

CURRICULUM VITAE

Hervé Seligmann

Center for Ecological and Evolutionary Synthesis, Department of Biology, University of Oslo, Blindern, 3016 Oslo, Norway.

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Education:

1985-88 B. Sc. in Biology, at The Hebrew University of Jerusalem.

1988-91 M. Sc. in Plant Physiology; thesis, "A morphological marker of transitions towards salt adaptation in *Sorghum bicolor*", supervision of Dr RH Lerner, Dept of Plant Sciences, The Hebrew University of Jerusalem.

1995-03 Ph.D. in lizard microevolution, "Microevolution of proneness to tail loss in lizards" Professor Yehudah L. Werner, Dept of ESE, The Hebrew University of Jerusalem and Dr Avigdor Beiles, Institute for Evolution, University of Haifa.

Main research interests:

- (a) Emergence of adaptive information and evolution.
- (b) Community ecology and stability.
- (c) Morphogenesis

Appointments at the Hebrew University:

1997-99 Teaching assistant in first year course "An introduction to ecology and population biology".

1998-99 Teaching assistant in third year course "An introduction to amphibians and reptiles of Israel".

1999-00 Teaching assistant in third year course "Ecology of nature conservation".

2000-01 Teaching assistant in first year courses "An introduction to ecology and population biology"; "Basic laboratory for Ecology"; and second year course "An introduction to marine invertebrates".

Other appointments:

2004-5 External lecturer in 3 courses: "Principles of Biology A: cell biology", "Principles of Biology B: from organisms to ecosystems" and "Cell Physiology", the Jerusalem College of Technology.

2007-08 Half time field and laboratory technician of Yaron Ziv, Spatial Ecology laboratory, Dept. of Life Sciences, Ben Gurion University of the Negev.

Postdoctoral training:

2000-01 Short project on New Zealand's herpetofauna, with Charles D Daugherty, Victoria University at Wellington, New Zealand

2001-02 Project on molecular mechanisms of developmental instability, sponsored by Professor Leigh VanValen at the Department of Ecology & Evolution, University of Chicago.

2002-04 Project on molecular evolution of vertebrate mitochondrial genomes with Dr David Pollock, Department of Biological Sciences, Louisiana State University.

2008- Project in theoretical biology with Thomas F Hansen, Center for Ecological & Evolutionary Synthesis, University of Oslo.

Awards: Rothschild fellowship (27000 US \$ +10500 \$ family help) for the year 2001-2.

Reviewed for: Animal Behavior, 2003; Biosystems, 2009; BMC Evolutionary Biology, 2007,2009; BMC Research Notes, 2009; Diversity & Distributions, 2005; Evolutionary Bioinformatics, 2007; Heredity, 2005; Israel Journal of Ecology and Evolution, 2006-7; Journal of Biological Engineering 2008; Journal of Herpetology, 2007; Journal of Molecular Evolution, 2007; Journal of Theoretical Biology, 2005-9; Microbiology, 2003; Mitochondrion, 2008; Molecular Microbiology, 2005; Nucleic Acids Research, 2007.

Languages: French, German, Luxemburgish, Hebrew, English. (Latin).

Other interests:

Conservation of nature, nature photography, culture and language structures, history.

Sports:

Hiking, semi-long distance running, archery.

