

CURRICULUM VITAE AND LIST OF PUBLICATIONS

1. Personal details

Name: Amir Sagi
 Date and place of Birth: May 22, 1956; Beit Zait, Jerusalem, Israel
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2. Education

1985-1989 Ph.D., The Hebrew University of Jerusalem, Life Sciences Institute, Dept. of Biological Chemistry (University of California - Hebrew University reciprocity program).
 Title: "Anatomical and physiological aspects of morphotypic differentiation in males of the freshwater prawn *Macrobrachium rosenbergii* and the regulatory role of the androgenic gland."
 Advisors: Prof. Yoram Milner and Dr. Dan Cohen, Hebrew University; Prof. Ernie Chang and Prof. Armand Kuris, University of California.
 Honors and fellowships: University of California-Hebrew University Reciprocity Scholarship. Fulbright, United States-Israel Educational Foundation.
 1983-1985 M. Sc., The Hebrew University of Jerusalem, Oceanography, Marine Biology. With distinction.
 Title: "Alternative reproduction strategies in males of the freshwater prawn *Macrobrachium rosenbergii* (de Man)".
 Advisors: Prof. Dan Cohen (Population biology) and Dr. Dan Cohen (Crustacean biology).
 1980-1983 B.Sc., The Hebrew University, Faculty of Agriculture, Animal Sciences. With distinction.

3. Employment History

2018-present Distinguished professor, Department of Life Sciences and the National Institute for Biotechnology in the Negev, Ben-Gurion University of the Negev.
 2005-2018 Full professor, Department of Life Sciences and the National Institute for Biotechnology in the Negev, Ben-Gurion University of the Negev.
 2001-2005 Associate professor, Department of Life Sciences and the National Institute for Biotechnology in the Negev, Ben-Gurion University of the Negev.
 1998-1999 Visiting Associate Professor, Department of Biology, Northeastern University, Boston, USA.
 1996-2001 Senior lecturer, Department of Life Sciences, Ben-Gurion University of the Negev.
 1992-1996 Lecturer, Department of Life Sciences, Ben-Gurion University of the Negev.
 1991-1993 Research associate, Life Sciences Institute, Department of Biological Chemistry, The Hebrew University of Jerusalem.

- 1989-1991 Research Associate at the Marine Biological Laboratory, Woods Hole, Mass. and the Department of Molecular and Cell Biology, University of Connecticut. Crustacean endocrinology. Organ and cell culture. Hormone detection and separation.
- 1986-1989 Research assistant, Life Sciences Institute, The Hebrew University of Jerusalem, Freshwater Prawn Project and the Department of Biological Chemistry.
Physiology of reproduction and endocrinology of Crustacea.
- 1983-1985 Research Assistant, Life Sciences Institute, The Hebrew University of Jerusalem, Freshwater Prawn Project. Aquaculture, Prawn culture, Broodstock management, Population analysis, Endocrinology.

4. Awards, Honors, Research Fellowships

- (a) Honors and awards:
- 2022 BGU Groundbreaking Applied Research Prize on CRISPR applications in crustaceans.
- 2018 ICA award for leading entrepreneurship in agriculture and biotechnology, with Enzootic and Northern prawns, ICA foundation, Kinneret, Israel.
- 2015 The Crustacean Society, 2016 Excellence in Research Award (TCSERA), New Orleans, Louisiana.
- 2014 The Landau Prize for Sciences and Arts, Tel Aviv, Israel.
- 2013 The Global Aquaculture Alliance's inaugural Novus Global Aquaculture Innovation Award, GOAL, Paris.
- 2010-2013 President, International Society for Invertebrate Reproduction and Development (ISIRD).
- 2010-present Lily and Sidney Oelbaum Chair in Applied Biochemistry, Ben Gurion University.
- 2001-2010 Vice President, International Society for Invertebrate Reproduction and Development (ISIRD).
- 1999 Nominated as Sigma Xi member.
- 1997-2001 Incumbent of the Judith and Murray Shusterman Chair for Career Development in Physiology, Ben-Gurion University.
- 1997 Best Lecturer of the Year in Biology, the Students Association, Ben Gurion University.
- 1991 Young Member of the Corporation, Marine Biological Laboratory, Woods Hole, Mass.
- (b) Research fellowships:
- 1989-1991 United States-Israel Binational Agricultural Research and Development (BARD) post doctoral fellowship.
- 1989-1991 Fulbright, United States-Israel Educational Foundation, post doctoral scholarship.

5. Professional Activities

- (a) Professional functions:
- 2021 Member of the Animal Science panel, Life Sciences, Israel Science Foundation (ISF).
- 2020 Committee member in the Life Science panel, Us-Israel Binational Science Foundation (BSF).
- 2018-2019 Academic leadership forum, Israel commission for Higher Education

2017 Member of the National steering committee for protein from water sources, Chief Scientist, Ministry of Agriculture & Rural Development.

2016-2018 Representative of the Senate to the Board of Governors, Ben-Gurion University.

2016-2017 Committee member in the Life Science panel, Israel Science Foundation (ISF).

2016 Leading the Grand Challenges Israel Expedition to Nigeria on prawn monosex culture and schistosomiasis eradication with Tiran Group.

2014-2019 Advisory Board Member, Gates/GCC Aquaculture Pour La Sante Project, Senegal /Stanford University.

2014-2016 Editorial board, Sexuality and Early Development in Aquatic Organisms (SEDAO). Inter Research (IR), Germany.

2013-2014 Member of the Panel Committee on Animal Sciences, United States – Israel Binational Agricultural Research and Development Fund (BARD).

2013 Co-founder Enzootic Ltd.

2011 Member of the scientific committee, the Crustacean Society Summer Meeting, 10th Colloquium Crustacea Decapoda Mediterranea, Athens Greece June 2012.

2006- 2012 Committee member in the Animal Science panel, Life Sciences & Medicine Israel Science Foundation (ISF).

2010 Licensing the Insulin-like Androgenic Gland patent to Tiran Ltd.

2005 Member of the organizing committee of the International Marine Biotechnology Conference (IMBC 07), Eilat 2007.

2004 Co-Founder Amorphical Ltd.

2003-2013 Member of the Editorial Board of the Journal "Invertebrate Reproduction and Development".

2001-present Editorial board, Invertebrate Reproduction and Development, Taylor and Francis Group.

1998-2005 Member of the Chief Scientists' Steering Committee on Aquaculture, the Ministry of Agriculture, Israel.

2000-2003 Member of the Panel Committee on Aquaculture, United States – Israel Binational Agricultural Research and Development Fund (BARD).

(b) Academic activities

2015-present Scientific committee - The National Institute for Biotechnology in the Negev.

2008-2011 Dean, Faculty of Natural Sciences, BGU.

2008-2011 Committee Member– The National Institute for Biotechnology in the Negev (NIBN).

2004-2008 Founder and academic head of the Marine Biology and biotechnology program, Department of Life Sciences and the Eilat Campus of BGU.

2005-present Member of the Steering Committee, Department of Life Sciences, BGU.

2002-present Member of the Appointment Committee, Department of Life Sciences, BGU.

2004-2006 Member of the Steering committee for Life Sciences, Medicine and Biotechnology headed by the late Prof. Segal, BGU.

2002-2007 Member of the Faculty Committee for Graduate Students. Faculty of Natural Sciences, BGU.

2002-2007 Head of the Departmental Committee for Graduate Students, Department of Life Sciences, BGU.

2001-2002 Head of the Admission Committee, Department of Life Sciences, BGU.

2000 Preparation of a new “The Cell” course at the Department of Life Sciences, Ben Gurion University including a web site for remote learning.

1993-1994 Preparation of a new program for the teaching of endocrinology, including two new courses with comparative emphasis: "Introduction to endocrinology" and "Selected topics in endocrinology of invertebrates".

(c) Ad hoc reviewer (Journals)

Animals, Aquaculture International; Aquaculture; Aquaculture Research; Biology of Reproduction; BioAssays, Biology letters; Biomolecules; Biomacromolecules; Biotechnology advances; Canadian Journal of Zoology; Comparative Biochemistry and Physiology; Endocrinology; Fisheries Technology; Frontiers in Physiology; Functional Ecology; Gene; Developmental Biology; General and Comparative Endocrinology; Indian J. of Biochemistry & Biophysics; Invertebrate Reproduction and Development; International Journal of Molecular Sciences; Journal of Invertebrate Pathology; Journal of Crustacean Biology; Journal of the World Aquaculture Society; Journal of Undergraduate Neuroscience Education (JUNE); Journal of Experimental Marine Biology and Ecology; Knowledge and Management of Aquatic Ecosystems; Marine Biology; Marine Ecology progress series; Marine Biological Association of the United Kingdom; Nanoscale; Peptides; PLoSOne; PNAS; Scientific reports; The Israeli Journal of Aquaculture; Zoology and Ecology; Zoological Studies; Zoological Science.

