

Name: Gilly Wolf

Date: February 2020

CURRICULUM VITAE

1. Personal Details

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2. Higher Education

A. Undergraduate and Graduate Studies

Period of Study	Name of Institution and Department	Degree	Year of Approval of Degree
1996-1999	The Hebrew University of Jerusalem, Departments of Psychology and Sociology	B.A	1999
1999-2002	The Hebrew University of Jerusalem,	M.A	2002

	Department of Psychology		
2002-2009	The Hebrew University of Jerusalem, Department of Psychology	.Ph.D	2009

B. Post-Doctoral Studies

Period of Study	Name of Institution, Department and Host	Degree	Year of Completion
2011-2013	Alexander Silberman Institute of Life Sciences, Department of Cellular and Developmental Biology Advisor: Prof Marshall Devor	Post Doctoral Fellowship	2013
2014-2016	Hadassah-Hebrew University Medical Center, Laboratory of Biological Psychiatry. Advisor: Prof Bernard Lerer	Post Doctoral Fellowship	2016

3. Academic Ranks and Tenure in Institutes of Higher Education

Dates	Name of Institution and Department	Rank/Position
2019	Achva Academic College	Senior Lecturer

2015	Achva Academic College	Lecturer
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4. Offices in Academic Administration

- 2002-2009 Administrator of the Committee on Animal Care and Use of the Social Sciences Faculty, The Hebrew University.
- 2014- Member of Extended Accompanied Council on Neuroscience, Achva Academic College.
- 2016- Member of Teaching Committee, Department of Psychology, Achva Academic College.
- 2018-2019 Member of the Steering Committee for the development of M-Teach degree program in Neuropedagogy, Achva Academic College.

5. Participation in Scholarly Conferences

a. Active Participation

Presentations in scientific meetings abroad

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
2004	PNIRS	Titisee, Germany	Impairment of Interleukin-1 (IL-1) Signaling Attenuates Neuropathic Pain and Spontaneous Ectopic Neuronal Activity Following Nerve Injury	
2006	PNIRS	Miami, USA	Genetic and pharmacological blockade of interleukin-1 signaling attenuates neuropathic pain and spontaneous discharge following nerve injury	

2006	EFIC European Pain School	Siena, Italy	Impaired IL-1 Signaling attenuates Incisional Pain in Mice	
2007	Recent advances in IL-1 Biology	Manchester, UK	Genetic and Pharmacological Blockade of IL-1 Signaling Attenuates Neuropathic and Incisional Pain	
2016	ICGP	Athens, Greece	Molecular and neural basis of late-life depression – insights from animal study	

Recent presentations in scientific meetings in Israel

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
2015	ISBP Annual Meeting	Kibutz Ha'Goshrim	Differential Age-Related Effect of Chronic Mild Stress on Hippocampal-Dependent Learning: Insights from preliminary results of young and old female mice	
2015	ISFN	Eilat	Differential Effects of Chronic Mild Stress (CMS) on Wild Type (WT) and Ahi1 Deficient Mice	
2016	ISBP Annual Meeting	Kibutz Ha'Goshrim	Stress resilience in Ahi1 deficient mice: Implications for psychiatric disorders	
2016	WCPG	Jerusalem	Differential effects of chronic mild stress (CMS) on WT and Ahi1 deficient mice	
2016	ISFN	Eilat	Differential effects of chronic stress (CS) on young and old male mice	
2017	ISBP Annual	Kibutz Kfar Blum	Age and gender related effects of chronic stress: Cognitive and behavioral consequences in	

	Meeting		young adult and aged male mice	
2017	ISBP Annual Meeting	Kibutz Kfar Blum	Decreased response of Ahi1-deficient mice (Ahi1+/-) to chronic mild stress (CMS): insights from behavioral and histological essays	
2018	ISBP Annual Meeting	Kibutz Kfar Blum	Ahi1-deficient mice (Ahi1+/-) are not affected by chronic unpredictable stress	
2019	ISBP Annual Meeting	Kibutz Kfar Blum	Transcriptional signature of chronic stress across wily-type and Ahi1+/- mice	

