November 2013

Sigal Brown Horowitz

Part I: *CURRICULUM VITAE*

I. Personal

1973	Born in Yad Natan; Israel
1990 -1992	High-school education in biology
1992 -1994	Military service: Military medical assistant

II. University Education and Additional Training

1995-1998	Bachelor of Science in Agriculture, Food Sciences at the Faculty of Agricultural, Food and Environmental Quality Sciences, at the Hebrew University of Jerusalem, Israel.
1999-2001	MS.c in Plant Science, at the Tel Aviv University. **Title of thesis**: "Host specificity of *Colletotrichum acutatum* on strawberry and fungal plant interaction". Supervision by: **Dr. Stanley Freeman and Dr. Amir Sharon.**
2001-2006	Ph.D. in Plant Pathology and Microbiology at Faculty of Agricultural, Food and Environmental Quality Sciences, at the Hebrew University of Jerusalem, Israel. **Title of thesis**: Identification and characterization of genes playing important roles in pathogenicity by isolation of impaired pathogenicity mutants of *Colletotrichum* on Strawberry. Supervision by: **Dr. Stanley Freeman and Prof. Oded Yarden**
2006-2008	Postdoctoral position at University of Wisconsin, Madison, Dep. of Plant Pathology, Dep. of Molecular microbiology and immunology. Host: **Prof. Nancy P. Keller.** Research subject: Oxylipins regulation of natural product biosynthesis and seed colonization in *Aspergilli*
2008-2009	Postdoctoral position at ARO, Volcani Center, Dep. of Post Harvest and Technology. Host: **Prof. Dov Prusky.** Research subject: pH regulation in *Penicillium* spp.
2010	Studying methods and techniques for nematology. (i) RNAi Training school - **Queen's University; Belfast.** (ii) Immunolocalization technique of nematodes secreted proteins during giant cells development. **Dep. of Nematology, INRA Sophia Antipolis; France. Host: Dr. Janice de-Almeida Engler**

III. Positions Held and Academic Status

2010-date	Tenure position at the Nematology department. Inst. of Plant Protection, ARO, the Volcani Center; Israel. **(Level III)**

2008-2009 Postdoctoral position at Volcani Center ARO, Dep. of Post Harvest and Technology. Host: **Prof. Dov Prusky.**

IV. Training / Teaching Experience

1. Ionit Iberkleid: Ph.D. student (The Hebrew University): Gene networks and lipid signals governing plant interactions with root knot nematode. Co-supervisor, guidance with Prof. Yitzhak Spiegel. **2010-date**. (Guided by Dr Sigal Brown Horowitz and Prof. Yitzhak Spiegel)

Publication related to Ms. Iberkleid Ph.D:

Iberkleid, I., Paulo, V., de Almeida Engler, J., Spiegel, Y. and Brown Horowitz, S. **(2013)** . Mj-FAR-1, a Fatty Acid-and Retinol-Binding protein secreted by Root-Knot Nematodes is required for tomato host susceptibility to *Meloidogyne javanica*. PLoS ONE 8(5): e64586. doi:10.1371/journal.pone.0064586.

Ozalvo, R., Cabrera, J., Escobar, C., Castresana, C., Shawn, A. C., Kolomiets, M. V., **Iberkleid, I.** and Brown Horowitz, S. **(2013)**. Two closely member of *Arabidopsis* 13-LOXs, *LOX3* and *LOX4* reveals distinct function in response to plant parasitic nematode infection. **Molecular Plant Pathology. ACCEPTED**

Iberkleid, I., Ozalvo, R., Feldman, L., Spiegel, Y. and Brown Horowitz Sigal. **(2013).** Studying the responses of tomato genotypes to *Mi*- avirulent and virulent *Meloidogyne javanica* isolates occurred in Israel. **Phytopathology. Under Revision**

Iberkleid, I., Sela, N. and Brown Horowitz, S. (**2013).** The Nematode FAR Protein Affects the Expression of a Large Number of Cell Wall Biosynthesis and Defense-Related Genes Upon Infection With the Root-Knot Nematode *Meloidogyne javanica.* **Under preparation**

2. Lidia Avrumov: B.A. Student (Sami Shimon College): The role of allelic status of *Mi*-1 on occurrence of resistance breaking nematodes. **2011-2012.** (Guided by Dr Sigal Brown Horowitz). **Final grade: 90**

Publications related to Ms. Lidia Avrumov:

Iberkleid, I., Ozalvo, R., **Feldman, L.**, Spiegel, Y. and Brown Horowitz Sigal. **(2013).** Studying the responses of tomato genotypes to *Mi*- avirulent and virulent *Meloidogyne javanica* isolates occurred in Israel. **Phytopathology. Under Revision**

3. Danyel Shtriker: MSc student (conditional approval): 2013-date. Developing combined approaches toward reducing the damage caused by the Root Knot Nematode Meloidogyne spp. (Guided by Dr Sigal Brown Horowitz and Prof. Abraham Gamliel)

