

# Ž I V O T O P I S

## **RNDr. Dušan Žitňan, DrSc.**

P. Horova 28, 84108 Bratislava - Devínska Nová Ves, tel: 0911-580907

Ústav zoológie, SAV, Dúbravská cesta 9, 84506 Bratislava, tel: 5930-2641, dusan.zitnan@savba.sk

Národnosť: slovenská

Dátum a miesto narodenia: 7. 9. 1958 v Bratislave

### **Vzdelanie a vedecká kvalifikácia:**

1977-1982	Prírodovedecká fakulta, Univerzita Komenského, Bratislava
1983	RNDr., Prírodovedecká fakulta, Univerzita Komenského, Bratislava
1986	Zoological Institute, Catholic University, Leuven, Belgium
1990	CSc., odbor entomológia, Ústav ekobiológie, SAV, Bratislava
1990-1991	Postdoctoral Fellowship, University of Vermont, Burlington, USA
1991	Postdoctoral Researcher, University of California, Irvine, Riverside, USA
1992	Postdoctoral Research Associate, Washington University, St. Louis, USA
1993-1995	Visiting Postdoctoral Investigator, Step 2, University of California, Riverside
1996	Vedecký pracovník, Ústav zoológie, SAV, Bratislava
1997-1999	Visiting Postdoctoral Investigator, Step 4, University of California, Riverside
2000-2002	Samostatný vedecký pracovník, Ústav zoológie, SAV, Bratislava
2003-2004	Visiting Scientist, University of California, Riverside
2005-2007	Samostatný vedecký pracovník, Ústav zoológie, SAV, Bratislava
2007	DrSc., Vedúci vedecký pracovník, Ústav zoológie, SAV, Bratislava
2010-2011	Visiting scientist, University of California, Riverside
2011-2014	Vedúci vedecký pracovník, Ústav zoológie, SAV, Bratislava
2014	Visiting scientist, Gwangju Institute of Science and Technology, S. Korea
2015	Riaditeľ Ústav zoológie, SAV, Bratislava

### **Vedecké aktivity a ocenenia**

1996-1998	Identifikácia a funkcia ekdyziotropných hormónov u motýľov. Vedúci projektu VEGA 95/5305/800
1996-2000	Molecular physiology of the epitracheal endocrine system. Vedúci subkontraktu z National Institutes of Health, USA (AI 40555)
2000-2002	Funkcia steroidových a peptidových hormónov pri zvliekaní hmyzu. Vedúci projektu VEGA 2/7168/20
2003-2007	Molecular physiology of the epitracheal endocrine system. Vedúci subkontraktu z National Institutes of Health, USA (GM 67310)
2004-2006	Analysis of species- and tissue-specific function of neuropeptides in insects. Vedúci bilaterálneho programu: SAV a Japanese Society for Promotion of Science.
2006-2008	Identifikácia a funkcia ekdyziotropných hormónov u rôznych druhov hmyzu. Vedúci projektu VEGA 2/6090/26
2006-2009	Expresia a funkcia neuropeptidov a ich receptorov u hmyzu a kliešťov. Vedúci projektu APVV-51-039105
2008-2010	Identifikácia, expresia a využitie bioaktívnych látok z parazitických červov, kliešťov a hmyzu v klinickej medicíne. EEA grants.
2009-2011	Molekulárne mechanizmy vylučovania peptidových hormónov z endokrinných Inka buniek. Vedúci projektu VEGA 2/0132/09
2009-2013	Molecular physiology of the epitracheal endocrine system. Vedúci subkontraktu z National Institutes of Health, USA (GM0 67310-11)
2010-2014	Vývoj diagnostických postupov pre detekciu patogénov prenášaných kliešťami a postupov na prípravu vakcín proti kliešťom. Vedúci projektu OPVV (ITMS-26240220044)
2011-2015	Využitie transgénnych postupov pri funkčnej analýze neuropeptidov a ich receptorov regulujúcich správanie a vývin hmyzu. APVV-0827-11
2013-2015	Funkcia H-orgánu a katecholamínov pri správaní a vývine hmyzu. Vedúci projektu VEGA 2/0162/13
2015-2018	Funkcia neuropeptidov a ich receptorov pri regulácii prenosu patogénov z kliešťov na hostiteľa. Vedúci projektu APVV-14-0556

Cena podpredsedu vlády a ministra školstva za vedu a techniku (2007): osobnosť vedy a techniky.