6. Research Grants

a. Grants Awarded

Role in Research	Co-Researchers	Topic	Funded by/ Amount	Year	Publications
Investigator		<i>The Involvement of IL-1-Signaling in basal pain sensitivity, opiate analgesia and tolerance, stress-induced analgesia, and neuropathic pain – genetic, developmental, and pharmacological experiments in mice</i>	Israel Foundation Trustees – Graduate student grant 3000\$ per annum	2005-2006	Interleukin-1 Signaling Modulates Stress-Induced Analgesia (8) Interleukin-1 signaling is required for induction and maintenance of postoperative incisional pain: Genetic and pharmacological studies in mice (9)

PI	Amit Lotan, Tzuri Lifschytz		National Institute for Psychobiology in Israel (NIPI) – Young Investigator Award 15000\$ per annum	2018- 2020	White matter lesions, cerebral inflammation and cognitive function in a mouse model of cerebral hypoperfusion (16)
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b. Submission of Research Proposals – Pending

Role in Research	PI	Topic	Submitted to	Year
Co- Researcher	Amit Lotan	DNA methylation as a mediator of neurodegenerative changes associated with metal exposure - a crossspecies metallome-methylome-phenome study	Israel Science Foundation (ISF)	2020
Co- Researcher	Tzuri Lifschytz	Maternal immune activation (MIA) combined with underexpression of the Abelson-helper intergration site 1 (Ahi1) gene as risk factors to develop schizophrenia-related phenotypes, and the beneficial effect of preventive of early antipsychotic treatment on these phenotypes	National Institute for Psychobiology in Israel (NIPI)	2020

7. Scholarships, Awards and Prizes

- 2011 Lady Davis post doctoral fellowship (competitive fellowship)
- 2012 Lady Davis post-doctoral fellowship (extension; competitive fellowship)
- 2016 The International College of Geriatric Psychoneuropharmacology - Junior investigator award
- 2017 Outstanding Teaching Award (3rd rank), Achva Academic College

8. Teaching

a. Courses Taught in Recent Years

Year	Name of Course	Type of Course Lecture/Seminar/ Workshop/High Learn Course/ Introduction Course (Mandatory)	Degree	Number of Students
2014-	Physiological Psychology	Introduction Course	BA	
2014-	Biological Basis of Mental Health	Lecture	BA	
2015-	Pain and Analgesia	Lecture	BA	
2016-	Introduction to Neuropsychology	Lecture	BA	
2016-	Neurobiology – Brain and Behavior	Lecture	BA	
2017-	Psychoneuroimmunology (PNI)	Lecture	BA	
2019-	Introduction to Psychopharmacology	Introduction Course	MA	

b. **Supervision of Graduate Students**

Name of Student	Title of Thesis	Degree	Date of Completion / in Progress	Students' Achievements
Matan Zieser	Effects of neonatal exposure to MK801 on social and sexual behavior in mice	MA	In progress	

PUBLICATIONS

A. Ph.D. Dissertation

The involvement of interleukin-1 (IL-1) signaling in pain sensitivity, opiate analgesia, the development of opiate tolerance, stress-induced analgesia, neuropathic pain, and post-operative pain: genetic, developmental, and pharmacological experiments in mice