4. <u>Chinnapandi Bharathiraja:</u> A postdoctoral **scholar from India:** Dissecting the mechanism of *Mi-3* resistance gene against *Mi*-resistant breaking population. **2013-date.** (Guided by Dr Sigal Brown Horowitz)

5. <u>Fatta Gurung:</u> MSc student: Laboratory and field studies on the biocontrol agent the predatory nematode *Koerneria sudhausi* (Nematoda: Diplogastridae). **2013-date.** (Guided by Dr Sigal Brown Horowitz and Prof. Yitzhak Spiegel)

<u>V. Lecturer at the Hebrew University and International Courses</u>

Course 71189	A lecturer in Host-parasite relationships of phytonematodes along with Prof. Yitzhak Spiegel; The Hebrew University of Jerusalem, Faculty of Agriculture; Plant Protection **2011-date**
IPM Inter.	Annual lecturer in advance tools in Nematology; IPM course organized by ARO; Volcani Center**. 2012, 2013**

VI. <u>Research Grants</u>

B) National Competitive Grants <u>Submitted and accepted</u>.

2010 (iii) Chief Scientist of the Ministry of Agriculture grant. **<u>Title:</u>** Application of *Agrobacterium rhizogenes*-Mediated transformation for a rapid high through put screen for genetic resistance to Mi resistance breaking nematodes populations. (PI, Dr. Sigal Brown Horowitz). ***<u>Accepted (for two years total budget 150,000 NIS).</u>***

2012 (iv) Chief Scientist of the Ministry of Agriculture grant. **<u>Title:</u>** Improve resistance range against the root knot nematodes in Tomato by spreading arrest of virulent biotypes. (PI Dr Sigal Brown Horowitz; Cooperating investigators: Prof. Abraham Gamliel; Prof. Haim Rabinovitch. ***<u>Accepted for three years total budget of 420,000 NIS</u>***

2012 (vi) Chief Scientist of the Ministry of Agriculture grant. (Initiative research) **<u>Title:</u>** New approaches toward integrated parasitic nematodes control in deciduous orchards and pepper. (PI, Dr Sigal Brown Horowitz, Prof Spiegel Yitzhak, Prof Glazer Itamar, Dr Doron Holland, Dr Yuji Oka, Dr Ilan Pharan and Co)**.** ***<u>Accepted for three years total budget of 2,100,000 NIS</u>***

C) Other Research Grants *<u>Submitted and accepted</u>*

2010 (vii) Almond growers board table grant**. <u>Title</u>:** Determination of treatment efficiency of commercial nematocides against the damage caused by the root-knot nematode *Meloidogyne* spp. in Almond orchards. (PI, Dr Sigal Brown Horowitz) ***<u>Accepted for one year total budget of 25,000 NIS</u>***

2011 (viii) Peach growers board table grant. **<u>Title:</u>** Prunus rootstocks evaluation for resistance against the Root Knot Nematode *Meloidogyne* spp. (PI Dr Sigal Brown

Horowitz Cooperating investigator Dr Doron Holland and Mr Shimon Antman) ***Accepted for one year total budget of 35,000 NIS***

2010-12 (ix) Peach growers board grant**. Title:** Alternative control against the Root Knot Nematode *Meloidogyne* spp. in Prunus Orchard through cover crops interface**.** (PI, Dr Sigal Brown Horowitz and Mr Shimon Antmann) ***Accepted for one year total budget of 35,000 NIS***

2012 (x) Almonds growers board grant. **Title:** Prunus rootstocks evaluation for resistance against the Root Knot Nematode *Meloidogyne* spp. (PI Dr Sigal Brown Horowitz Cooperating investigator Dr Doron Holland and Mr Birger Reuven) ***Accepted* for one year 25,000 NIS.**

2010-13 (xi) Private Companies grant **Evogene**. **Title:** Assessment the tolerance and/or resistance of plants over-expressing certain Evogene's proprietary genes to nematodes. ***Accepted (for four years total budget 560,000 NIS)***

2012 (xii) Private company grant by **Makhteshim** Agan Treatment efficiency of Industrial formulations against the Root Knot Nematode ***Accepted (for three years total budget 150, 000 NIS)***

2013 (xiii) Keren Kayemeth LeIsrael - Jewish National Fund. Title: The pinewood nematode, *Bursaphelenchus xylophilus*, and its current threat to the local forestry. ***Accepted (for two years total budget 60, 000 NIS)***

Sigal Brown Horowitz **November 2013**

Part II*: LIST OF PUBLICATIONS OF THE LAST THREE YEARS*

1a. Barad, S., Brown Horowitz, S., Kobiler, I., Sherman, A., and Prusky, D. **(2013)**. Accumulation of the mycotoxin patulin in the presence of gluconic acid contributes to pathogenicity of *Penicillium expansum*. MPMI. **Accepted (IF=4.43)**