Člen komisie SAV pre posudzovanie vedeckej kvalifikácie zamestnancov (od 2008).

Člen komisie SAV pre obhajobu doktorských dizertačných prác (DrSc.) v odboroch Zoológia, Fyziológia živočíchov a Etológia (od 2009).

Špičkový tím a medaila v roku 2013.

**Patent:** Adams M.E., Gill S.S., Žitňan D. (1998) Nucleic acid encoding ecdysis-triggering hormone.  
Patent: US 5831061 (3 Nov 1998), US application 582298 (3 Jan 1996).

### Publikácie:

1. Žitňan D, Verhaert P, De Loof A, Grimmelikhuijzen C.J.P. (1988). Differences in the distribution of immunoreactivity to FMRFamide and pancreatic polypeptide antisera in the larval and imaginal central nervous system of *Galleria mellonella* (Lepidoptera). In: **Endocrinological Frontiers in Physiological Insect Ecology** (Sehnal F., Zabza A. and Denlinger D.L., eds.) Vol. 2, Tech. Univ. Press, Wroclaw, Poland, pp. 847-857.
2. Farkaš R, Žitňan D (1989). Immunocytochemical demonstration of actin and tubulin in plasmatocytes and granulocytes of the waxmoth, *Galleria mellonella*. **Microbios Lett.** 40, 63-66. (IF 0,3)
3. Žitňan D., Endo Y. and Sehnal F. (1989). Stomatogastric nervous system of *Galleria mellonella* (Lepidoptera, Pyralidae): changes during metamorphosis with special reference to FMRFamide neurons. **Int. J. Insect Morphol. Embryol.** 18, 227-237. (IF 0,75)
4. Sehnal F. and Žitňan D. (1990). Endocrines of insect gut. In: **Progress in Comparative Endocrinology** (Liss A.R., ed.) Wiley-Liss, Inc., New York, pp. 510-515.
5. Žitňan D., Sehnal F., Mizoguchi A., Ishizaki H., Nagasawa H. and Suzuki A. (1990). Developmental changes in the bombyxin- and insulin-like immunoreactive neurosecretory system in the waxmoth, *Galleria mellonella*. **Develop. Growth Differ.** 32, 637-645. (IF 1,3)
6. Žitňan D., Šauman I. and Sehnal F. (1993). Peptidergic innervation and endocrine cells of insect midgut. **Arch. Insect Biochem. Physiol.** 22, 113-132. (IF 1,8)
7. Žitňan D., Sehnal F. and Bryant P. (1993). Neurons producing specific neuropeptides in the central nervous system of normal and pupariation-delayed *Drosophila*. **Dev. Biology** 155, 682-693. (IF 5)
8. Žitňan D. and Weyda F. (1993). Midgut endocrine cells in Thysanura. In: **Insect Neurochemistry and Neurophysiology** (A. B. Borkovec and M. J. Loeb, eds.), CRC Press. pp. 115-117.
9. Beckage N.E., Žitňan D. and Sehnal F. (1993). Endocrine and neuroendocrine mechanisms of arrested host development in parasitized insects: Lessons from the tobacco hornworm? In: **Insect Neurochemistry and Neurophysiology** (A.B. Borkovec and M.J. Loeb, eds.), CRC Press. pp. 123-126.
10. Žitňan D., Kingan T.G., Kramer S.J. and Beckage N.E. (1995). Accumulation of neuropeptides in the cerebral neurosecretory system of *Manduca sexta* larvae parasitized by the braconid wasp *Cotesia congregata*. **J. Comp. Neurol.** 356, 83-100. (IF 3,5)
11. Žitňan D., Kingan T.G. and Beckage N.E. (1995). Parasitism-induced accumulation of FMRFamide-like peptides in the gut innervation and endocrine cells of *Manduca sexta*. **Insect Biochem. Mol. Biol.** 25, 669-678. (IF 3)
12. Žitňan D., Kingan T.G., Hermensman J.L. and Adams M.E. (1996). Identification of ecdysis-triggering hormone from an epitracheal endocrine system. **Science** 271, 88-91. (IF 30,9)
13. Sehnal F. and Žitňan D. (1996). Midgut endocrine cells. In: **The Biology of the Insect Midgut** (MJ Lehane and PF Billingsley, eds), Chapman and Hall, London, pp. 55-86.
14. Adams M.E. and Žitňan D. (1997). Identification of ecdysis-triggering hormone in the silkworm, *Bombyx mori*. **Biochem. Biophys. Res. Comm.** 230, 188-191. (IF 3,4)
15. Kingan T.G., Žitňan D., Jaffe H. and Beckage N.E. (1997). Identification of neuropeptides in the midgut of parasitized insects: FLRFamides as candidate paracrines. **Mol. Cell. Endocrinol.** 133, 19-32. (IF 4,2)
16. Kingan T.G., Gray W., Žitňan D. and Adams M.E. (1997). Regulation of ecdysis-triggering hormone release by eclosion hormone. **J. Exp. Biol.** 200, 3245-3256. (IF 2,7)
17. Viťaz L., Bálint Z., and Žitňan D. (1997). *Polyommatus slovacus* sp. nov. (Lepidoptera, Lycaenidae): the bivoltine relative of *Polyommatus coridon* in Slovakia. **Entomol. Problems** 28, 1-8.
18. Žitňan D, Ross LS, Žitňanová I, Hermesman JL, Gill S, Adams ME (1999) Steroid induction of a peptide hormone gene leads to orchestration of a defined behavioral sequence. **Neuron** 23, 523-535 (IF 18)

