

**MICHAL BREKER-DEKEL**

The Alexander Silberman Institute of Life Sciences • The Hebrew University of Jerusalem

Phone: +972-52-7044593 • Email: [michal.breker@mail.huji.ac.il](mailto:michal.breker@mail.huji.ac.il)**PERSONAL INFORMATION**

Web of Science Researcher ID: ABS-5753-2022

Date of birth: April 4, 1980

Nationality: Israeli

URL for web site: [www.brekerlab.com](http://www.brekerlab.com)**ACADEMIC POSITIONS**

|   |                   |                 |
|---|-------------------|-----------------|
| <b>The Hebrew University of Jerusalem</b><br>Senior Lecturer (Assistant Professor), Department of Plant and Environmental Sciences,<br>The Alexander Silberman Institute of Life Sciences, Faculty of Science | Jerusalem, Israel | 07/2019-Present |
| <b>The Rockefeller University</b><br>Postdoctoral associate<br>Advisor: Prof. Fred Cross  | New-York, USA     | 01/2015-01/2019 |
| <b>The Simons Foundation</b><br>Simons Society Junior Fellow  | New-York, USA     | 07/2015-06/2018 |

**EDUCATION**

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| <b>Ph.D.</b> Molecular Genetics, The Weizmann Institute of Science<br>Advisor: Prof. Maya Schuldiner<br>Title: <i>“Utilizing high-content microscopy to describe single-protein behavior and whole-proteome dynamics in response to biological perturbations.”</i> | Israel | 2009-2014 |
| <b>M.Sc.</b> Immunology, The Weizmann Institute of Science<br>Advisor: Prof. Steffen Jung<br>Title: <i>“In vivo development and functionality of the mononuclear phagocyte system.”</i>  | Israel | 2007-2008 |
| <b>B.Sc.</b> Interdisciplinary Program of Neuroscience, Tel-Aviv University<br><i>Cum laude</i>  | Israel | 2003-2006 |

**EMPLOYMENT**

|   |                    |           |
|---|--------------------|-----------|
| <b>BVR Systems</b><br>System integrator and QA  | Israel/South Korea | 2001-2003 |
| <b>Compulsory service at IDF military</b><br>Graduate of "Haman Talpiot", intelligence analysis | Israel             | 1998-2001 |

**GRANTS**

|  |           |
|--|-----------|
| European Research Council (ERC) starting grant   | 2023-2028 |
| Israel Science Foundation (ISF) personal grant   | 2023-2028 |
| Israel Innovation Authority – Joint research with Prof. Ofra Benny                                 | 2023-2025 |
| University of Illinois – Joint Research and Innovation Seed Grants program with Dr. Steven Burgess | 2022-2024 |
| BSF start up grant in collaboration with Dr. Masayuki Onishi/Duke University                       | 2020-2022 |

**SELECTED HONORS AND AWARDS**

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| ASPB women’s young investigator travel award (WYITA)   | 2021      |
| Junior fellow, Simons Society of Fellows, Simons Foundation, NY, USA   | 2015-2018 |
| Life Sciences Research Foundation (LSRF) postdoctoral award (declined due to alternative fellowship)                       | 2015      |
| The L’Oréal-UNESCO For Women in Science Award<br>(presented every year to two outstanding women scientists in Israel)      | 2014      |
| The Israel National Postdoctoral Award Program for Advancing Women in Science<br>The Weizmann Institute of Science, Israel | 2014      |
| The Gad Resheff memorial prize for outstanding PhD students, Weizmann Institute of Science, Israel                         | 2014      |
| Aharon Katzir student travel fellowship, Weizmann Institute of Science, Israel   | 2013      |

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| FEMS travel grant, Yeast genetics and molecular biology conference, Germany                          | 2013       |
| Azrieli Systems Biology Innovative student award, Weizmann Institute of Science, Israel              | 2012       |
| Schoenheimer travel grant, Department of Systems Biology, Harvard Medical School, MA, USA            | 2012       |
| Travel grant and award for best oral presentation, IRB PhD symposium, Barcelona, Spain               | 2011       |
| Student grant, Kahn Family Foundation Systems Biology Program, Weizmann Institute of Science, Israel | 2011       |
| Travel grant, 36th FEBS congress, Torino, Italy  | 2011       |
| Student grant for a joint international project between the Weizmann Institute of Science and MIT    | 2010       |
| Travel grant and participation award, young scientific forum and 35th FEBS congress, Sweden          | 2010       |
| Wolf Foundation scholarship (full year) for excellence in exact sciences, Israel                     | 2006       |
| Dean's award for outstanding achievements, Tel-Aviv University, Israel                               | 2005, 2006 |
| Scholarship for outstanding students in memory of David Zik, Tel-Aviv University, Israel             | 2005       |
| Rector's award for outstanding achievements, Tel-Aviv University, Israel                             | 2004       |