Submitted to the senate of the Hebrew University of Jerusalem on May 2009

Advisors: Prof Yehuda Shavit, Prof Raz Yirmiya

B. Articles in Refereed Journals

1. Shavit, Y., Cohen, E., Gagin, R., Avitzur, R., Pollak, Y., Chaikin, G., **Wolf, G.**, & Yirmiya, R. (1998). Effects of prenatal morphine exposure on NK cytotoxicity and responsiveness to LPS in rats. *Pharmacology, Biochemistry and Behavior*, *59*:835-841. **Q2**
2. **Wolf, G.**, Yirmiya, R., Goshen, I., Iverfeldt, K., Holmlund, L., Takeda, K., & Shavit, Y. (2003). Impairment of interleukin-1 (IL-1) signaling reduces basal pain sensitivity in mice: genetic, pharmacological and developmental aspects. *Pain*, *104*:471-80. **Q1**
3. Shavit, Y., **Wolf, G.**, Goshen, I., Livshits, D., & Yirmiya, R. (2005). Interleukin-1 antagonizes morphine analgesia and underlies morphine tolerance. *Pain*, *115*:50-59. **Q1**
4. Shavit, Y., Weidenfeld, J., DeKeyser, FG., Fish, G., **Wolf, G.**, Mayburd, E., Meerson, Y., & Beilin, B. (2005). Effects of surgical stress on brain prostaglandin E₂ production and on the pituitary-adrenal axis: Attenuation by preemptive analgesia and by central amygdala lesion. *Brain Research*, *1047*:10-17. **Q2**
5. Shavit, Y., Fish, G., **Wolf, G.**, Mayburd, E., Meerson, Y., Yirmiya, R., & Beilin, B. (2005). The effects of perioperative pain management techniques on food consumption and body weight after laparotomy in rats. *Anesthesia and Analgesia*, *101*:1112-1116. **Q1**
6. **Wolf, G.**, Gabay, E., Tal, M., Yirmiya, R., & Shavit, Y. (2006). Genetic impairment of interleukin-1 signaling attenuates neuropathic pain, autotomy, and spontaneous ectopic neuronal activity, following nerve injury in mice. *Pain*, *120*:315-324. **Q1**
7. Hurwitz, I., Malkesman, O., Stern, Y., Schroeder, M., Lavi-Avnon, Y., Shayit, M., Shavit, Y., **Wolf, G.**, Yirmiya, R., & Weller, A. (2006). Stress and pain responses in rats lacking CCK₁ receptors. *Peptides*, *27*(6):1483-1489. **Q3**
8. **Wolf, G.**, Yirmiya, R., Kreisel, T., Goshen, I., Weidenfeld J., Poole, S., & Shavit, Y. (2007). Interleukin-1 Signaling Modulates Stress-Induced Analgesia. *Brain, Behavior, and Immunity*, *21*(5):652-659. **Q1**
9. **Wolf, G.**, Livshits, D., Beilin, B., Yirmiya, R., & Shavit, Y. (2008). Interleukin-1 signaling is required for induction and maintenance of postoperative incisional pain: Genetic and pharmacological studies in mice. *Brain, Behavior, and Immunity*, *22*(7):1072-1077. **Q1**
10. Kleibeuker, W., Gabay, E., Kavelaars, A., Zijlstra, J., **Wolf, G.**, Ziv, N., Yirmiya, R., Shavit, Y., Tal, M., & Heijnen, CJ. (2008). IL-1 β signaling is required for mechanical allodynia induced by

- nerve injury and for the ensuing reduction in spinal cord neuronal GRK2. *Brain, Behavior, and Immunity*, 22(2):200-208. **Q1**
11. Gabay, E., **Wolf, G.**, Shavit, Y., Yirmiya, R., & Tal, M. (2011). Chronic blockade of interleukin-1 (IL-1) prevents and attenuates neuropathic pain behavior and spontaneous ectopic neuronal activity following nerve injury. *European Journal of Pain*, 15(3):242-248. **Q1**
 - * 12. **Wolf, G.**, Lotan, A., Lifschytz, T., Ben-Ari, H., Kreisel-Merzel, T., Tatarskyy, P., Mernick, M., Avidan, E., Koroukhov, N., & Lerer, B. (2017). Differentially severe cognitive effects of compromised cerebral blood flow in aged mice: Association with myelin degradation and microglia activation. *Frontiers in Aging Neuroscience*, 16(9):191. **Q2**
 - * 13. Lotan, A., Lifschytz, T., **Wolf, G.**, Keller, S., Ben-Ari, H., Tatarskyy, P., Pillar, N., Oved, K., Sharabany, J., Kreisel-Marzel, T., Matsumoto, T., Yamawaki, Y., Mernick, B., Avidan, E., Yamawaki, S., Weller, A., Shomron, N., & Lerer, B. (2018). Differential effects of chronic stress in young-adult and old female mice: Cognitive-behavioral manifestations and neurobiological correlates. *Molecular Psychiatry*, 23(6):1432-1445. **Q1**
 - * 14. Goldenberg, A.M., Minert, A., Fishman, Y., **Wolf, G.**, & Devor, M. (2018). Mesopontine neurons implicated in anesthetic loss-of-consciousness have either ascending or descending
* axonal projections, but not both. *Neuroscience*, 369:152-167. **Q1**
 - * 15. **Wolf, G.**, Lifschytz, T., Ben-Ari, H., Tatarskyy, P., Merzel, T.K., Lotan, A., & Lerer, B. (2018). Effect of chronic unpredictable stress on mice with developmental under-expression of the Ahi1 gene: behavioral manifestations and neurobiological correlates. *Translational Psychiatry*, 8(1):124. **Q1**
 - * 16. Ben-Ari, H., Lifschytz, T., **Wolf, G.**, Rigbi, A., Blumfeld-Katzir, T., Kreisel-Merzel, T., Koroukhov, N., Lotan, A., & Lerer, B. (2019). White matter lesions, cerebral inflammation and cognitive function in a mouse model of cerebral hypoperfusion. *Brain Research*, 1711:193-201. **Q2**