(d) Ad hoc reviewer (Foundations)

National Science foundation USA (NSF); United States Department of Agriculture (USDA); US-Israel Binational Agricultural Foundation (BARD); Japan Israel Binational Foundation; German-Israeli Foundation for Scientific Research & Development (GIF); Chief Scientist's foundation, the Ministry of Agriculture, Israel; Natural Environment Research Council, UK (NERC); Research Grant Council Hong Kong, China; Israel Science Foundation (ISF); International Foundation for Science (IFS) Stockholm, Sweden; The Research Foundation – Flanders (FWO), Flanders (Belgium); US-Israel Binational Science Foundation (BSF).

(e) Courses taught:

2000-present The Cell, Department of Life Sciences, Ben-Gurion University (in charge, with other faculty).
1996-2019 Laboratory in Physiology, Department of Life Sciences, Ben-Gurion University (with other faculty).
1993-2010 Selected Topics in comparative Endocrinology. Department of Life Sciences, Ben-Gurion University.
1993-present Introduction to Comparative Endocrinology. Department of Life Sciences, Ben-Gurion University.
1992-1997 Zoology of Invertebrates. Department of Life Sciences, Ben-Gurion University (With other faculty).
1991 Crustacean endocrinology workshop, National Center of Aquaculture and Marine Research, CENAIM ESPOL, Guayaquil Ecuador.
1990 Crustacean endocrinology workshop, The Institution of Neurobiology, The University of Puerto Rico, San Juan.

(f) Memberships:

Since 2012 The Crustacean Society
Since 2002 International Society for Invertebrate Reproduction and Development (ISIRD)
Since 1999 Sigma Xi, The Scientific Research Society
Since 1996 The Society for Integrative and Comparative Biology
1994-2002 International Association of Astacology
Since 1993 European Society for Comparative Endocrinology

- 1991-1997 Member of the Corporation, Marine Biological Laboratory, Woods Hole, Mass.
- Since 1985 Israeli Society for Aquaculture and Marine Biotechnology

6. Scientific Publications

(a) Refereed articles in scientific journals

1. Ra'anan, Z. and Sagi, A., 1985. Alternative mating strategies in male morphotypes of the freshwater prawn *Macrobrachium rosenbergii* (de Man). *Biol. Bull.*, 169:592-601.
2. Sagi, A., Cohen, D., Ra'anan, Z., Zohar, G., Hulata, G. and Karplus, E., 1987. Production of the freshwater prawn *Macrobrachium rosenbergii*: The improvement in yields by production in monosex populations. *Fisheries and Fishbreeding in Israel*, 2(20):9-21.
3. Sagi, A. and Ra'anan, Z., 1985. Rapid identification of reproductive state and the receptive period of females in pond populations of *Macrobrachium rosenbergii* - a new technique. *Aquaculture*, 48:361-367.
4. Ra'anan, Z., Sagi, A. and D. Cohen, 1985. Production of *Macrobrachium rosenbergii* in intensive monoculture, Kalia - 1984. *Fisheries and Fishbreeding in Israel*, 18(2):20-24.
5. Sagi, A., Ra'anan, Z., Cohen, D. and Y. Wax, 1986. Production of *Macrobrachium rosenbergii* in monosex populations: yield characteristics under intensive monoculture conditions in cages. *Aquaculture*, 51:265-275.
6. Kuris, M.A., Ra'anan, Z., Sagi, A. and D. Cohen, 1987. Morphotypic differentiation of male Malaysian giant prawn, *Macrobrachium rosenbergii*. *J. Crust. Biol.*, 7(2):219-237.
7. Cohen, D., Sagi, A., Ra'anan, Z. and G. Zohar, 1988. The production of *Macrobrachium rosenbergii* in monosex populations: III. Yield characteristics under intensive monoculture conditions in earthen ponds. *Israeli J. Aquacult.*, 40(2):57-63.
8. Hulata, G., Karplus, I., Wohlfarth, G.W., Halevy, A., Cohen, D., Sagi, A. and Z. Ra'anan, 1988. The production of *Macrobrachium rosenbergii* in monosex populations. II. Yield characteristics in polyculture ponds. *Israeli J. Aquacult.*, 40(1):9-16.
9. Cohen, D., Sagi, A., Ra'anan, Z. and Zohar, G. 1988. The production of *Macrobrachium rosenbergii* in monosex populations. III. Yield characteristics under intensive monoculture conditions in earthen ponds. *Israeli J. Aquacult.*, 40(2):57-63.
10. Sagi, A., Milner, Y. and Cohen, D., 1988. Spermatogenesis and sperm storage in the testes of behaviourally distinctive male morphotypes of *Macrobrachium rosenbergii* (Decapoda, Palaemonidae). *Biol. Bull.*, 174:330-336.
11. Sagi, A. and Z. Ra'anan, 1988. Morphotypic differentiation of the freshwater prawn *Macrobrachium rosenbergii* males: changes in the midgut glands and the reproductive system. *J. Crust. Biol.*, 8:43-47.
12. Sagi, A., Cohen, D. and Y. Milner, 1990. Effect of androgenic gland ablation on morphotypic differentiation and sexual characteristics of male freshwater prawn *Macrobrachium rosenbergii*. *Gen. Comp. Endocrinol.*, 77:15-22.
13. Sagi, A. and D. Cohen, 1990. Growth, Maturation and Progeny of Sex-Reversed *Macrobrachium rosenbergii* males. *World Aquacult.*, 21(4):87-90.
14. Sagi, A., Karp, L., Milner, Y., Cohen, D., Kuris, A.M. and E. Chang, 1991. Testicular thymidine incorporation in the prawn *Macrobrachium rosenbergii*: molt cycle variation and ecdysteroid effect *in vitro*. *J. Exp. Zool.*, 259(2):229-237.
15. Sagi, A., Homola, E., and Laufer, H., 1991. Methyl farnesoate in the prawn *Macrobrachium rosenbergii*: *In vitro* synthesis by the mandibular organ and titer in the hemolymph. *Comp. Biochem. Physiol.*, 99B(4):879-882.
16. Ra'anan, Z., Sagi, A., Kuris, A., Hulata, G., Karplus, I., and Wax, Y. 1991. Growth, rank and maturation of the freshwater prawn *Macrobrachium rosenbergii* analysis of marked prawns in an experimental population. *Biol. Bull.*, 181:379-385.