2a. Iberkleid, I., Paulo, V., de Almeida Engler, J., Spiegel, Y. and **Brown Horowitz, S.** (**2013)** . Mj-FAR-1, a Fatty Acid-and Retinol-Binding protein secreted by Root-Knot Nematodes is required for tomato host susceptibility to *Meloidogyne javanica*. **PLoS ONE** 8(5): e64586. doi:10.1371/journal.pone.0064586**. (IF=4.09)**

3a. †Barad, S., †**Brown Horowitz, S.**, Moskovitch, O., Lichter, A., Sherman, A. and Prusky, D. **(2012).** Penicillium expansum Glucose Oxidase-Encoding Gene, GOX2, Is Essential for Gluconic Acid Production and Acidification During Colonization of Deciduous Fruit. †Equal contributions **MPMI** 25:779-88. **(IF=4.43)**

4a. Ozalvo, R., Cabrera, J., Escobar, C., Castresana, C., Shawn, A. C., Kolomiets, M. V., Iberkleid, I. and **Brown Horowitz, S**. **(2013)**. Two closely member of *Arabidopsis* 13-LOXs, *LOX3* and *LOX4* reveals distinct function in response to plant parasitic nematode infection. **Molecular Plant Pathology. ACCEPTED (IF=3.899)**

5a. Iberkleid, I., Ozalvo, R., Feldman, L., Spiegel, Y. and **Brown Horowitz Sigal**. **(2013).** Studying the responses of tomato genotypes to *Mi*- avirulent and virulent *Meloidogyne javanica* isolates occurred in Israel. **Phytopathology. Under Revision**

2. Manuscripts Under Preparation.

1. Iberkleid, I., Sela, N. and Brown Horowitz, S. (**2013).** The Nematode FAR Protein Affects the Expression of a Large Number of Cell Wall Biosynthesis and Defense-Related Genes Upon Infection With the Root-Knot Nematode *Meloidogyne javanica.* **Under preparation**

3. Books, book chapters and invited reviews

1. Prusky, D., Alkan, N., Miyara, I., Barad, S., Davidzon, M., Kobiler, **Brown Horowitz, S.**, Lichter, A.., Sherman, A. and Fluhr, R. **(2009**). Mechanisms Modulating Postharvest Pathogen Colonization of Decaying Fruits. PP. 43-55. In: Post Harvest Pathology. eds. Prusky, D. and Gullino, M.L. Springer Netherlands

2. Escobar, C., Goellner-Mitchum, M., **Brown-Horowitz Sigal (2011)**. Transcriptomic and proteomic analysis of the plant response to nematode infection. In: Exploiting genomics and molecular biology to understand plant-nematode interactions. Jones, J., Fenoll, C. and Gheysen, L. Eds. Springer.

4. <u>Articles in non- reviewed journals in Hebrew.</u>

1. הורוביץ סיגל, שרון עמיר ופרימן סטנלי. **2001**. תחום פונדקאים וכושר ההשרדות של הפטריה *Colletotrichum acutatum* מתות שדה. **גן שדה ומשק** 8 : 66-61.

2. צויבל אאידה, **הורוביץ סיגל** ופרימן סטנלי. **2003**. זיהוי ואיפיון כושר ההשרדות של הפטריה Phytophthora cactorum הגורמת לריקבון הכתר בתות שדה בישראל. **גן שדה ומשק** .70-65 :9

3. סיגל בראון הורוביץ ורחל אוזלבו. **2010**. שבירת עמידות לנמטודות יוצרות עפצים בעגבניות : הגברת המודעות ודרכים להתמודדות. **שדה וירק**, מוסף מיוחד להגנת הצומח, גיליון 18 : 42-39.

4. רחל אוזלבו, דורון הולנד, שמעון אנטמן ו**סיגל בראון הורוביץ. 2012.** עמידות כנות גלעיניים לנמטודה יוצרת עפצים .*Meloidogyne* spp . **עלון הנוטע,** מוסף מיוחד לזית, שקד ועוד גפן, גיליון 66 : 33-29.

5. סיגל בראון הורוביץ, רחל אוזלבו, מנחם בורנשטיין, רן שולחני, מייקל לופטהאוס ודני שטיינברג. **2013.** השפעת גומלין חיובית בין החיידק *Clavibacter michiganensis* subsp. *michiganensis* מחולל מחלת הכיב החיידקי בעגבנייה לנמטודת יוצרת העפצים *Meloidogyne javanica*. האלימים השניים מהאחד? **שדה וירק,** גיליון 255 : 49-44.

6. מאמר בהכנה :סיגל בראון הורוביץ, רחל אוזלבו .**2013**. יעילות יישום נמטוצידים בצמצום הנזק הנגרם במטעי שקדים ע״י נמטודת העפצים. **יוגש לעלון הנוטע**.