### INVITED/CHOSEN TALKS

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|--|------------------|------|
| Faculty of Life sciences, Bar-Ilan University ( <b>Invited</b> )                           | Israel           | 2023 |
| Mendel Early Career Symposium, GMI ( <b>Invited</b> )                                      | Austria          | 2023 |
| Faculty of dental medicine, The Hebrew University ( <b>Invited</b> )                       | Israel           | 2023 |
| Plant Sciences and Genetics in Agriculture, The Hebrew University ( <b>Invited</b> )       | Israel           | 2021 |
| ILANIT, Federation of the Israel Societies for Experimental Biology ( <b>Invited</b> )     | Israel           | 2020 |
| ISM, the Israel Society for Microbiology ( <b>Invited</b> )                                | Israel           | 2020 |
| Undergraduate excellence program "Etagar", The Hebrew University ( <b>Invited</b> )        | Israel           | 2020 |
| Molecular Biology Department, Princeton University ( <b>Invited</b> )                      | USA              | 2017 |
| Annual ASPB symposium, American Society of Plant Biology                                   | USA              | 2017 |
| Annual conference of the Simons Society of Fellows   | USA              | 2017 |
| ILANIT, Federation of the Israel Societies for Experimental Biology                        | Israel           | 2017 |
| Simons Foundation, Simons Society of Fellows   | USA              | 2017 |
| Annual Charles H. Revson Foundation Biomedical Fellows Meeting ( <b>Invited</b> )          | USA              | 2016 |
| Plant Sciences Department, WIS ( <b>Invited</b> )  | Israel           | 2013 |
| Yeast genetics and molecular biology conference  | Germany          | 2013 |
| Biological Sciences and Systems Biology Departments, Columbia University                   | USA              | 2013 |
| Harvard Systems Biology Department, Harvard University ( <b>Invited</b> )                  | USA              | 2013 |
| Systems biology retreat, WIS   | Israel           | 2012 |
| Biological Chemistry Department, WIS   | Israel           | 2012 |
| Epigenetics meets Systems Biology conference ( <b>Invited</b> )                            | Israel           | 2012 |
| Joint meeting of the Minerva grant awardees, WIS   | Israel           | 2012 |
| James Minna Heinemann Stiftung conference  | Germany          | 2012 |
| <i>Mitochondria, dynamics and neurodegenerative diseases</i> conference ( <b>Invited</b> ) | Israel           | 2012 |
| Endocrinology Department, Schneider Children's Medical Center ( <b>Invited</b> )           | Israel           | 2012 |
| <i>Life in motion: dynamics of molecules and systems</i> conference                        | Barcelona, Spain | 2011 |
| <i>Folding and degradation of proteins in the ER</i> conference                            | Switzerland      | 2011 |
| Annual seminar of the Israeli yeast community, Bar Ilan University ( <b>Invited</b> )      | Israel           | 2011 |

### TEACHING EXPERIENCE

|   |              |
|---|--------------|
| Introduction to plant sciences (undergraduate students)<br>The Hebrew University of Jerusalem, Israel               | 2023-Present |
| Advanced methods in molecular biology course (undergraduate students)<br>The Hebrew University of Jerusalem, Israel | 2020-Present |
| Plant Sciences seminar (undergraduate students)<br>The Hebrew University of Jerusalem, Israel                       | 2020-Present |
| Teaching Assistant, Advanced light microscopy course (graduate students)  | 2010         |

The Weizmann Institute of Science, Israel

### ORGANISATION OF SCIENTIFIC MEETINGS

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|--|------|
| Panel moderator, Cell Biology - Homeostasis and trafficking, ASPB, Online    | 2021 |
| Co-organizer, the annual symposium of the Simons Society of Fellows, NY, USA | 2018 |

### INSTITUTIONAL RESPONSIBILITIES AT THE HEBREW UNIVERSITY OF JERUSALEM

|  |              |
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| Organizer, departmental weekly seminar, Department of Plant and Environmental Sciences   | 2020-2022    |
| Committee member, Reinhold scholarship for excellent students, Department of Plant and Environmental Sciences                          | 2019-2020    |
| Faculty Member, Department of Plant and Environmental Sciences, The Alexander Silberman Institute of Life Sciences, Faculty of Science | 2019-Present |