Publications, peer reviewed

1. **Seligmann H.** 2009. Mitochondrial tRNAs as light strand replication origins: similarity between anticodon loops and the loop of the light strand replication origin predicts initiation of DNA replication. BioSystems, in press.
2. Babocsay G., Talbi R., Shacham B., **Seligmann H.** 2009. Nocturnal or diurnal? Notes on the daily activity pattern and life history of the Middle Eastern Elegant Racer *Coluber elegantissimus* (Günther, 1878) (Squamata: Serpentes: Colubridae). Herpetozoa 22: in press.
3. **Seligmann H.** 2008. Hybridization between mitochondrial heavy strand tDNA and expressed light strand tRNA modulates the function of heavy strand tDNA as light strand replication origin. Journal of Molecular Biology, 379: 188-199.
4. **Seligmann H.**, Moravec J., Werner Y.L. 2008. Morphological, functional and evolutionary aspects of tail autotomy and regeneration in the “living fossil” *Sphenodon* (Reptilia: Rhynchocephalia). Biological Journal of the Linnean Society, 93: 721-743.
5. Krishnan N.M., **Seligmann H.**, Rao B.J. 2008. Relationship between mRNA secondary structure and sequence variability in chloroplast genes: possible life history implications. BMC Genomics, 9: 48.
6. **Seligmann H.** 2007. Cost minimization of ribosomal frameshifts. Journal of Theoretical Biology, 249: 162-167.
7. **Seligmann H.**, Anderson, S.C., Kellar, A., Bouskila, A., Saf, R., Tuniyev, B.S., Werner, Y.L. 2007. Analysis of the locomotor activity of a nocturnal desert lizard (Reptilia: Gekkonidae: *Teratoscincus scincus*) under varying moonlight. Zoology, 110: 104-117.
8. **Seligmann H.**, Krishnan, N.M., Rao, B.J. 2006b. Mitochondrial tRNA sequences as unusual replication origins: pathogenic implications for *Homo sapiens*. Journal of Theoretical Biology, 243: 375-385.
9. **Seligmann H.** 2006. Error propagation across levels of organization: from chemical stability of ribosomal RNA to developmental stability. Journal of Theoretical Biology, 242: 69-80.
10. **Seligmann H.**, Krishnan, N.M. 2006. Mitochondrial replication origin stability and propensity of adjacent tRNA genes to form putative replication origins increase developmental stability in lizards. Journal of Experimental Zoology B, 306B: 433-449.
11. **Seligmann H.**, Krishnan, N.M., Rao, B.J. 2006a. Possible multiple origins of replication in primate mitochondria: alternative role of tRNA sequences. Journal of Theoretical Biology 241: 321-332.
12. Raina, S.Z., Faith, J.J., Disotell, T.R., **Seligmann, H.**, Stewart, C.B., Pollock, D.D. 2005. Evolution of base frequency gradients in primate mitochondrial genomes. Genome Research 15:665-673.
13. Krishnan, N.M., **Seligmann, H.**, Raina, S.Z., Pollock, D.D. 2004. Detecting gradients of asymmetry in site-specific substitutions in mitochondrial genomes. DNA and Cell Biology 23: 707-714.
14. **Seligmann, H.**, Pollock, D.D. 2004. The ambush hypothesis: off frame stop codons arrest early accidental frameshifted transcription. DNA and Cell Biology 23: 701-705.
15. Krishnan, N.M., **Seligmann, H.**, de Koning, A.P.J., Stewart, C.B., Pollock, D.D. 2004. Ancestral sequence reconstruction in primate mitochondrial DNA: Compositional bias and effect on functional inference. Molecular Biology and Evolution, 21: 1871-1883.
16. **Seligmann, H.** 2003. More transparency in reviewing is called for. British Medical Journal, 25: 989-990.
Invited letter.
17. **Seligmann, H.** 2003. Cost minimization of amino acid usage. Journal of Molecular Evolution, 56: 151-161.