17. Homola, E., Sagi, A., and Laufer, H., 1991. Relationship of claw form and exoskeleton condition to reproductive system size and methyl farnesoate in male spider crab, *Libinia emarginata*. *Invert. Reprod. Devel.*, 20(3):219-225.
18. Laufer, H., Sagi, A., Ahl, J.S.B., and Homola, E., 1992. Methyl farnesoate appears to be a crustacean reproductive hormone. *Invert. Reprod. Devel.*, 22(1-3):17-20.
19. Laufer, H., Wainwright, G., Young, N.J., Sagi, A., Ahl J.S.B., and Rees, H.H., 1993. Ecdysteroids and juvenoids in two male morphotypes of *Libinia emarginata*. *Insect Biochem. Mol. Biol.*, 23:171-174.
20. Sagi, A., Homola, E., and Laufer, H., 1993. Distinct reproductive types of male spider crab *Libinia emarginata* differ in circulating and synthesizing methyl farnesoate. *Biol. Bull.*, 185:168-173.
21. Betancourt, I., Calderon, J., and Sagi, A., 1993. Estadios de muda en hembras adultas *Penaeus vannamei*. *Acui. Trop.*, 1:13-15.
22. Garcia, F., Calderon, J., Palacios, M., and Sagi, A., 1993. Identificación de los estadios de maduración ovarica en *Penaeus vannamei*. *Acui. Trop.*, 1:23-26.
23. Laufer, H., Sagi, A., and Ahl, J.S.B., 1994. Alternative mating strategies of the polymorphic males of *Libinia emarginata* appear to depend on methyl farnesoate. *Invert. Reprod. Devel.*, 26:41-44.
24. Sagi, A., Ahl, J.S.B., Danaee H., and Laufer, H., 1994. Methyl farnesoate levels in male spider crab exhibiting active reproductive behavior. *Horm. Behave.*, 28:261-272.
25. Sagi, A., Soroka, Y., Snir, E., Chomsky, O., Calderon J., and Milner Y., 1995. Ovarian protein synthesis in the prawn *Macrobrachium rosenbergii*: Does ovarian vitellin synthesis exist? *Invert. Reprod. Devel.*, 27(1):41-47.
26. Sagi, A., Rise, M., Khalaila, I., and Arad (Malis) S., 1995. Carotenoids and their derivatives in organs of the maturing female crayfish *Cherax quadricarinatus*. *Comp. Biochem. Physiol.*, 112(2):309-313.
27. Sagi, A., Silkovsky, J., Fleisher-Berkovich, S., Danon, A., and Chayoth R., 1995. Prostaglandin E₂ in pre-vitellogenic ovaries of the prawn *Macrobrachium rosenbergii*: synthesis and effect on the level of cAMP. *Gen. Comp. Endocrinol.*, 100(3):308-313.
28. Sagi, A., Snir, E., and Zimmermann S., 1995. Effects of Androgenic gland ablation on somatic growth and sex reversal in *Macrobrachium rosenbergii* (de Man) males. *Rev. Soc. Brasil. Zoo.*, 24(2):300-309.
29. Sagi, A., Khalaila, I., Barki, I., Hulata, G., and Karplus, I., 1996. Intersex red claw crayfish, *Cherax quadricarinatus* (von Martens): functional males with pre-vitellogenic ovaries. *Biol. Bull.*, 190:16-23.
30. Sagi, A., Shoukrun, R., Khalaila, I., and Rise, M., 1996. Gonad maturation, morphological and physiological changes during the first reproductive cycle of the crayfish *Cherax quadricarinatus* female. *Invert. Reprod. Devel.*, 29:235-242.
31. Sagi, A., Snir, E., and Khalaila, I., 1997. Sexual differentiation in decapod crustaceans: role of the androgenic gland. *Invert. Reprod. Devel.* 31:55-61.
32. Sagi, A., Shoukrun, R., Levy, T., Barki, I., Hulata, G., and Karplus, I., 1997. Reproduction and molt in previously spawned and first-time spawning red-claw crayfish *Cherax quadricarinatus* females following eyestalk ablation during the winter reproductive-arrest period. *Aquaculture*, 156:101-111.
33. Sagi, A., Milstein A., Eran, Y., Joseph, D., Khalaila, I., Abdu, U., Harpaz, S., and Karplus, I., 1998. Culture of the Australian red-claw crayfish (*Cherax quadricarinatus*) in Israel. II. Second growout season of overwintered populations. *Israeli J. Aquacult.*, 49(4):222-229.
34. Abdu, U., Takac, P., Yehezkel, G., Chayoth R., and Sagi A., 1998. Administration of Methyl Farnesoate through the *Artemia* Vector, and its effect on *Macrobrachium rosenbergii* Larvae. *Israeli J. Aquacult.*, 50:73-81.

35. Abdu, U., Takac, P., Laufer, H., and Sagi A., 1998. Effect of Methyl Farnesoate on Late Larval Development and Metamorphosis in the Prawn *Macrobrachium rosenbergii* (Decapoda, Palaemonidae): A Juvenoid-Like Effect? *Biol. Bull.*, 195(2):112-119.
36. Silkovsky, J., Chayoth, R., and Sagi A., 1998. A comparative study on the effect of prostaglandin E₂ on cAMP levels in the gonads of the prawn *Macrobrachium rosenbergii*: and the crayfish *Cherax quadricarinatus*. *J. Crust. Biol.*, 18(4):643-649.
37. Karplus, I., Zoran, M., Milstein, A., Harpaz, S., Eran, Y., Joseph, D., and Sagi A., 1998. Culture of the Australian red-claw crayfish (*Cherax quadricarinatus*) in Israel III. Survival in earthen ponds under ambient winter temperatures. *Aquaculture.*, 166(3-4):259-267.
38. Khalaila, I., Weil, S., and Sagi A., 1999. Endocrine balance between male and female components of the reproductive system in intersex *Cherax quadricarinatus* (Decapoda: Parastacidae). *J. Exp. Zool.*, 283:286-294.
39. Sagi A., Khalaila, I., Abdu, U., Shoukrun, R., and Weil, S., 1999. A newly established ELISA showing the effect of the androgenic gland on secondary vitellogenic specific protein in the hemolymph of the crayfish *Cherax quadricarinatus*. *Gen. Comp. Endocrinol.*, 115:37-45.
40. Soroka, Y., Milner Y., and Sagi A., 2000. The hepatopancreas as a site of yolk protein synthesis in the prawn *Macrobrachium rosenbergii*. *Invert. Reprod. Devel.*, 37:61-68.
41. Abdu, U., Yehezkel, G., and Sagi A., 2000. Oocyte development and polypeptide dynamics during ovarian maturation in the red-claw crayfish *Cherax quadricarinatus*. *Invert. Reprod. Devel.*, 37:75-83.
42. Soroka, Y., Sagi A., Khalaila, I., Abdu, U., and Milner Y., 2000. Changes in protein kinase C during vitellogenesis in the crayfish *Cherax quadricarinatus* – possible activation by methyl farnesoate. *Gen. Comp. Endocrinol.*, 118:200-208.
43. Yehezkel, G., Chayoth, R., Abdu, U., Khalaila, I., and Sagi A., 2000. High-density lipoprotein associated with secondary vitellogenesis in the hemolymph of the crayfish *Cherax quadricarinatus*. *Comp Biochem. Physiol. B*, 127:411-421.
44. Khalaila, I., Katz, T., Abdu, U., Yehezkel G., and Sagi A., 2001. Effects of Implantation of Hypertrophied Androgenic Glands on Sexual Characters and Physiology of the Reproductive System in the Female Red Claw Crayfish *Cherax quadricarinatus*. *Gen Comp. Endocrinol.*, 121:242-249.
45. Abdu, U., Barki, A., Karplus, I., Barel, S., Takac, P., Yehezkel, G., Laufer, H., and Sagi A., 2001. Physiological effects of methyl farnesoate and pyriproxyfen on wintering female crayfish *Cherax quadricarinatus*. *Aquaculture*, 202(1-2):163-175.
46. Abdu, U., Yehezkel G., Weil, S., Ziv, T., and Sagi A., 2001. Is the unique negatively charged polypeptide of crayfish yolk HDL a component of crustacean vitellin? *J. Exp. Zool.*, 290:218-226.
47. Sagi A., and Khalaila, I., 2001. The crustacean androgen: a hormone in an isopod and androgenic activity in decapods. *Am. Zool.*, 41:477-484.
48. Sagi A., Khalaila, I., Aflalo, E., Peter-Katalinic, J., Abdu, U. and Davis, C., 2002, The vitellogenin gene in the crayfish *Cherax quadricarinatus*: expression and encoded proteins. *Integrative and Comparative Biology*. 42(6):1304.
49. Sagi A., Manor, R., Segall, C., Davis, C., and Khalaila, I., 2002. On intersexuality in the crayfish *Cherax quadricarinatus*: an inducible sexual plasticity model. *Invert. Reprod. Devel.*, 41:27-33.
50. Abdu, U., Davis, C., Khalaila, I., and Sagi A., 2002. The vitellogenin cDNA of *Cherax quadricarinatus* encodes a lipoprotein with calcium binding ability, and its expression is induced following the removal of the androgenic gland in a sexually plastic system. *Gen Comp. Endocrinol.*, 127:263-272.