### PUBLICATIONS

1. **Breker-Dekel M.**, Dutcher SK. & Tulin F. (2023) Chapter 15: Mutagenesis and Genome Resequencing. The Chlamydomonas Sourcebook: Introduction to Chlamydomonas and Its Laboratory Use. Third Edition.
2. Li J., **Breker M.**, Graham M., Schuldiner M., Hochstrasser M. (2019) AMPK regulates ESCRT-dependent microautophagy of proteasomes concomitant with proteasome storage granule assembly during glucose starvation. *Plos Genet* (15).
3. **Breker M.**, Lieberman, K., & Cross FR. (2018) Comprehensive Discovery of Cell-cycle-essential Pathways in *Chlamydomonas reinhardtii*. *Plant Cell* (6), 1178-1198.
4. Cohen N\*, **Breker M\***, Bakunts A., Pesek K., Chas A., Argemi J., Orsi A., Gal L., Chuartzman S., Wigelman Y., Jonas F., Walter P., Ernst R., Aragon T., van Anken E., Schuldiner M. (2017) Iron affects Ire1 clustering propensity and the amplitude of endoplasmic reticulum stress signaling. *J Cell Sci* (19), 3222-3233.  
\*equal contribution
5. Cross F.R., **Breker M.**, & Lieberman K. (2017) Validated Bayesian differentiation of causative and passenger mutations. *G3* (7), 2081-2094.
6. Herbst R.H., Bar-Zvi D., Reikhav S., Soifer I., **Breker M.**, Jona G., Shimoni E., Schuldiner M., Levy A., & Barkai N. (2017) Heterosis as a consequence of regulatory incompatibility. *BMC Biology* (1), 38.
7. **Breker M.**, Lieberman K., Tulin F., & Cross F.R. (2016) High-throughput robotically assisted isolation of temperature-sensitive lethal mutants in *Chlamydomonas reinhardtii*. *J Vis Exp* (118).
8. Ravarani C., Chalancon G., **Breker M.**, Sanchez de Groot N., & Babu M.M. (2015) Affinity and competition for TBP are molecular determinants of gene expression noise. *Nature Communications* (7), 10417.
9. **Breker M.** & Schuldiner M. (2014) The emergence of proteome-wide technologies: systematic analysis of proteins comes to age. *Nature Reviews Molecular Cell biology* (15), 453-464.
10. Avci D., Fuchs S., Schrul B., Fukumori A., **Breker M.**, Frumkin I., Chen CY., Biniousek ML., Kremmer E., Schilling O., Steiner H., Schuldiner M., & Lemberg MK. (2014) The yeast ER-intramembrane protease Ypf1 refines nutrient sensing by regulating transporter abundance. *Molecular Cell* (56), 630-640.
11. **Breker M.**, Gymrek M., Moldavski O. & Schuldiner M. (2013) LoQAtE – Localization and Quantitation ATlas of the yeast proteome. A new tool for multiparametric dissection of single-protein behavior in response to biological perturbations in yeast. *Nucleic Acids Research* (42), D726-D730.
12. **Breker M.** & Schuldiner M. (2013) commentary for Lynes EM, et al. in F1000, DOI: 10.3410/f.718049489.793481240
13. **Breker M.**, Gymrek M. & Schuldiner M. (2013) A novel single-cell screening platform reveals proteome plasticity during yeast stress responses. *Journal of Cell Biology* (200), 839-850.  
\*Recommended by Faculty of 1000.  
\*Highlighted in: Short B. (2013) The plastic proteome. *Journal of Cell Biology* (200), 685.
14. Peters L. Z\*, Hazan R\*, **Breker M\***, Schuldiner M. & Ben-Aroya S. (2013) Formation and dissociation of proteasome storage granules (PSGs) are regulated by cytosolic pH. *Journal of Cell Biology* (201), 663-671.  
\*equal contribution  
\*Recommended by Faculty of 1000.
15. Nadler M\*, **Breker M\***, Gruber R., Azia A., Gymrek M., Eisenstein M., Willison K.R., Schuldiner M. & Horovitz A. (2012) Interactions of subunit CCT3 in the yeast chaperonin CCT/TRiC with Q/N-rich proteins is revealed by high-throughput microscopy analysis. *PNAS* (109), 18833-18838.  
\*equal contribution

16. Powis K., Schrul B., Tienson H., Gostimskaya I., **Breker M.**, High S., Schuldiner M., Jakob U. & Schwappach B. (2012) Get3 is a holdase and moves to sites of protein triage when membrane targeting is blocked. *Journal of Cell Science* (126), 473-483.
17. Yona S., Kim KW., Wolf Y., Mildner A., Varol D., **Breker M.**, Strauss-Ayali D., Viukov S., Guilliams M., Misharin A., Hume DA., Perlman H., Malissen B., Zelzer E., Jung S. (2012) Fate Mapping Reveals Origins and Dynamics of Monocytes and Tissue Macrophages under Homeostasis. *Immunity* (38), 1073-1079.
18. **Breker M.** & Schuldiner M. (2009) Explorations in Topology – Delving Underneath the Surface of Genetic Interaction Maps. *Molecular BioSystems* (5), 1473-1481.  
*\*This paper was chosen as a model paper to be part of the RSC Project Prospect, in which compounds and scientific concepts are linked to related articles, compounds and ontology terms.*