XII*. Ann NY Acad Sci 855: 475-481

Heinbockel T, Hildebrand JG (1998) Neuronale Mechanismen der Pheromonverarbeitung in den Antennalloben des Tabakaschwärmers *Manduca sexta* (L.) (Lepidoptera: Sphingidae). Verh Westd Entom Tag 8:195-205

Vickers NJ, Christensen TA, Hildebrand JG (1999) Integrating behavior with neurobiology: odor-mediated moth flight and olfactory discrimination by glomerular arrays. Integrative Biology 1:224-230

Hildebrand JG, Christensen TA, Heinbockel T, King JR, Mechaber W, Rössler W, Selchow K, Shields VDC (1999) The olfactory neurobiology of host- and mate-attraction in moths. In: Elsner N, Eysel U (eds), *From Molecular Neurobiology to Clinical Neuroscience (Proc 1st Göttingen Conference of the German Neuroscience Society 1999 & 27th Göttingen Neurobiology Conference)*, Vol. I. Stuttgart: Thieme, pp 56-67

Heinbockel T, Hildebrand JG (2000) Cellular mechanisms of odor processing in the antennal lobes of the sphinx moth, *Manduca sexta* (L.). Mitt Dtsch Ges Allg Angew Ent 12:549-553

Hildebrand JG (2001) From molecule to perception: five hundred million years of olfaction, IUBS Biology International no. 41, pp 41-52

Shields VDC, Hildebrand JG (2001) Recent advances in insect olfaction, specifically regarding the morphology and sensory physiology of antennal sensilla of the female sphinx moth *Manduca sexta*. Microscopy Res & Technique 55:307-329

Christensen TA, Hildebrand, JG (2002) Electrophysiological analysis of olfactory coding in the CNS., Chapter 13 in Nicolelis MAL and Simon SA (eds) *Methods and Frontiers in Chemosensory Research*, part of CRC Series: Methods and Frontiers in Neuroscience. Boca Raton: CRC Press, pp 325-337

Christensen TA, Hildebrand, JG (2002) Pheromonal and host-odor processing in the insect antennal lobe: how different? Curr Opin Neurobiol 12:393-399

Pawlowski VM, Christensen TA, Lei H, Hildebrand JG (2005) A primer on multichannel neural ensemble recording in insects, Chapter 14 in Christensen TA (ed) *Methods in Insect Sensory Neuroscience*, Boca Raton: CRC Press, pp 393-415

Guerenstein PG, Hildebrand JG (2008) Roles and effects of environmental carbon dioxide in insect life. Annu Rev Entomol 53:161-178

Dacks AM, Guerenstein PG, Reisenman CE, Riffell JA, Lei H, Hildebrand JG (2009). Olfaction in invertebrates: *Manduca*. In: Squire LR (ed). *Encyclopedia of Neuroscience*, Vol. 7, pp 49-57. Oxford: Academic Press

Lei H, Oland LA, Riffell JA, Beyerlein A, Hildebrand JG (2010) Implications from microcircuits of a moth antennal lobe for olfactory information processing. Chapter 42, pp 417-426, in: Shepherd G, Grillner S (eds) *Handbook of Brain Microcircuits.* Oxford U Press

Martin JP, Hildebrand JG (2010) Innate recognition of pheromone and food odors in moths: a common mechanism in the antennal lobe? Front Behav Neurosci 4:159. doi:10.3389/fnbeh.2010.00159

Martin JP, Beyerlein A, Dacks AM, Reisenman CE, Riffell JA, Lei H, Hildebrand JG (2011) The neurobiology of insect olfaction: sensory processing in a comparative context. Prog Neurobiol 95:427-447

Riffell JA, Hildebrand JG (2016) Adaptive processing in the insect olfactory system. In: von der Emde G, Warrant E (eds) *The Ecology of Animal Senses*. pp 3-24. Springer

Mitchell RF, Hall LP, Reagel PF, McKenna DD, Baker TC, Hildebrand JG (2017) Odorant receptors and antennal lobe morphology offer a new approach to understanding olfaction in the Asian longhorned beetle. J Comp Physiol A 203:99-109