51. Parnes, S., and Sagi, A., 2002. Intensification of redclaw crayfish *Cherax quadricarinatus* culture: I. Hatching and nursery system. *Aquacult. Eng.*, 26:251-262.
52. Manor, R., Segev, R., Pimenta-Leibovitz, M., and Sagi, A., 2002. Intensification of redclaw crayfish *Cherax quadricarinatus* culture: II. Growout in a separate cell system. *Aquacult. Eng.*, 26:263-276.
53. Khalaila, I., Manor, R., Weil, S., Granot, Y., Keller, R., and Sagi, A., 2002. The eyestalk-androgenic gland-testis endocrine axis in the crayfish *Cherax quadricarinatus*. *Gen Comp. Endocrinol.*, 127(2):147-156.
54. Karplus, I., Sagi, A., Khalaila, I., and Barki, A., 2003. The soft red-patch of the Australian freshwater crayfish *Cherax quadricarinatus* (von Martens): a review and prospects for future research. *J. Zool. Lond.*, 259:1-5.
55. Barki, A., Karplus, I., Khalaila, I., Manor, R., and Sagi, A., 2003. Male-like behavioral patterns and physiological alterations induced by androgenic gland implantation in female crayfish. *J. Exp. Biol.*, 206:1791-1797.
56. Karplus, I., Khalaila, I., Sagi, A., and Barki, A., 2003. The influence of androgenic gland implantation on the agonistic behavior of female crayfish (*Cherax quadricarinatus*) in interactions with males. *Behaviour*, 140:649-663.
57. Parnes, S., Khalaila, I., Hulata, G., and Sagi, A. 2003. Sex determination in crayfish: Are intersex *Cherax quadricarinatus* (Decapoda, Crustacea) genetically females? *Genet. Res.*, Camb. 82:107-116.
58. Parnes, S., Mills, E., Segall, C., Raviv, S., Davis, C., and Sagi, A. 2004. Reproductive readiness of the shrimp *Litopenaeus vannamei* in fossil brackish water system. *Aquaculture*, 236:593-606.
59. Manor, R., Aflalo, D.E., Segall, C., Weill, S., Azulay, D., and Sagi, A. 2004. Androgenic gland implantation promotes growth and inhibits vitellogenesis in *Cherax quadricarinatus* females grown in individual compartments. *Invert. Reprod. Devel.*, 45(2):151-159.
60. Khalaila, I., Peter-Katalinic, J., Tsang, C., Radcliffe, CM., Aflalo, D.E., Harvey, DJ., Dwek, RA., Rudd, PM. and Sagi, A. 2004. Structural characterization of the N-glycan moiety and site of glycosylation in vitellogenin from the decapod crustacean *Cherax quadricarinatus*. *Glycobiol.*, 14(9):767-774.
61. Shechter, A., Aflalo, E. D., Davis, C., and Sagi, A. 2005, Expression of the reproductive female specific vitellogenin gene in endocrinologically induced male and intersex crayfish *Cherax quadricarinatus*. *Biol. Reprod.*, 73:72-79.
62. Raviv, S., Parnes, S., Segall, C., Davis, C., and Sagi, A. 2006. Complete sequence of *Litopenaeus vannamei* (Crustacea: Decapoda) vitellogenin cDNA and its expression in endocrinologically induced sub-adult females. *Gen. Comp. Endocrinol.*, 145:39-50.
63. Barki, A., Karplus, I., Manor, R., Parnes, S., Aflalo, E. D., and Sagi, A. 2006. Growth of redclaw crayfish (*Cherax quadricarinatus*) in a three-dimensional individual cells system: does a neighbor matter? *Aquaculture*, 252:348-355.
64. Aflalo, E.D., Hoang, T.T.T., Nguyen, V.H., Lam, Q., Nguyen, D.M., Trinh, Q.S., Raviv, S., and Sagi, A. 2006. A novel two-step procedure for mass production of all-male populations of the giant freshwater prawn *Macrobrachium rosenbergii*. *Aquaculture*, 256:468-478.
65. Barki, A., Karplus, I., Manor, R., and Sagi, A., 2006. Intersexuality and behavior in crayfish: the de-masculinization effects of androgenic gland ablation. *Horm. Behave.*, 50:322-331.
66. Aflalo, E.D., Bakhrat, A., Raviv, S., Harari, D., Sagi, A. and Abdu, U., 2007. Characterization of a *Vasa*-like gene from the Pacific White Shrimp *Litopenaeus vannamei* and its expression during oogenesis. *Mol. Reprod. Devel.*, 74(2):172-7.

67. Parnes, S., Raviv, S., Shechter, A. and Sagi, A. 2006. Males also have their time of the month! Cyclic disposal of old spermatophores, timed by the molt cycle, in a marine shrimp. *J. Exp. Biol.*, 209:4974-4983.
Also reported in Holmes, B. Males with a version of the menstrual cycle. *New Scientist*, issue 2581, December 2006 and Butvill, D.B. A male that menstruates. *BBC Wildlife*, 25(5):34, May 2007.
68. Manor, R., Weil, S., Oren, S., Glazer, L., Aflalo, E.D., Ventura, T., Chalifa-Caspi, V., Lapidot, M., and Sagi A. 2007. Insulin and gender: an insulin-like gene expressed exclusively in the androgenic gland of the male crayfish. *Gen. Comp. Endocrinol.*, 150(2):326-336.
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- 42-47. Shpak, N., Katzir Abilevich, L., Mentel, O., Shavit, K., Manor, R., Aflalo, E.D., Toiber, D. and Sagi, A. *Macrobrachium rosenbergii* Argonaute-1, complete cds. Accession number: KY369127; *Macrobrachium rosenbergii* Argonaute-2, complete cds. Accession number: KY369128; *Macrobrachium rosenbergii* Argonaute-3, complete cds. Accession number: KY369129; *Macrobrachium rosenbergii* Dicer-1, complete cds. Accession number: KY369130; *Macrobrachium rosenbergii* Dicer-2,

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 52. Shpak, N., Manor, R., Katzir Abilevich, L., Mantal, O., Shavit, K., Aflalo, E.D., Toiber, D., Sagi, A. *Macrobrachium rosenbergii* Dicer-2, complete cds. Accession number: KY369131.
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7. Lectures and presentations (Invited only)

(a) Invited presentations and plenary lectures at meetings:

- 1989 Alternative reproduction strategies in males of the giant freshwater prawn *Macrobrachium rosenbergii* (De Man) (Onitenaga Ebi) - Physiology and Hormonal Regulation. Fifth International Congress of Invertebrate Reproduction. Nagoya, Japan.
- 1993 Gonad stimulation in crustaceans: a possible role for juvenile hormone-like compounds. The Second Ecuadorian Aquaculture Conference. p. 56. Guayaquil, Ecuador.
- 1995 Reproduction in the Australian crayfish *Cherax quadricarinatus*. Meeting of the Israeli Society for Aquaculture. Department of Agricultural Engineering, Thechnion, Haifa, Israel.
- 1995 Androgenic gland, sex differentiation and intersexuality. 7th International Congress of Invertebrate Reproduction. p. 189. Santa Cruz, California, USA.
- 1996 Invited Chairperson. Determination and differentiation of sex. Twelfth International Symposium in Conjunction with the International Prize for Biology - Biology of Reproduction. Hayama Kanagawa, Japan.
- 2000 The androgenic gland and sexual plasticity in crustaceans. Recent Advances in Crustacean Endocrinology - A Symposium in honor of Milton Fingermann. Annual Meeting of the Society for Integrative and Comparative Biology. Atlanta, USA.
- 2001 Sex differentiation and sexual plasticity in crustaceans. 9th International Congress on Invertebrate Reproduction and Development. Rhodes University, Grahamstown, South Africa.
- 2003 The androgenic gland and monosex culture in prawns – biotechnological perspective. Plenary lecture, International Symposium on Freshwater Prawns. Kerala University, India. (Sponsored by German Agro Action, GIFRID foundation).
- 2004 Five lessons on reproduction and growth from the Redclaw crayfish model. 10th International Congress on Invertebrate Reproduction and Development, New Castle, UK.