19. Park Y., Žitňan D., Gill S.S. and Adams M.E. (1999). Molecular cloning and biological activity of ecdysis-triggering hormones in *Drosophila melanogaster*. *FEBS letters* 463, 133-138. (IF 3,4)
20. Žitňan, D. and Adams, M.E. (2000). Excitatory and inhibitory roles of central ganglia in the initiation of the insect ecdysis behavioural sequence. *J. Exp. Biol.* 203, 1329-1340. (IF 3)
21. Žitňanová I., Adams M.E. and Žitňan D. (2001). Dual ecdysteroid action on epitracheal glands and the central nervous system preceding ecdysis of *Manduca sexta*. *J. Exp. Biol.* 204, 3483-3495. (IF 3)
22. Žitňan D., Hollar L., Spalovská I., Takáč P., Žitňanová I., Gill S.S. and Adams M.E. (2002). Molecular cloning and function of ecdysis triggering hormones in the silkworm, *Bombyx mori*. *J. Exp. Biol.* 205, 3459-3473. (IF 3)
23. Žitňan D., Žitňanová I., Spalovská I., Takáč P., Park Y. and Adams M. E. (2003). Conservation of ecdysis triggering hormones signalling in insects. *J. Exp. Biol.* 206, 1275-1289. (IF 3)
24. Kim Y-J, Spalovska I, Cho K-H., Žitňanová I., Park Y., Adams M.E., Žitňan D. (2004). Corazonin receptor signaling in ecdysis initiation. *Proc. Natl. Acad. Sci. USA*, 101, 6704-6709. (IF 10)
25. Žitňan D. and Adams M.E. (2005). Neuroendocrine regulation of insect ecdysis. *Coprehensive Molecular Insect Science* (L.I. Gilbert, K. Iatrou, S.S. Gill, eds.), Vol 3, pp. 1-60.
26. Žitňan D., Žitňanová I., Kim Y-J. and Adams M.E. (2005). Identification, expression and function of peptides controlling insect ecdysis. *Biologically Active Peptides*, 8, 112-117.
27. Yamanaka N., D. Žitňan, Y-J. Hua, A. Mizoguchi, Y. Tanaka and H. Kataoka (2005). FMRFamide-related peptides regulate the prothoracic gland activity. *Pesticides*, 147-152.
28. Adams M.E., Kim Y-J., Park Y. and Žitňan D. (2006) Developmental Peptides: ETH, Corazonin and PTH. *The Handbook of Biologically Active Peptides* (Kastin, ed.), pp. 163-169.
29. Yamanaka N., Žitňan D., Kim Y-J., Adams M.E., Hua Y-J., Suzuki Y., Suzuki M., Suzuki A., Satake H., Mizoguchi A., Asaoka K., Tanaka Y., Kataoka H. (2006). Regulation of insect steroid hormone biosynthesis by innervating peptidergic neurons. *Proc. Natl. Acad. Sci. USA*, 103, 8622-8627. (IF 10)
30. Kim Y-J., Žitňan D., Cho K-H., Mizoguchi A., Schooley D. and Adams M.E. (2006). Central peptidergic ensembles associated with organization of an innate behavior. *Proc Natl Acad Sci USA*, 103, 14211-14216. (IF 10)