Lei H, Oland LA, Riffell JA, Beyerlein A, Hildebrand JG (2018) Implications from microcircuits of a moth antennal lobe for olfactory information processing *[updated version]*. in: Shepherd G, Grillner S (eds) *Handbook of Brain Microcircuits.* Oxford U Press

Book Reviews

Hildebrand JG (1977) review of Tower DB (ed) *The Nervous System*. Science 196:419-420

Hildebrand JG (1978) review of Triggle DJ, Triggle CR *Chemical Pharmacology of the Synapse*. Quart Rev Biol 53:349

Hildebrand JG (1981) review of Kurstak E et al. (eds) *Invertebrate Systems in Vitro*. Trends Neurosci 4:XXVIII

Hildebrand JG (1983) review of Cowan WM (ed) *Studies in Developmental Neurobiology: Essays in Honor of Viktor Hamburger*. BioScience 33:133

Hildebrand JG (1982) review of Bachelard HS *Brain Biochemistry*, 2nd edition. Trends Neurosci 5:365-366

Hildebrand JG (1983) review of Lahue R (ed) *Methods in Neurobiology*. Trends Neurosci 6:65-66

Hildebrand JG (1986) review of Bradford HF *Chemical Neurobiology*. Science 233:1101-1102

Hildebrand JG (1987) review of Kandel ER, Schwartz JH (eds) *Principles of Neural Science*, 2nd edition. Quart Rev Biol 62:117-118

Hildebrand JG (1987) review of Clark JM, Matsumura F (eds) *Membrane Receptors and Enzymes as Targets of Insecticidal Action*. Quart Rev Biol 62:309-310

Hildebrand JG (1987) review of Finger TE, Silver WL (eds) *Neurobiology of Taste and Smell*. Science 237:203

Hildebrand JG (2005) review of Wyatt TD *Pheromones and Animal Behaviour*; Quart Rev Biol 80:144

Miscellaneous Publications

Hildebrand JG (1990) A remembrance of Steve Kuffler. In: McMahan UJ (ed) *Steve - Remembrances of Stephen W. Kuffler*. Sunderland, MA, Sinauer Associates, pp. 87-89

Hildebrand JG, Eisner T (1996) Vincent Gaston Dethier (obituary). Proc Am Philosophical Soc 140:221-226

Hildebrand JG (1998) Kenneth Roeder: an appreciation. In: Roeder KD *Nerve Cells and Insect Behavior* (revised edition). Cambridge, MA, Harvard Univ Press, pp v-viii

Hildebrand JG (1998) Vincent G. Dethier and chemosensory control of insect behavior. American Entomologist 44:179-187

Hildebrand JG (1999) Foreword to Hansson BS (ed) *Insect Olfaction*. Berlin, Springer, pp vii-viii

Nighorn A, Hildebrand JG (2002) Dissecting the molecular mechanisms of olfaction in a malaria-vector mosquito. Proc Natl Acad Sci USA 99:1113-1114

Eisner T, Meinwald J, Hildebrand J (2004) Bugs, behavior, and biomolecules: the naturalist's guide to the future. Bull Am Acad Arts & Sciences, summer 2004, pp 26-31

Gelperin A, Hildebrand JG, Eisner T (2006) Vincent Gaston Dethier, 1915-1993 – A Biographical Memoir. Biographical Memoirs, Natl Acad Sci USA

Meinwald J, Hildebrand JG (2011) Teaching science appreciation. Science 331:1010-1011

Wild GC, Hildebrand JG (2014) Dilworth W. Woolley, 1914-1966 – A Biographical Memoir. Biographical Memoirs, Natl Acad Sci USA

Hildebrand JG (2014) Toward breadth in baccalaureate education. Commentary in *Academy Data Forum*, American Academy of Arts & Sciences, https://www.amacad.org/content/research/dataForumEssay.aspx?i=1571

Huete-Pérez J, Hildebrand J (2020) Nicaragua's COVID-19 crisis demands a response. Science 369:385 DOI: 10.1126/science.abd4975

Nishi R, Ford BD, Hildebrand JG (2020) Retrospective: James G. Townsel (1935-2020). Science 369:925

