01/2021

Hagai Y. Shpigler, Ph.D – Curriculum vitae

**Current position**

Agricultural Research Organization ARO, Department of Entomology, Nematology and Chemistry – Principal investigator

**Former positions**

* + - * 2021 - FreezeM Cryogenics – Lead entomologist.
      * 2020 – Research associate, Tel Aviv University.
      * 2018 – 2019: The Yitzhak Shamir program fellow, The Hebrew University of Jerusalem, Prof. Guy Bloch lab.
      * 2013 – 2018: Carl R. Woese Institute for Genomic Biology, University of Illinois Urbana-Champaign. Postdoctoral research, Prof. Gene Robinson lab.

**Education**

**Ph.D. (2007-2013)**

The Hebrew University of Jerusalem, Department of Ecology Evolution and Behavior.

Advisor: Prof. Guy Bloch

Topic: The influence of social factors and Juvenile Hormone on reproduction and division of labor in the bumble bee *Bombus terrestris*.

**M.Sc. (2005-2007)**

The Hebrew University of Jerusalem, Department of Genetics.

Advisor: Prof. Ariel Darvasi

Topic: Fine Mapping of *pain1*, a QTL associated with sensitivity to neuropathic pain in mice.

**B.Sc. (2002-2004)**

The Hebrew University of Jerusalem

Life Sciences – *Cum laude*

**Publications**

*Research papers*

1. **Shpigler, HY**, Ben-Shimol, E. Ben-Betzalel, R. Magory-Cohen, T. and Levin, E.(2021) Juvenile hormone increases metabolic rate and protein turnover in bumble bees (*Bombus terrestris*). *Hormones and Behavior* 136:105073*.*

# Shpigler HY, Herb B, Drnevich J, Band M, Robinson GE and Bloch G (2020) Juvenile hormone regulates brain-reproduction tradeoff in bumble bees but not in honey bees – *Hormones and Behavior* 126:104844*.*

# Porath HT, Hazan E, Shpigler HY, Cohen M, Band M, Ben Shahr Y, Levanon EY, Eisenberg E, Bloch G (2019) RNA editing is abundant in the social bumblebee and correlates with task performance – *Nature communication,* 10:1-14.

1. Fine JD\*, **Shpigler HY**\*, Ray AM, Beach NJ, Sankey AL, Cash-Ahmed AC, Huang ZY, Astrauskaite I, Chao R, Zhao H and Robinson GE (2018) Quantifying the effects of pollen nutrition on honeybee queen egg laying with a new laboratory system, \*equal contribution - *PLoS One,* 13(9): e0203444
2. **Shpigler HY**, Saul MC, Murdoch EE, Corona F, Cash-Ahmed AC; Seward CH, Chandrasekaran S, Stubbs LJ and Robinson GE (2018) Honey bee neurogenomic responses to affiliative and agonistic social interactions *- Genes Brain and Behavior*, 18:e12509
3. [Saul MC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Saul%20MC%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Blatti C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Blatti%20C%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Yang W](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yang%20W%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Bukhari SA](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bukhari%20SA%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [**Shpigler HY**](https://www.ncbi.nlm.nih.gov/pubmed/?term=Shpigler%20HY%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Troy JM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Troy%20JM%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Seward CH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Seward%20CH%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Sloofman L](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sloofman%20L%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Chandrasekaran S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chandrasekaran%20S%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Bell AM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bell%20AM%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Stubbs L](https://www.ncbi.nlm.nih.gov/pubmed/?term=Stubbs%20L%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Robinson GE](https://www.ncbi.nlm.nih.gov/pubmed/?term=Robinson%20GE%5BAuthor%5D&cauthor=true&cauthor_uid=29968347), [Zhao SD](https://www.ncbi.nlm.nih.gov/pubmed/?term=Zhao%20SD%5BAuthor%5D&cauthor=true&cauthor_uid=29968347) and [Sinha S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sinha%20S%5BAuthor%5D&cauthor=true&cauthor_uid=29968347) (2018) Cross‐species systems analysis of evolutionary toolkits of neurogenomic response to social challenge **-** *Genes Brain and Behavior,* 18:e12502 (Cover story)

# Shpigler HY, Saul MC, Block L, Corona F, Cash-Ahmed AC and Robinson GE (2017). Deep evolutionary conservation of autism-related genes – *Proceeding of the National Academy of Science* (PNAS), 114:9653-9658 (Reported in: Science, The Times, BBC world - radio interview, Daily mail, NY post, Sunday Heralds, PressReader, IFLS on Facebook, Haaretz, Israel Channel-10 – live T.V interview)