31. Kim Y-J, Žitňan D, Galizia G, Cho K-H, Adams ME (2006). A command chemical triggers an innate behavior by sequential activation of multiple peptidergic ensembles. *Curr. Biol.* 16, 1395-1407 (IF 11,8)
32. Žitňan D, Kim Y-J, Žitňanová I, Roller L and Adams ME (2007) Complex steroid-peptide-receptor cascade controls insect ecdysis. *Gen. Comp. Endocrinol.* 153, 88–96 (IF 2,3)
33. Daubnerová I, Shiomi K, Roller L, Žitňan D (2007) Baculovirus-mediated gene transfer for analysis of moth behaviors regulated by multiple neuropeptides. *Biologically Active Peptides*, 9, 33-36.
34. Roller L, Tanaka Y, Valachová I, Šimo L, Žitňan D (2007). The analysis of neuropeptides encoded in the silkworm (*Bombyx mori*) genome. *Biologically Active Peptides*, 9, 83-85.
35. Dai L, Žitňan D and Adams ME (2007). Strategic expression of ion transport peptide gene products in central and peripheral neurons of insects. *J. Comp. Neurol.* 500, 353-367. (IF 3,5)
36. Dai L, Dewey EM, Žitňan D, Luo C-W, Honegger HW, and Adams ME (2008). Identification, developmental expression, and functions of bursicon in the tobacco hawkmoth, *Manduca sexta*. *J. Comp. Neurol.* 506, 759-774. (IF 3,9)
37. Yamanaka N, Yamamoto S, Žitňan D, Watanabe K, Kawada T, Satake H, Kaneko Y, Hiruma K, Tanaka Y, Shinoda T, Kataoka H (2008) Neuropeptide receptor transcriptome reveals unidentified neuroendocrine pathways. *PLoS ONE* 3(8): e3048. (IF 4,4)
38. Roller L, Yamanaka N, Watanabe K, Daubnerová I, Žitňan D, Kataoka H, Tanaka Y (2008) The unique evolution of neuropeptide genes in the silkworm *Bombyx mori*. *Insect Biochem Mol Biol* 38, 1147-57. (IF 4)
39. Daubnerová I, Roller L, Žitňan D (2009) The transgenesis approaches for functional analysis of peptidergic cells in the silkworm *Bombyx mori*. *Gen Comp Endocrinol* 162, 36-42. (IF 2,7)
40. Šimo L., Slovák M, Park Y and Žitňan D (2009) Identification of a complex peptidergic neuroendocrine network in the hard tick, *Rhipicephalus appendiculatus*. *Cell Tiss Res* 335, 639-655. (IF 3,7)
41. Šimo L, Žitňan D, Park Y (2009) Two novel neuropeptides in innervation of the salivary glands of the blacklegged tick *Ixodes scapularis*: Myoinhibitory peptide and SIFamide. *J Comp Neurol* 517, 551-563. (IF 3,5)
42. Roller L, Žitňanová I, Dai L, Šimo L, Park Y, Satake H, Tanaka Y, Adams ME, Žitňan D (2010) Ecdysis triggering hormone signaling in arthropods. *Peptides*, 31, 429-441 (IF 2,5)