- 2007 The androgenic gland and monosex culture of crustaceans – a biotechnological perspective. 8th International Marine Biotechnology Conference, Eilat Israel.
- 2007 RNAi studies in crustacean growth and reproduction. Workshop on Nephrops growth and reproduction University of Thessaly, Volos, Greece.
- 2010 Regulation of maleness and sexual differentiation in decapods: androgenic glands and insulin-like hormones. The 7th International Crustacean Congress (ICC7), Chinese Academy of Sciences, Qingdao, China.
- 2010 Protein involvement in assembly of extracellular calcium storage during molt. International Conference on Invertebrate Reproduction and Development in the Age of Genetic Modifications. Prague, Czech Republic.
- 2011 Androgenic gland and monosex culture: early sex reversal projects and recent discoveries of the insulin-like AG hormone and molecular sex markers. Asian-Pacific Aquaculture 2011(WAS Asian-Pacific Chapter) and Giant Prawn 2011, Kochi, India.
- 2011 High Quality Brood Stock Development of Scampi. AQUA AQUARIA 2011, Chennai, India.
- 2011 Temporal calcium deposits in crayfish – relevant proteins and applications. Keynote speaker. 24th European Conference on Biomaterials. 2011, Dublin, Ireland.
- 2012 Temporal calcium deposits in crayfish – relevant proteins and applications. Invited speaker. NanoIsrael 2012, Tel Aviv, Israel
- 2012 Gene silencing through RNAi in crustacean research and development. Invited lecture and Chair of the Genetics, Genomics and Proteomics Session, Crustacean Society Summer Meeting and 10th Colloquium Crustacea Decapoda Mediterranea, Athens, Greece.
- 2013 Insulin-like androgenic hormones and monosex culture of prawns: The first implementation of RNA-interference in aquaculture. Invited lecture at COST EPICONNECT- Epigenetics from model to practice, Barcelona, Spain.
- 2013 Invited speaker and chair, Thirteenth International Conference on Invertebrate Reproduction and Development. Detroit, USA.
- 2013 Plenary lecture. Israeli Fish Growers Convention. Jerusalem, Israel.
- 2013 Award lecture, the Global Aquaculture Alliance's inaugural Novus Global Aquaculture Innovation Award, GOAL, Paris, France.
- 2013 Insulin-like androgenic hormones and monosex culture of prawns: The first implementation of RNA-interference in aquaculture. Plenary lecture. 10th International Marine Biotechnology Conference (IMBC), Brisbane, Australia.
- 2014 The first implementation of RNA-interference in aquaculture: all male culture of prawns. 1er Congreso Internacional de Macrobrachium. Villahermosa, Tabasco, Mexico.
- 2014 Paperna Memorial Conference on the Use of Molecular Techniques in Aquaculture. Plenary lecture. Rehovot Israel.
- 2014 Advances in the reproductive endocrinology of crustaceans: Assemblage of pieces in the androgenic gland insulin-like hormone puzzle. Invited symposium speaker. Society for experimental biology (SEB) conference, Manchester, United Kingdom.
- 2014 On sexual intervention and safety considerations in the use of RNAi in aquaculture. Plenary lecture, Epiconcept, Faro, Portugal.
- 2014 On the safety of RNAi usage in all-male prawn aquaculture. Plenary lecture. The 9th world Chinese symposium on crustacean aquaculture, Zhangjiang, China.
- 2014 RNAi-based biotechnologies to control sexuality in crustaceans: environmental implications. Invited plenary lecture. IAA&JCS Joint international conference on crustaceans. Sapporo, Japan.
- 2015 Abehsera S., Glazer L., Tynyakov J., Plaschkes I., Chalifa-Caspi V., Khalaila I., Aflalalo E.D. and Sagi A. Binary patterning of chitin metabolism pathways in a crayfish: a tool for multi gene studies of the molt cycle in arthropods. Invited symposium lecture. The Society for Integrative and Comparative Biology (SICB), West palm beach, Florida, U.S.A.

- 2015 Use of RNAi in aquaculture: Safety, mechanism and challenges. Invited plenary lecture. Aquaculture 2015 Cutting Edge Science in Aquaculture, Montpellier, France.
- 2016 Aquaculture and the Israeli “startup nation” – Generation of novel technologies. Plenary lecture. Israeli Fish Growers Convention. Nir Etzion, Israel.
- 2016 Biotechnologies for crustacean monosex aquaculture. Plenary lecture. From marine agriculture to marine industry. Ruppin Academic Center, Michmoret, Israel.
- 2016 Biotechnologies for monosex culture in prawns. Keynote lecture. 11th International Marine Biotechnology Conference (IMBC), Baltimore, USA.
- 2017 Chair, Crustacean Endocrinology, the Society for Integrative and Comparative Biology (SICB), New Orleans, Louisiana, U.S.A.
- 2017 Current state of the art in all-male and all-female *Macrobrachium* production and plans for the future. Giant Prawn 2017, Invited Plenary Lecture. Bangkok, Thailand.
- 2017 Ag-Biotech: Unmet Needs Versus the Research We Would Really Like to Do. Invited Plenary, in: From the Laboratory to the Market and Back? Historical and Critical Explorations of the Interchange between Academia and Industry, BGU, Beer Sheva, Israel.
- 2017 Technologies for monosex culture of crustaceans, first implementation in the Dor Station and with growers. Plenary lecture. Israeli Fish Growers Convention. Ein Harod, Israel.
- 2017 TCSERA award lecture: Sexuality and cuticle assembly in crustaceans from a functional genomic perspective. Invited plenary lecture. The Crustacean Society mid-year conference. Barcelona, Spain.
- 2018 Crustacean sexuality, insulin and biotechnologies. Invited opening plenary lecture. The bioinformatics units’ forum, at NIBN, Beer Sheva, Israel.
- 2018 Sex determination and monosex culture in WZ prawns. Invited opening plenary lecture. The 11th world Chinese symposium on crustacean aquaculture, Shantou, China.
- 2019 Biotechnologies for monosex in Aquaculture. Invited lecture. Colors of nutrition in Israel, Beer Sheva, Israel.
- 2019 The Exite Project, Festival Mare, Genova Aquarium and University of Genova, Genova, Italy.
- 2019 IAG-switch-based monosex culture in decapod crustaceans. Marine biotechnology, Shimizu, Japan.
- 2019 From basic research on the physiology of crustaceans to startup companies and products. BGU-Bio-Innovation 2019, Beer Sheva, Israel.
- 2019 Prawn monosex culture into the genomic era. Plenary lecture at Giant Prawns 2019, Shanghai. Peoples Republic of China.
- 2020 Biocontrol of snails by freshwater prawns: continuous treatment for a long term challenge. Ministry of Agriculture, Department of Fisheries R&D stations, Tel Yosef, Israel.
- 2021 Keynote lecture on monosex biotechnologies. At the Israeli Aquaculture Technologies Seminar. Ho Chi Minh City, Vietnam (Zoom).
- 2022 Invited plenary lecture, International Summit: Sea the future. Eilat, Israel.
- 2022 invited lecture, Workshop on Aquaculture of Monosex Prawns for Biocontrol of the Neglected Tropical Disease Schistosomiasis. The British Council’s UK-Israel Inter-University Strategic Cooperation Programme, University of St Andrews, Scotland, UK.
- 2022 Invited retrospective seminar, Firma XI, El XI Foro Iberoamericano de los Recursos Marinos y la Acuicultura, Ecuador- on line.
- 2022 Invited lecture, Dryland, Deserts and Deserification, Sde Boker, Israel.
- 2023 Plenary lecture at the 6th Helieutis Scientific Conference, "Diversifying the global crustacean seafood industry through cutting edge biotechnologies" Agadir, Morocco.
- 2023 Plenary lecture at the Helieutis Blue Belt Initiative, "Sustainable aquaculture and biocontrol for Africa", Agadir, Morocco.
- 2023 Minerva-Gentner symposium "Bringing the Sea to Berlin", "Broad view of molt cycle related gene expression and biomineralization in crayfish", Berlin, Germany.

(b) Seminars at Universities and Institutions

- 1985 National Center for Mariculture, Israel Oceanographic and Limnological Research, Eilat, Israel.
- 1988 Department of Biological Sciences, University of California, Santa Barbara CA, USA.
- 1989 Department of Molecular and Cell Biology, The University of Connecticut. Storrs CT, USA.
- 1991 The Institution of Neurobiology, The University of Puerto Rico, San Juan. Puerto Rico.
- 1991 National Center of Aquaculture and Marine Research, CENAIM ESPOL, Guayaquil, Ecuador.
- 1992 Department of Life Sciences, Ben-Gurion University, Beer-Sheva, Israel.
- 1992 Department of Zoology, Faculty of Life Sciences, Tel-Aviv University, Israel.
- 1992 National Institute of Oceanography, Israel Oceanographic and Limnological Research, Haifa, Israel.
- 1996 Bodega Marine Laboratory, University of California, Davis CA, USA.
- 1996 Department of Life Sciences, Ben-Gurion University, Beer-Sheva, Israel.
- 1999 Department of Biology, Northeastern University, Boston Mass, USA.
- 2000 Institute of Aquaculture, University of Stirling, Stirling, Scotland UK.
- 2001 Research Institute for Aquaculture No 1, Hanoi, Vietnam.
- 2002 Research Institute for Aquaculture No 2, Ho Chi Minh City, Vietnam.
- 2003 Department of Biotechnology of Arid Land, Desert Research Institute, BGU, Sde Boker, Israel.
- 2003 Coastal Aquatic Feed Research Institute, Department of Fisheries, Bangkok, Thailand.
- 2003 College of Aquaculture & Fisheries Can Tho University, Can Tho city, Vietnam.
- 2004 Department of Zoology, Tel Aviv University, Tel aviv, Israel.
- 2006 Department of Life Sciences, Bar Ilan University, Ramat Gan, Israel.
- 2007 IRTA, Sant Carles de la Rapita, Spain.
- 2007 Center of Marine Biotechnology, University of Maryland. Baltimore, USA.
- 2008 Entomology Department, Hebrew University, Israel.
- 2009 St. Michaels College of Engineering and Technology, Tamilnadu, India.
- 2010 Dept. of Evolution, Systematics and Ecology, The Hebrew University of Jerusalem, Jerusalem, Israel.
- 2010 Max Planck Institute of Colloids and Interfaces, Department of Biomaterials, Potsdam, Germany.
- 2011 Department of Biology. Oranim College, Haifa University, Israel.
- 2012 Clinical and Translational Science Institute, Purdue University, Indiana, USA.
- 2012 Myanmar Fisheries Federation and Myanmar Shrimp Association, Yangon, Myanmar.
- 2012 Yangon University, Yangon, Myanmar.
- 2012 Hebrew University, Life Sciences Institute, Prof. Milner Memorial, Jerusalem.
- 2012 Agence Nationale de l'Aquaculture (ANA), Senegal.
- 2012 Research Institute for Aquaculture No 2, Ho Chi Minh City, Vietnam.
- 2013 School of Biological Sciences, Universidad Nacional (UNA), Costa Rica.
- 2013 The University of the Sunshine Coast, Australia.
- 2014 Agricultural Research Organization, Neve Yaar Station, Israel.
- 2014 Biological Science Division (DACBIOL) Universidad Juarez Autonoma de Tabasco (UJAT), Villahermosa, Mexico.
- 2014 Agricultural Research Organization, Animal Sciences Department, Rehovot, Israel.
- 2015 Weitzman Institute of Sciences, Department of Science Education, Rehovot, Israel.