C. Articles or Chapters in Scientific Books

1. Shavit, Y., **Wolf, G.**, Johnston, IN., Westbrook, RF., Watkins, LR., & Yirmiya R. (2007). Proinflammatory cytokines modulate neuropathic pain, opioid analgesia, and opioid tolerance. In: L.R. Watkins, J. DeLeo, & L. Sorkin (Eds.), *Immune and Glial Regulation of Pain* (pp 361-383). Seattle, USA: International Association for the Study of Pain (IASP) Press.

D. Summary of my Activities and Future Plans

My first research project was carried out during my M.A. studies, in which I studied the role of the proinflammatory cytokine interleukin-1 (IL-1) in basal pain sensitivity. Although elevated levels of IL-1 are known to induce hyperalgesia and allodynia, two forms of increased pain sensitivity, this cytokine was not considered as a factor affecting pain sensitivity under normal conditions. This study, that employed several genetic and pharmacological mouse models of impaired IL-1-signaling, indicated that IL-1 plays a facilitatory role in pain sensitivity under basal conditions as well.

Stemming from the project above, in my Ph.D study I tested the involvement of IL-1 under several pain-modulatory conditions: opiate analgesia and tolerance, stress-induced analgesia, neuropathic pain and post-operative pain. Blockade of IL-1 signaling was demonstrated to prolong and potentiate opiate analgesia, and attenuate the development of opiate tolerance. Moreover, acute blockade of IL-1 signaling re-instated opiate analgesia even after opiate tolerance was already established. It was recently understood that ineffective pain management increases the risk of development opiate dependence and addiction, hence combining IL-1 inhibition with opiates may provide more efficient pain management and also decrease opiate dependence and addiction rates. With a team of collaborators that introduced electrophysiological recordings, the facilitatory role of IL-1 in neuropathic and post operative pains was established, and IL-1 inhibition was demonstrated to attenuate these two forms of increased pain.

During my post-doc I have joined a research team led by Prof Bernard Lerer, which focused on late life depression. Late-life depression (LLD) refers to depression whose first episode occurs after age of 65, normally without previous psychiatric history. LLD is characterized with more severe cognitive impairments compared with depression occurring earlier in life, and also with several residual symptoms that impair everyday functioning even after depression was successfully treated. This unique phenotype suggests that LLD has different etiology compared with depression occurring earlier in life, and may also respond to different treatments. In the study we tested two possible

factors that are known to induce LLD – stressors of everyday life using the chronic stress (CS) model, and cerebral hypoperfusion induced in the bilateral common artery stenosis (BCAS). Indeed, these models induced differentially severe phenotypes in aged and young adult female mice, demonstrating more severe affective and cognitive outcomes in the aged mice. These results were recently published.

Using the BCAS model, we have begun to study the role of brain iron accumulation in the behavioral and molecular phenotypes induced. We hypothesized that the damage to the white matter and the cognitive impairment are mediated by ferroptosis, an iron-dependent cell death, and that iron chelators such as Deferiprone may be beneficial reducing the damage induced by hypoperfusion. This study is supported by the National Institute for Psychobiology in Israel (NIPI) and is currently in progress.

Another current interest of our team is the involvement of brain iron accumulation in mouse models of schizophrenia and the effect of iron chelators in such models. This study may shed additional light on our understanding of the neuropathology that underlies schizophrenia, and provide new direction in development of new treatment for this disease.