43. Yamanaka N, Roller L, Žitňan D, Satake H, Mizoguchi A, Kataoka H, and Tanaka Y (2011) *Bombyx* orcokininins are brain-gut peptides involved in the neuronal regulation of ecdysteroidogenesis. *J Comp Neurol*, 519(2), 238-246. (IF 3,5)
44. Šimo L, Kočí J, Žitňan D, Park Y (2011) Evidence for D1 dopamine receptor activation by a paracrine signal of dopamine in tick salivary glands. *PLoS ONE*, PONE-D-10-03022R1. (IF 4)
45. Žitňan D. and Adams M.E. (2012). Neuroendocrine regulation of ecdysis. *Insect Endocrinology* (L.I. Gilbert, ed.), pp. 253-309.
46. Šimo L, Žitňan D, Park Y (2012). Neural control of salivary glands in ixodid ticks. *J. Insect Physiol.* 58:459-66. (IF 2,6)
47. Jiang H, Ikhagva A, Daubnerová I, Chae H, Šimo L, Jung S-H, Yoon Y-K, Seong J-Y, Žitňan D, Park Y, Kim Y-J (2013). Natalisin, a new tachykinin-like signaling system, regulates sexual activity and fecundity in insects. *Proc. Nat. Acad. Sci. USA* 110(37): E3526-34 (IF 10)
48. Adams ME, Kim YJ, Park Y, Žitňan D (2013) Developmental Peptides: ETH, Corazonin, and PTH *Handbook of Biologically Active Peptides* (A.J. Kastin ed) pp. 222-228.
49. Cho K-H, Daubnerová I, Park Y, Žitňan D, Adams ME (2014). Secretory competence in a gateway endocrine cell conferred by the orphan nuclear receptor  $\beta$ FTZ-F1 enables stage-specific ecdysone responses throughout development in *Drosophila*. *Dev. Biol.* 385, 253-262. (IF 4)
50. Russell P, Žitňan D, Major V (2014) Confirmation of the presence of *Melitaea ornata* Christoph, 1893 (Lepidoptera: Nymphalidae) in Macedonia and its host-plants. *Entomologist Gassette*, 66, 13-24.
51. Šimo L, Sonenshine DE, Park Y, Žitňan D (2014) Nervous and sensory systems: structure, function, genomics and proteomics. In: Sonenshine DE, Roe RM (eds) *Biology of ticks*. Oxford Univ Press, pp. 309–367.
52. Žitňan D, Daubnerová I (2014) *Handbook of Hormones: Comparative and General Endocrinology* (Y. Takei, H. Ando, K. Tsutsui, eds) pp. 1-613.
53. Roller L, Šimo L, Mizoguchi A, Tanaka Y, Slovák M, Park Y, Žitňan D (2015) Orcokinin immunoreactivity in central neurons innervating the salivary glands and rectum of ixodid ticks. *Cell Tiss Res* 360(2):209-22 (IF 3,7)
54. Roller L, Čižmár D, Gáliková Z, Bednár B, Daubnerová I, Žitňan D (2016) Molecular cloning, expression and identification of the promoter regulatory region for the neuropeptide trissin in the nervous system of the silkworm *Bombyx mori*. *Cell Tiss Res* 364(3):499-512 (IF 3,7)
55. Roller L, Čižmár D, Bednár B, Žitňan D (2016) Expression of RYamide in the nervous and endocrine system of *Bombyx mori*. *Peptides*, 80:72-79.
56. Bednár B, Roller L, Čižmár D, Mitrová D, Žitňan D (2016) Developmental and sex-specific differences in expression of neuropeptides derived from allatotropin gene in the silkworm *Bombyx mori*. *Cell Tiss Res* in press.

#### **Populárno-vedecké práce:**

57. Žitňan D. (1989). Peptiderné orgány hmyzu. *Vesmír*.
58. Žitňan, D. (2001). Brušné tance a zvliekanie hmyzu. *Hmyz* 3, 71-73.
59. Žitňan, D., Šauša O., Kříž K. (2002). Migrácie hmyzu. *Hmyz* 1, 8-10.
60. Žitňan D. (2003). Umelá potrava pre lišaja tabakového, *Manduca sexta*. *Hmyz* 3: 86.