- 2015 Ghent University, Faculty of Bio-Science Engineering, Lab of Aquaculture & Artemia Reference Center, Ghent, Belgium.
- 2015 The University of Haifa, School of Marine Biology. Haifa, Israel.
- 2016 Technische Universität Dresden, Institute of Materials Science Max-Bergmann-Center of Biomaterials. Dresden, Germany.
- 2016 Department of Ecology, Evolution & Behavior, The Alexander Silberman Institute of Life Sciences, The Hebrew University of Jerusalem, Israel.
- 2016 Stazione Zoologica Anton Dohrn, Napoli, Italy.
- 2016 Department of Zoology, Ibadan University, Ibadan, Nigeria.
- 2017 Fisheries College, Guangdong Ocean University, Zhangjiang, China.
- 2017 Faculty of Life Sciences, Bar Ilan University, Ramat Gan, Israel.
- 2018 College of Fisheries and life science, Shanghai Ocean University, Shanghai, China.
- 2019 Marine Sciences School, Marine Science Study Campus. Ruppin College, Michmoret, Israel.
- 2022 University of St Andrews, Scotland, UK

(c) Participation in informal international seminars:

- 1991 Aquaculture Network Meeting. Board on Science and Technology for International Development. National Research Council. ICLARM, Manila, Philippines.
- 2005-8 European Community– PHARMAPOX. Chemistry, pharmacology and bioactivity of novel apoptotic compounds. Stazione Zoologica "A. Dohrn" Benthic Ecology Laboratory, Ischia – Italy
- 2010 BARD UMBI-Israel Status Seminar, Baltimore, Maryland, USA.
- 2015 Gates/GCC Aquaculture Pour La Sante Project, Senegal /Stanford University, California, USA.

8. Research Grants (total ~ 13,000,000 US\$)

- 1993-1994 VATAT, 'Garin' start up fellowship, "Function of the androgenic gland in sex-determination of crustaceans". 30,000 NIS
- 1994-1997 US-Israel Binational Science Foundation (BSF), "Endocrine regulation of sex determination in juvenile crustaceans". With Prof. Ernie Chang. 110,000 US\$.
- 1996-1997 US-Israel Binational Science and Technology Commission: Aquaculture Technology Joint Venture (ATJV), "Reproduction Pharmaceuticals" 22,000 US\$.
- 1996-1998 The Harry Stern - Helen Tzoref Applied Research Foundation. "A new technology for year round culture of crayfish in a closed superintensive desert aquaculture bubble". 35,000 US\$
- 1997-2000 Eshkol fellowship (sponsoring Isam Khalaila) Ministry of Science, Israel. Fellowship 87,000 NIS Grant 18,000 NIS
- 1997-2000 Chief Scientist's Foundation, Ministry of Agriculture. "Optimization of Hatchery for the Australian Crayfish *Cherax quadricarinatus*: Control of Reproduction and Induction of Winter Spawning", with Dr. Ilan Karplus. 400,000 NIS
- 1997-2000 Ministry of Agriculture, Fisheries Department, Special grant (Negev project). Reproduction of *Cherax quadricarinatus*. 90,000 NIS
- 1997 Toman Foundation for Academic Excellence. Equipment grant. HPLC system. 20,000 US\$.
- 1999-2000 ICA Foundation. Super intensive culture of the Australian red-claw crayfish, *Cherax quadricarinatus* in individual compartments: development of an improved

	broodstock through endocrine and genetic manipulations. With Arava R&D.	50,000 US\$
2000	Industrial grant from MTN Ltd. "Reproduction in invertebrates"	43,000 NIS
2000-2002	Magnetone, Industrial R&D Israel Ministry of Commerce and Industry. "Biotechnology for Production of Shrimp in Negev Brackish water" With Matan Ltd.	Equipment 46,000 US\$ Grant 905,078 NIS
2000-2003	Chief Scientist's Foundation, Ministry of Agriculture. "Yield enhancement in the Australian crayfish <i>Cherax quadricarinatus</i> by population, genetic and endocrine manipulations", with Drs. Hulata and Karplus.	180,000 NIS
2000-2003	Deutsche Forschungsgemeinschaft (DFG). "Identification, structural elucidation and biological activity of the androgenic hormone in decapod crustaceans". With Prof. Keller.	180,000 DM
2000-2004	The Harry Stern Applied Research Foundation. "Development of technology to induce reproduction of Litopenaeids grown in brackish water in intensive desert aquaculture system".	40,000 US\$
2002-2003	NOFAR, Israel Ministry of Commerce and Industry. "Development of Technological and Molecular Tools for Vitellogenesis and reproduction of <i>L. vannamei</i> in Negev Geothermal Brackish water".	350,000 NIS
2002-2004	Chief Scientist's Foundation, Ministry of Agriculture. "Introduction of the shrimp <i>Penaeus indicus</i> for reproduction and culture in intensive saline water systems in Israel".	210,000 NIS
2003-2004	B.G. Negev Applied Research Fund. "Processes of secondary vitellogenesis and reproduction of shrimp in isolated geothermal brackish water in Ramat Negev".	95,000 US\$
2001-2005	US-Israel Binational Science Foundation (BSF), "Regulation of vitellogenesis in the decapod <i>Cherax quadricarinatus</i> ". With Dr. Clay Davis and Prof. Ernie Chang.	110,000 US\$
2002-2005	German-Israel Fund for Research and International Development (GIFRID). "Application of prawn monosex production in backyard hatcheries to improve aquaculture profitability of small-scale farmers in Vietnam". With RIA 1&2, Hanoi and Ho Chi Minh City, Vietnam.	64,000 EU
2003-2005	The Harry Stern Applied Research Foundation. "Development of a technology to select softshell product in economically important crustaceans through non-invasive biomineralization imaging". With Dr. Amir Berman.	21,000 US\$
2004-2011	BGN and Amorphical Ltd. "Biomineralization processes and calcium mobilization". With Dr. Amir Berman.	1,123,510 NIS
2005-2008	European Community FP6-2003-NEST- A/STREP 4800 – PHARMAPOX. Chemistry, pharmacology and bioactivity of a novel apoptotic compound - a sex regulator in decapod crustaceans with promising environmental and medical applications.	Total grant: 600,000 EU, BGU: 103,560 EU
2005-2009	Israel Science Foundation (ISF) "Multi gene expression patterns assigned to crustacean molt and reproduction" With Dr. Moshe Tom	980,000 NIS
2006-2010	Binational Agriculture Research and Development (BARD-Australia QICARP) "Improving crustacean aquaculture production efficiencies through development of monosex populations using endocrine and molecular manipulations" With Dr. Abigail Elitzur.	295,000 US\$
2006-2016	RGCA MPEDA Indian Ministry of Commerce. Establishment of an experimental breeding center for prawn improvement and monosex prawn production biotechnology.	360,000 US\$