18. **Seligmann, H.**, Beiles, A., Werner, Y.L. 2003. More injuries in left-footed lizards. Journal of Zoology, London, 260: 129-144.
19. **Seligmann, H.**, Beiles, A., Werner, Y.L. 2003. Avoiding injury or adapting to survive injury? Two coexisting strategies in lizards. Biological Journal of the Linnean Society, 78: 307-324.
20. **Seligmann, H.**, Amzallag, G.N. 2002. Chemical interactions between amino acid and RNA: Multiplicity of the levels of specificity explains origin of the genetic code. Naturwissenschaften, 89: 542-551.
Review.
21. **Seligmann, H.** 2002. Behavioural and morphological asymmetries in hindlimbs of *Hoplodactylus duvaucelii* (Lacertilia: Gekkonomorpha: Gekkota: Diplodactylinae). Laterality, 7: 277-283. **Invited paper.**
22. **Seligmann, H.** 2000. Evolution and ecology of developmental processes and of the resulting morphology: directional asymmetry in hindlimbs of Agamidae and Lacertidae (Reptilia: Lacertilia). Biological Journal of the Linnean Society, 69: 461-481
23. Amzallag, G.N., **Seligmann, H.** 2000. Plant-to-plant interactions during physiological adaptation to salinity in *Sorghum bicolor*. Israel Journal of Plant Sciences 48: 247-254.
24. Moraveç, J., El Din, S.B., **Seligmann, H.**, Sivan, N., Werner, Y.L. 1999. Systematics and distribution of the *Acanthodactylus pardalis* group (Reptilia: Sauria: Lacertidae) in Egypt and Israel. Zoology in the Middle East 17: 21-50.
25. **Seligmann, H.** 1999. Resource partition history and evolutionary specialization of subunits in complex systems. BioSystems 51: 31-39.
26. **Seligmann, H.** 1998. Evidence that minor directional asymmetry is functional in lizard hindlimbs. Journal of Zoology, London, 248: 205-208.
27. **Seligmann, H.** 1998. Effect of environmental complexity on salt-adaptation in *Sorghum bicolor*. BioSystems 45: 213-220.
28. Amzallag, G.N., **Seligmann, H.** 1998. Perturbation in leaves of salt-treated Sorghum: Elements for interpretation of the normal development as an adaptive response. Plant, Cell & Environment 21: 785-793.
29. Amzallag, G.N., **Seligmann, H.**, Lerner, H.R. 1997. Leaf malformation during early development in Sorghum. Evidence for an embryonic developmental window. Physiologia Plantarum 99: 470-476.
30. **Seligmann, H.** 1997. Transmission of acquired adjustments to salinity in *Sorghum bicolor*. BioSystems 40: 257-261.
31. Amzallag, G.N., **Seligmann, H.**, Lerner, H.R. 1995. Induced variability during the process of adaptation in *Sorghum bicolor*. Journal of Experimental Botany 46: 1017-1024.
32. **Seligmann, H.**, Amzallag, G.N. 1995. Adaptive determinism during salt-adaptation in *Sorghum bicolor*. BioSystems. 36: 71-77
33. Amzallag, G.N., **Seligmann, H.**, Lerner, H.R. 1993. A developmental window for salt-adaptation in *Sorghum bicolor*. Journal of Experimental Botany 44: 645-652.
34. **Seligmann, H.**, Amzallag, G.N., Lerner, H.R. 1993. Perturbed leaf development in *Sorghum bicolor* exposed to salinity: a marker of transitions towards adaptation. Australian Journal of Plant Physiology 20: 243-249.

Doctoral Dissertation:

Microevolution of proneness to tail loss in lizards, supervised by Yehudah L. Werner and Avigdor Beiles, April 2003, most of the dissertation was published in a number of refereed articles. The dissertation led to articles in the Journal of Zoology, London, the Biological Journal of the Linnean Society and the Proceedings of the sixth International Conference of the Israeli Society for Ecology & Environmental Quality Sciences.

Proceedings:

1. Krishnan, N.M., **Seligmann, H.**, Raina, S.Z., Pollock, D.D. 2004. Phylogenetic analyses detect site-specific perturbations in asymmetric mutation gradients. Currents in Computational Molecular Biology 2004: 266-267.
2. **Seligmann, H.**, Beiles, A., Werner, Y.L. 1996b. Morphological correlates of proneness of lizards to tail-loss. Proceedings of the sixth International Conference of the Israeli Society for Ecology & Environmental Quality Sciences, supplement.
3. **Seligmann, H.**, Beiles, A., Werner, Y.L. 1996a. Tail loss frequencies of lizards and predator specialization. Proceedings of the sixth International Conference of the Israeli Society for Ecology & Environmental Quality Sciences **6**: 520-522.

Internet

Seligmann, H. -*-=: Did the boycott backlash? Proceedings of the International Advisory Board for Academic Freedom Conference, in press, http://www.biu.ac.il/rector/academic_freedom/session8.htm.

Seligmann, H. 2005. Boycott Israeli Academics? The Numbers Don't Lie: They're Already Blacklisted. Discarded lies, accessed October 10, 2005, http://discardedlies.com/entries/2005/10/boycott_israeli_academics.php

Seligmann, H. 2003. Organizing publicly one of many decennial silent boycotts: how old is the iceberg? A call for some transparency in reviewing processes. British Medical Journal, <Http://www.bmj.com/cgi/eletters/326/7391/713/c#33902>

Abstracts:

- H. Seligmann, G.N. Amzallag. 1995. Adaptation to salinity in *Sorghum bicolor*: A learning-like process? Israel Journal of Plant Science 43: 195.
- M. Wolf, H. Seligmann. 1996. Habitat options and speciation on islands. Israel Journal of Zoology 42: 87-88.
- H. Seligmann, A. Beiles, Y.L. Werner, 1996. Morphological correlates of proneness of lizards to tail-loss. Israel Journal of Zoology 42: 87.
- H. Seligmann, S. Paz, A. Salvador. 1997. Climatic correlates of morphological evolution in an insular lizard, *Podarcis pityusensis*. Israel Journal of Zoology 43: 115-116.
 - H. Seligmann. 1997. Modes of predation specialization revealed by tail loss in lizards. Israel Journal of Zoology 43:115.
- H. Seligmann, 1997. Phylogenetic and ecological aspects of directional asymmetry in *Acanthodactylus* (Sauria: Lacertidae). Fifth International Congress of Morphology, Journal of Morphology 232: 320.
 - H. Seligmann, 1997. Natural selection counter-balances evolution of sexual dimorphism in a lizard. Proceedings of the third World Congress of Herpetology.
- H. Seligmann, 1997. Tail injury alters activity patterns in *Podarcis muralis* (Reptilia: Lacertidae). Israel Journal of Zoology **44**: 87.
- H. Seligmann, 1998. Morphogenesis and integration of growth of body parts in Lacertidae. Third Asian International Meeting.
- H. Seligmann, 1998. Side differences in injury frequency between hindlimbs as part of the evolutionary design of lizard limbs. (In hebrew with english abstract). Ecology and Environment **5**: 54-55.
- H. Seligmann, 1998. Morphogenesis and integration of growth of body parts in Lacertidae. Israel Journal of Zoology **45**: 320-321.
- H. Seligmann, G.N. Amzallag, 2000. The role of genetic versus developmental regulations in morphogenesis. Congress on "Modularity in Development and Evolution", Hanse Institut, Delmenhorst.
- H. Seligmann, D.D. Pollock, 2003. Function and evolution of secondary structure in human mitochondrial mRNAs. Midsouth Computational Biology and Bioinformatics Society, Abstract 26.
- H. Seligmann, D.D. Pollock, 2003. The ambush hypothesis: hidden stop codons prevent off-frame gene reading. Midsouth Computational Biology and Bioinformatics Society, Abstract 36.

- R. Faiman, E. Razzetti, H. Seligmann, Y. L. Werner, 2005. Sexual dimorphism in snakes, with emphasis on eye size. Israel Journal of Zoology, 51: 63.
- H. Seligmann, 2005. Three distinct foraging modes among lacertid lizard species: sit-and-wait, widely foraging, and an intermediate, perhaps mixed strategy. Israel Journal of Zoology, 51: 76.
- Y.L. Werner, J. Moravec, H. Seligmann. 2007. Tail autotomy and regeneration in *Sphenodon* (Reptilia : Rhynchocephalia): Morphological, functional and evolutionary aspects. Journal of Morphology 268:1148.
- G. Babocsay, B. Shacham, R. Talbye, H. Seligmann. 2008.

Talks:

- H Seligmann, 2002. A molecular mechanism for developmental instability? Given as a Natural History seminar at the University of Chicago, USA, 8 of January 2002; and at the University of Calgary, Canada, 8 of May 2002; at Idaho State University, Idaho, 6 of August 2002.
- H. Seligmann, Pollock D.D, 2003. Function and evolution of secondary structure in human mitochondrial mRNAs. First Midsouth Computational Biology & Bioinformatics Society Meeting.
- H. Seligmann, Pollock D.D, 2003. The ambush hypothesis: hidden stop codons prevent off frame gene reading. First Midsouth Computational Biology & Bioinformatics Society Meeting.
- H. Seligmann. 2004. Y a-t-il un lien entre les instabilités moléculaires et développementales ? September 2004, INRA, Versailles, France.
- N.M. Krishnan, H. Seligmann, B.J. Rao. 2005. Natural selection on cloverleaf forming capacity fine-tunes the population frequency of human mitochondrial tRNA variants. Conference on tRNA Biology, Bangalore, India.
- H. Seligmann. 2007. Mitochondrial tRNAs as replication origins. Department of Microbiology, Hadassa Ein Karem Hospital, The Hebrew University of Jerusalem, Israel.
- H. Seligmann. 2007. Life history implications of molecular mechanisms for developmental instability. Department of Biology, University of Haifa at Oranim, Israel.
- H. Seligmann. 2007. Molecular Mechanisms for Developmental Instability. Linnean Center for BioInformatics, Uppsala, Sweden.
- H. Seligmann. 2007. From molecular to developmental instability. Department of Life Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel.
- H. Seligmann. 2008. How many functions for tRNAs in human mitochondria. CEES lunch club, 6th October.
- H.Seligmann. 2009. Research plans integrating collections and molecular data. Senckenberg Naturhistorische Sammlungen Dresden, Germany.