# Shpigler HY, Saul MC, Murdoch EE, Cash-Ahmed AC, Seward CH, Sloofman L, Chandrasekaran S, Sinha S, Stubbs LJ and Robinson GE (2017) Behavioral, transcriptomic and epigenetic responses to social challenge in honey bees – *Genes Brain and Behavior,* 16:579-591 (One of the journal’s top 20 most downloaded recent papers, 1007 downloads in first 12 month)

1. **Shpigler HY**, Siegel AJ, Huang ZY, and Bloch G (2016) No effect of juvenile hormone on task performance in a bumblebee (*Bombus terrestris*) supports an evolutionary link between endocrine signaling and social complexity. *Hormones and Behavior,* 85:67-75 (Cover Story)
2. **Shpigler HY**, Robinson GE (2015) Laboratory assay of brood care for quantitative analyses of individual differences in honey bee (*Apis mellifera*) affiliative behavior. *PLoS One,* 10:e0143183
3. **Shpigler H**, Amsalem E, Huang ZY, Cohen M, Siegel AJ, Hefetz A, Bloch G (2014) gonadotropic and physiological functions of juvenile hormone in bumblebee (*Bombus terrestris*) workers. *PLoS One,* 9:e100650
4. **Shpigler H**, Tamarkin M, Gruber Y, Poleg M, Siegel AJ, Bloch G (2013) Social influences on body size and developmental time in the bumblebee *Bombus terrestris*. *Behavioral Ecology and Sociobiology,* 67:1601-1612
5. Amsalem E, **Shpigler H**, Bloch G, Hefetz A (2013) Dufour's gland secretion, sterility and foraging behavior: Correlated behavior traits in bumblebee workers. *Journal of Insect Physiology,* 59:1250-5
6. Wolschin F, **Shpigler H**, Amdam GV, Bloch G (2012) Size-related variation in protein abundance in the brain and abdominal tissue of bumble bee workers. *Insect Molecular Biology,* 21:319-325
7. **Shpigler H**, Patch HM, Cohen M, Fan YL, Grozinger CM, Bloch G (2010) The transcription factor *Kruppel homolog 1* is linked to hormone mediated social organization in bees. *BMC Evolutionary Biology,* 10:120-133
8. Nissenbaum J, Devor M, Seltzer Z, Gebauer M, Michaelis M, Tal M, Dorfman R, Abitbul-Yarkoni M, Lu Y, Elahipanah T, delCanho S, Minert A, Fried K, Persson AK, **Shpigler H**, Shabo E, Yakir B, Pisante A, Darvasi A (2010) Susceptibility to chronic pain following nerve injury is genetically affected by CACNG2. *Genome Research,* 20:1180-1190
9. Nissenbaum J, **Shpigler H**, Pisante A, delCanho S, Minert A, Seltzer Z, Devor M, Darvasi A (2008) pain2: A neuropathic pain QTL identified on rat chromosome 2. *Pain,* 135:92-97

*Review*

1. Hamilton AR, **Shpigler H,** Bloch G, Wheeler DE, Robinson GE (2017) Endocrine Influences on the Organization of Insect Societies. In *Hormones, Brain and Behavior.* Volume 2 - 19. 3rd edition. Edited by Pfaff DW, Arnold AP, Etgen AM, Fahrbach SE, Rubin RT. San Diego: Academic Press; 2017: 421-451.

**Research grants:**

2020 – MAFAT research grant $70K (2020) “Nesting site localization by bumble bee queens” and “The biology of the *Oriental Hornet*”

**Awards and fellowships**

* Yitzhak Shamir Postdoctoral Fellowship for Returning Scientists
* BARD-Vaadia Postdoctoral Fellowship.
* Hoffman Leadership and Responsibility Fellowship for excellent graduate students at The Hebrew University of Jerusalem.
* First prize for best PhD student lecture, the 47th annual conference of the Zoological Society of Israel.

**Community service and leadership**

# Mentor in the Yoel program for students from the Ethiopian community at the Hebrew University 2018-19

* Founder and co-chair of the Carl R. Woese Institute for Genomic Biology postdoctoral association at the University of Illinois Urbana-Champaign 2014 -2015.