2007-2009	ICA Foundation. Establishment of reproducing broodstock and introduction of an ornamental cleaner shrimp species to the Negev-Arava region. With Arava R&D.	23,000 US\$
2007	BGN- Ben Farm. "Efficiency of calcium absorption from crustacean skeletal sources." With Dr. Liel, Soroka Hospital.	13,000 US\$
2007-2008	National Institute for Biotechnology in the Negev (NIBN). " Biomimetic Organic – Amorphous Mineral Hybrid Material with Potential Nutritional and Health Benefits" With Dr Berman.	20,000 US\$
2007-2011	USAID-CDR. "Biotechnology to Produce Monosex Culture of the Giant Freshwater Prawn (<i>Macrobrachium rosenbergii</i> de Man)" With Dr. Uraivan.	199,000 US\$
2008-2011	Chief Scientist's Foundation, Ministry of Agriculture. "Establishment of broodstock and larviculture protocol for an ornamental cleaner shrimp for the use of exporting aquaculturists".	180,000 NIS
2009-2011	German-Israeli Foundation for Scientific Research and Development (GIF). "Gene manipulation of amorphous biomineralogy: Role of proteins in controlling nano-properties and hierarchical organization" With Dr. Berman.	204,150 EU
2009-2011	Binational Agriculture Research and Development (BARD-UMBI). "Endocrine and molecular manipulations of the crustacean molt to control growth and synchronize ecdysis" With Dr. Sook Chung.	288,000 US\$
2009-2013	Israel Science Foundation (ISF) "Crustacean gastrolith - a simple model for the formation of extracellular chitin-mineral-protein complexes - from a genomic approach to key genes and protein function." With Dr. Moshe Tom	780,000 NIS
2009-2011	Israel Ministry of Commerce and Industry to Amorphical Ltd. "Development and production of amorphous calcium supplements with high biological availability". Amorphical Ltd.	1,776,000 NIS
2010-2013	Tiran Shipping Ltd., NIBN and BGN "Novel technology package for prawn monosex culture: Sex reversal through gene manipulation and genomic sex identification kits".	1,020,000 US\$
2012-2015	Binational Agriculture Research and Development (BARD). "Delivery of gene silencing agents for improving aquaculture production efficiencies" With Dr. Du.	300,000 US\$
2013-2018	Israel Science Foundation (ISF) "Matrix Proteins in crustacean enamel-like molar tooth".	780,000 NIS
2013-2017	FP7-PEOPLE-2013-IRSES, MARIE CURIE ACTIONS, International Research Staff Exchange Scheme with Australia: "Development of genomic tools for assessing nutrition, growth and reproduction issues in farmed crustacean species (DeNuGReC)" With Profs. Elizur, Mather, Rotlant.	BGU 18,900 EU
2014-2019	Israel Ministry of Commerce and Industry, Israel Innovation Authority to Enzoitic Ltd. "Technology for all-female production for Aquaculture".	5,026,726 NIS
2014-2016	BIO-DISC - Bundesministerium für Bildung und Forschung (BMBF) "German-Israeli Cooperation in Biotechnology" With Dr. Thomas Hanke Technische Universität Dresden.	266,000 EU
2014-2017	The Israel Science Foundation (ISF) and the National Natural Science Foundation of China (NSFC) "The role of neuropeptides in the control of gender specific insulin like androgenic hormone in crustacean sexual differentiation", With Prof. Fuhua Li.	780,000 NIS
2015-2018	Stanford University, Bill and Melinda Gates foundation. Espoir Pour La Santé (EPLS), Senegal, Grand Challenges Canada: "Native prawn fisheries restoration	

	for poverty alleviation and schistosomiasis control in the Senegal River Basin".	
		131,332 US\$
2015-2016	Grand Challenges Israel with Tiran Shipping. Development of biotechnologies for all-male aquaculture of prawns in Africa – with Tiran group and Ibadan University, Nigeria.	555,000 NIS
2016-2019	US-Israel Bination Science Foundation (BSF), "Controlling sexual differentiation in crustaceans" – With Prof. Sherry Tamone.	169,200 US\$
2016-2019	The Israel Science Foundation (ISF) and the University Grant Commission (UGC) of India "The molecular bridge between sexual determination and sexual differentiation in crustaceans" – with Prof. Sreenivasula Reddy.	975,663 NIS
2016-2020	Israel Fish Breeding Association and Emek Hamaayanot regional R&D. "Biocontrol and all-female prawn aquaculture"	321, 880 NIS
2017-2020	National Institute for Biotechnology in the Negev (NIBN). "Peptidic delivery-tool development for piggybacking and gene editing in crustacean embryos". With Dr. Isam Khalaila	226,000 US\$
2018-2021	Israeli-Italian Scientific & Technological Cooperation. "Induction of marine sex shift processes towards applied environmental and mariculture biotechnologies" With Dr. Valerio Zupo	420,000 NIS
2018-2023	Israel Science Foundation (ISF) "Key proteins of the chitinous exoskeleton during crustacean molt cycle"	1,468,350 NIS
2018-2021	The Israel Science Foundation (ISF) and the National Natural Science Foundation of China (NSFC) "Layers of control over the regulation of reproduction in decapod crustaceans - bridging between sexual determination and differentiation", With Prof. Fuhua Li.	750,000 NIS
2020-2022	Emek Hamaayanot Regional R&D. "Integrated control of host snails of the parasite <i>Centrocestus spp.</i> in fish ponds through the use of monosex populations of the freshwater prawn <i>Macrobrachium rosenbergii</i> ."	234,600 NIS
2020-2023	Israel Innovation Authority (IIA). CRISPR-IL, The National Consortium for Genomic editing. "Optimization of genome editing in crustacea".	2,158,000 NIS
2020-2022	development of a tool for molecular delivery into oocytes and embryos of crustaceans. With Dr. Isam Khalaila.	793,000 NIS
2021-2023	Israeli-Taiwan Cooperation on Aquaculture and marine Biotechnology. "The molecular basis of gonad development towards biotechnology for sterility in crustacean aquaculture" With Prof. Guan-Chung Wu.	252,000 NIS
2022-2026	Emek Hamaayanot Regional R&D "Polyculture of fish and freshwater prawns (<i>Macrobrachium rosenbergii</i>) as part of method for circular economy, regional, long-term biological pest control serving as a value-added product" With Dr. Hanoch Glasner.	340,000 NIS
2023-2024	The laboratory science accelerator Oazis "Sterile prawns for biocontrol and aquaculture"	340,000 NIS
2023-2025	Ministry of Agriculture, Emek Hamaayanot Regional R&D "Using brine water from local desalination to increase the production capacity of prawns in aquaculture" With Dr. Hanoch Glasner.	270,000 NIS
2023-2026	Ministry of Agriculture, "A robot for monitoring in precision aquaculture" With Dr. David Zarrouk and Prof. Yael Idan.	180,000 NIS
2023-2026	USDA, NIFA-BARD, "Adjusting growth rates of the prawn <i>Macrobrachium rosenbergii</i> for land based aquaculture systems through myostatin gene editing" With R.A. Dunham.	260,000 US\$

9. Visiting scholars in the laboratory

1996	Dr. Peter Takac, Slovak Academy of Sciences. Israeli Academy of Sciences and Slovak Academy of Sciences, Reciprocity program.
1997	Prof. Hans Laufer, University of Connecticut and Marine Biological Laboratory, Woods Hole. Dozor Fellow.
1997/2004	Prof. Rainer Keller, Bonn University. Von-Humboldt Prize winner 1997, Dozor Fellow 2003.
2000	Dr. Pham Anh Tuan, Head of the genetic department, Research Institute for Aquaculture No 1 (RIA-I), Vietnam. Training scholar, British council fellow.
2000	Prof. Hiromichi Nagasawa, University of Tokyo.
2003	Dr. Nguyen Van Hao, Head of Research Institute for Aquaculture No 2 Ho Chi Minh City, Vietnam.
2010	Prof. Abigail Elizur, Sunshine Coast University, Australia.
2013	Prof. Jorge Alfaro Montoya, National University, Costa Rica.
2013	Prof. Tzachi M. Samocha, Texas A&M, AgriLife Research Mariculture Laboratory at Flour Bluff. USA.
2013	Dr. D.V.S.N. Raju and Dr. Anup Mandal, Rajiv Gandhi Center for Aquaculture (RGCA), MPEDA, India.
2015	Prof Sherry Tamone, Fulbright fellow. University of Alaska Southeast, Juneau, Alaska.
2015	Prof. Thomas Hanke, Technische Universität Dresden, Institute of Material Science, Max-Bergmann-Center of Biomaterials, Dresden, Germany.
2015	Prof. Peter Bossier, Lab Aquaculture & Artemia Reference Center Faculty Bioscience Engineering, Ghent University, Gent, Belgium.
2016	Prof. Jorge Alfaro Montoya, National University, Costa Rica.
2017-18	Dr. Li Xuguang, Jiangsu Freshwater Fisheries Research Institute, Genetic and breeding center of the Chinese mitten crab. Nanning, China.
2018/20	Prof. Dr. Ulrich Hoeger, Johannes Gutenberg-Universität, Institut für Molekulare Physiologie.
2019	Prof Sherry Tamone, Fulbright fellow. University of Alaska Southeast, Juneau, Alaska.
2019-20	Prof. Jiao Chuanzhen, Yingdong Life Science College, Shaoguan University, Shaoguan, Guangdong Province, People's Republic of China.
2022	Prof. Judith Makombu, Faculty of agriculture and Veterinary Medicine, University of Buea Buea, Cameroon.
2022	Prof. Andreja Lucic, Department of Biology, University of Zagreb, Croatia Erasmus Fellow.
2023	Prof. Guan-Chung Wu, Department of Aquaculture, National Taiwan Ocean University, Taipei, Taiwan.