McNutt M, Hildebrand J (2022) Editorial: Scientists in the line of fire. Science 375:1071; https://www.science.org/doi/10.1126/science.abp8817

Huete-Pérez JA, Hildebrand JG (2024) Science diplomacy in the face of sociopolitical crises: a case study. Science & Diplomacy https://doi.org/10.1126/scidip.adt9886

Other Publications by Coworkers Resulting Mainly or Entirely from Research in my Laboratory

Nelson MC (1979) Sound production in the cockroach *Gromphadorhina portentosa*: the sound-producing apparatus. J Comp Physiol 132:27-38

Nelson MC, Fraser J (1980) Sound production in the cockroach, *Gromphadorhina portentosa*: evidence for communication by hissing. Behav Ecol Sociobiol 6:305-314

Kingan TG (1984) Development of GABA levels in the CNS of *Manduca sexta*. In: Borkovec AB, Kelly TJ (eds) *Insect Neurochemistry and Neurophysiology.* New York, Plenum, pp 405-407

Kingan TG, Hishinuma A (1986) Transport and metabolism of L-glutamic acid by abdominal ganglia of the hawk moth *Manduca sexta*. Comp Biochem Physiol 87c:9-14

Davis NT, Lehman H (1989) A vasopressin-like neurohemal system *Lymantria dispar* and *Manduca sexta*. In: Borkovec AB, Masler EP (eds) *Insect Neurochemistry and Neurophysiology 1989.* Clifton, NJ, Humana, pp 447-450

Smith BH, Abramson CI, Tobin TR (1991) Conditional withholding of proboscis extension in honey bees (*Apis mellifera*) during discriminative punishment. J Comp Psychol 105:345-356

Hanneman EH, Kanost MR (1992) Differential Alaserpin expression during development of the antennae in the tobacco hawkmoth *Manduca sexta*. Arch Insect Biochem Physiol 19:39-52

Mitchell BK, Itagaki H (1992) Interneurons of the subesophageal ganglion of *Sarcophaga bullata* responding to gustatory and mechanosensory stimuli. J Comp Physiol A 171:213-230

Stengl M (1993) Intracellular-messenger-mediated cation channels in cultured olfactory receptor neurons. J Exp Biol 178:125-147

Oland LA, Hayashi JH (1993) Effects of the steroid hormone 20-hydroxyecdysone and prior sensory input on the survival and growth of moth central olfactory neurons *in vitro*. J Neurobiol 24:1170-1186

Kloppenburg P, Ferns D, Mercer AR (1999) Serotonin enhances central olfactory neuron responses to female sex pheromone in the male sphinx moth *Manduca sexta.* J Neurosci 19:8172-8181

Christensen TA, White J (2000) Representation of olfactory information in the brain. In: Finger TE, Silver WL, Restrepo D (eds) *The Neurobiology of Taste and Smell*, 2nd Ed., NY, Wiley-Liss, pp 201-232

Kloppenburg P, Heinbockel T (2000) 5-Hydroxytryptamine modulates pheromone-evoked local field potentials in the macroglomerular complex of the sphinx moth *Manduca sexta*. J Exp Biol 203:1701-1709

Riffell JA, Alarcón R, Abrell L (2008) Floral trait associations in hawkmoth-specialized and mixed pollination systems. Communicative & Integrative Bio 1:6-8.

Strausfeld N, Reisenman CE (2009) Dimorphic olfactory lobes in the Arthropoda. Ann NY Acad Sci 1170:487-496

Ribeiro JM, Assumpção TC, Pham VM, Francischetti IM, Reisenman CE (2012) An insight into the sialotranscriptome of *Triatoma rubida* (Hemiptera: Heteroptera). J Med Entomol 49:563-572

Reisenman CE, Riffell JA, Duffy K, Pesque A, Mikles D, Goodwin B (2013) Species-specific effects of herbivory on the oviposition behavior of the moth *Manduca sexta*. J Chem Ecol 39:76-89

Reisenman CE, Lee Y, Gregory T, Guerenstein PG (2013) Effects of starvation on the olfactory responses of the blood-sucking bug *Rhodnius prolixus*. J Insect Physiol 59:717-721