10. Research Students

(a) Graduated students

	Name	Degree	Further Carrier Details
1997	Rami Shoukrun	M. Sc., with distinction	M. D. and Ph. D. Haifa University. Head Surgery Dept Soroka hospital.
1997	Julia Silkovsky	M. Sc., with distinction (with Prof. Chayoth)	Ph. D. and Post Ph. D. Weitzman Inst.
2000	Galit Yehezkel	M.Sc., with distinction (with Prof. Chayoth)	Ph. D. BGU, Research associate, BGU.

2000	Dr. Uri Abdu	M. Sc., with distinction, Ph. D.	Post Ph. D. Prof. Life sciences. BGU.
2001	Dr. Jaime Sivan	Ph. D. (with Prof. Friedlander).	Head Zool. Park Beer Sheva, Lecturer Achva College.
2002	Dr. Nili Zmora	M. Sc. (with Dr. Elitzur) Ph. D. With Dr. Chung and Prof. Zohar	Center of Marine Biotechnology, U. of Maryland Biotechnology Inst.
2002	Dr. Isam Khalaila	M. Sc., with distinction, Ph. D.	Minerva Fellow, Munster Germany. Lausanne, Switzerland. MAOF Fellow, Faculty Dept. Biotech. Eng. BGU.
2002	Dr. Yoram Soroka	Ph. D., (with Prof. Milner)	Post Ph. D., Research assoc. HUJ
2004	Carmen Segal	Post Ph.D.	Nano technology Inst. BGU.
2005	Dr. Paramaraj Balamurugan	Post Ph. D.	Prof. St. Michaels College of Engineering and Technology, Tamilnadu, India
2005	Aviad Freiman	M. Sc.	Ph. D Hebrew U
2006	Shauli Raviv	M. Sc Aquaculture Genome Workshop Award Prat Fellowship Ph. D Wolf Foundation	Head IVF Unit TLV.
2007	Dr. Rivka Manor	Post Ph. D.	Research associate BGU.
2006	Dr. Eliahu D. Aflalo	Ph. D., Best Negev Industry Fellow	Prof. Research associate BGU. Head of Dpt. Achva College
2007	Dr. Shmuel Parnes	Post Ph. D.	Head R&D Colors Ltd.
2008	Dr. P. Chenchurami Reddy	Ph.D Best Student Oral SICB San Diego	Prof. Yogi Vemana University, Kadapa, India.
2008	Dr. Asaf Shechter	Post Ph. D., USAID-CDR	CEO Amorphical Ltd., CEO Enzoootic Ltd.
2009	Dr. Keravit Petchjul	M. Sc.	Prof. Taliesin University, Thailand
2010	Ohad Gafni	PhD	Ph.D. Weitzman Institute.
2011	Dr. Tomer Ventura	Post Ph. D. NIBN fellow	Prof. USC, Australia.
2012	Dr. Doron Calo Dr. Shmuel Bentov	Post Ph. D with Dr. Berman	Tel Aviv University Research assoc. BGU and HUJ.
2013	Dr. Lilah Glazer	Ph.D Best Student Presentations	Prof. Biological and Chemical Sciences, Queen Mary, University of London.
2014	Dr. Ohad Rosen	Ph.D Best Student Oral Award, SICB Seattle, Best Presentation Award, V th HOPE Tokyo, Japan	VP R@D Enzoootic Ltd. GG&K IP Law, Patent lawyer.
2014	Binyamin Mittelman	M. Sc. Ministry of Science fellowship	TAU
2014	Dr. Ziv Roth	Ph.D.	Post doc U Toronto
2015	Yaara Lezer	M. Sc.	Trans algae Ltd.
2016	Dr. Jenny Tynyakov	Ph.D.	IUI post doc
2017	Nir Shpk	M.Sc.	BTG Ltd.
2017	Omri Sharabi	Ph.D. Ministry of Agriculture Whole organism fellowship	Research assoc. BGU
2019	Shai Abehsera	Ph.D. Gazit Glob Fellow	Post doc Weitzman Institute
2019	Amit Savaya	Ph.D. Africa Center Fellow	Mariculture development Officer, Israeli Ministry of Agriculture and Rural Development,
2020	Tom Levy	Ph.D., Darom Fellow	Post Doc Stanford University
2020	Faiza Almatirat	MSc. VATAT scholarship for Arab MSc students	PhD BGU
2021	Nufar Grinshpan	M.Sc. with Tal Shai	PhD BGU
2022	Avihai Biton	MSc. With Tali Mass Haifa University	

2022	Roussel Moïse Wokam Njomgang,	MSc.	PhD Volkani Center
2023	Chen Rothschild,	MSc with Prof. Yael Idan.	
2023	Keshet Shavit	MSc with Benjamin Palmer	PhD Weitzman Institute

(b) Research Students (Currently supervised)

Yonathan Molcho, PhD.
 Shai Avraham Shaked, PhD.
 Melody Whal, PhD. With Dr. Yossi Aizen Ruppın College.
 Gurucharan Sudarshan PhD.
 Sharon Moscovitz, PhD with Prof Ofer Ovadia.
 Belal Alhozeel, PhD with Dr. Benjamin Palmer.
 Gil Ben-Or, MSc with Prof. Yael Idan.
 Hanin Watad, MSc.
 Yaniv Borojovitz, MSc.

(c) Research project students:

1994 Rami Shoukron, Julia Silkovsky; 1995 Elena Davidson, Liat Ben Tora; 1996 Galit Yehezkel; 1997 Tal Katz; 2000 Barak Blum (Best Negev Industry Fellow), Erez Mils; 2001 Assaf Shechter; 2002 Friman Aviad, Butner Shafir, Goshen Tal; 2003 Ventura Tomer, Prikman Ronit; 2004 Elgarvi Niv, Oren Shirly, Achdut Nurit; 2005 Glazer Lilach, Cheled Shira, Rot Ziv, Alon Singer; 2006 Mor Eyal, Rosen Ohad; 2007 Ohad Gafni, Omer Kraus; 2008 Rutenberg Adi, Kadir Rotem, Liniel Assaf; 2009 Bleicher Galit, Hass Noy; 2010 Binyamin Mittelman, Daria Goncherov, Yoel Klug; 2011 Shai Balachsan, Limor Yeffet, Yaara Lazar; 2012 Chen Peled, Nofar Regev; 2013 Perach Hadar Ozdor; 2014 Noa Gershon, Shani Peles, Nir Shpak; 2015 Ohad Simons, Shir Zaccai, Ortal Mentel, Nurit Levy; 2016 Shahar Sagi, Faiza Almatirat, Keren Spinner, Keshet Shavit; 2017 Nufar Grinshpan, Yotam Adi, Rakefet Chisinski; 2018 Roy Alford, Dana Rimini, Yumna Alb nabari; 2019 Hadas Poriya, Dvir Samuel; 2020 Dana albagli, Inbar Kedem; 2021 Gal Even-Paz, Michal Tzirulnik; 2022 Paz Asulin, Roni Weinfeld, 2023

11. Scientific Research

Main research topics

1. The androgenic gland in crustaceans, specific gene expression in the androgenic gland and their functional genomics. The insulin-like androgenic hormone, IAG-switch and its signaling cascade.
2. Proteins and their encoding genes in relation to biomineralization (calcium mobilization) during the molt cycle in crustaceans and their use for human consumption.
3. Biotechnology for mass production of all male prawn populations in China, India, Vietnam and Thailand- novel insulin like hormones and molecular sex markers.
4. Next generation deep sequencing for multi-gene expression patterns in crustacean molt and reproduction.
5. Functional genomics through loss of function (RNAi and CRISPR) in crustacean molt and reproduction. Member CRISPR-IL consortium IIA.
6. The use of non-breeding crustacean population as bio-control agents.
7. Sequencing the entire genome of the prawn *Macrobrachium rosenbergii*.
8. Crustacean aquaculture including monosex culture all-male and all-female.

The main target organisms are the freshwater prawn *Macrobrachium rosenbergii*, the Red-Claw Australian crayfish, *Cherax quadricarinatus*, the White Shrimp *Litopenaeus vannamei*, various ornamental shrimp and invasive crustaceans.

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