

Yael Litvak

Senior Lecturer

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Scientific Education & Training

Senior Lecturer

July 2019 - now.

Assistant project scientist

Department of Medical Microbiology & Immunology, University of California, Davis. 2014-2019.

Mentor: Dr. Andreas J. Bäumlner.

Research topic: *How pathogens use virulence factors to overcome the gut microbiota.*

Post-doctorate fellow

Department of Molecular Genetics & Microbiology, The Hebrew University. 2010-2014.

Mentor: Dr. Ilan Rosenshine.

Research topic: *Modulation of epithelial responses by enteropathogenic bacteria.*

Ph.D.

Department of Biological Chemistry, The Hebrew University. Awarded 2010.

Advisor: Dr. Zvi Selinger. *Deceased.*

Dissertation title: *"Biochemical Characterization of Bacterial GTPase Activating Proteins and the Functional Consequences of their Action on Eukaryotic Rho GTPases"*.

M.Sc.

Department of Biological Chemistry, The Hebrew University. Awarded 2005.

Advisor: Dr. Zvi Selinger. *Deceased.*

Thesis: *"Bacterial mimics of eukaryotic GTPase-activating proteins"*.

B.Sc.

Chemistry and Life Sciences, The Hebrew University. Awarded 2003. "Amirim" and "Etgar" tracts.

(*Summa cum laude*).

Funding, scholarships and awards

- 2019 Academic Federation Research Travel Award.
- 2017 Best poster presentation award, Microbial Stress Responses, Gordon Research Conference.
- 2017 Academic Federation Research Travel Award.
- 2014 The BARD fellowship for post-doctoral studies.
- 2010 The Lady Davis fellowship for post-doctoral studies.
- 2008 The Canadian scholarship for PhD students.
- 2007 Hebrew University Rector's PhD scholarship.
- 2007 Teva prize for young scientists.
- 2007 Katzir travel award.
- 2007 Noah Lichtenstein travel award for PhD students.
- 2006 Best poster presentation award in the Young Scientists Program of the 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB congress, *Japan*.
- 2004 The Hebrew University Faculty of sciences prize for best poster presentation.

- 2003 Fellowship for excellent M.Sc. students.
- 2002 B.Sc. *summa cum laude*.
- 2002 The Haselkorn fellowship for scholastic achievements.
- 2002 Dean-Intel award for scholastic achievements.
- 2001 Hebrew University Dean's list of excellence.
- 2000 Amirim merit-based scholarship.
- 2000 Hebrew University Dean's award for excellence.
- 2000 Hebrew University Dean's list of excellence.

Service and leadership

Gnotobiotic Mouse Facility

- 2017-2019 Director of the Bäumlér Gnotobiotic Mouse Facility (BGF).
Supervised the expansion of the facility and the incorporation of the ISOcage P Bioexclusion System (Techniplast).
- 2014-2017 Member of the Bäumlér Gnotobiotic Mouse Facility team.
Managed animal husbandry and logistics.



Academic service

- 2019 Phages in Health and Disease Symposia, American Society for Microbiology Microbes Conference, *moderator and invited speaker*.
- 2018 Host-Microbe Interaction retreat, *Poster session organizer and judge*, UC Davis.
- 2017 Host-Microbe Interaction retreat, *Poster session organizer and judge*, UC Davis.
- 2016 Host-Microbe Interaction retreat, *Poster session organizer and judge*, UC Davis.
- 2006 30 Years to The Unraveling of the Regulatory GTPase Cycle Conference, in honor of Dr. Zvi Selinger, *organizing committee*, Israel.

Academic journals and societies

- 2018-current *Infection and Immunity*, Editorial board.
- 2015-current *Infection and Immunity*, Reviewer.
- 2017-current *PLoS pathogens*, reviewer.
- 2017-current American Society for Microbiology, member.
- 2017-current Association for Gnotobiotics, member.

Invited talks, seminars and workshops

- 2019 Microbial Adhesion and Signal Transduction, Gordon Research Conference, **selected talk**, USA.
- 2018 Early Career researchers Seminar Series, Dept. of Microbiology, University of Illinois, **invited speaker**, USA.
- 2018 UC davis host-pathogen forum meeting, **invited speaker**, USA.
- 2018 Bay area pathogenesis PO1 meeting, **selected talk**, USA.
- 2018 Microbial Stress Responses, Gordon Research Conference, **selected talk**, USA.
- 2018 Trace Elements in Health and Disease, FASEB Research Conference, **selected talk**, USA.
- 2017 UC Davis Host-Microbe Interaction retreat, **invited speaker**, USA.
- 2017 Microbial Adhesion and Signal Transduction, Gordon Research Seminar, **selected talk**, USA.
- 2017 Microbial Adhesion and Signal Transduction, Gordon Research Conference, USA.
- 2016 Davis Host-Microbe Interaction retreat, USA.
- 2013 Bacterial Infections and Host Defense, Cold Spring Harbor meeting, China.

- 2011 The 6th Congress of the Federation of the Israel Societies for Experimental Biology, Israel.
- 2009 Host-Pathogen Forum Meeting, Tel-Aviv University, **invited speaker**, Israel.
- 2008 The 5th Congress of the Federation of the Israel Societies for Experimental Biology, **invited speaker**, Israel.
- 2007 Workshop in the Experimental Sciences on Signal Transduction in Host-Bacterial Interactions, Israel, 2007.
- 2007 Methods in Cell Biology: Exploring the Dynamics of Cellular Organization, EMBO Practical Course, **Poster presentation**, Germany.
- 2006 Regulation and Function of Small GTPases, FASEB Research Conference, **selected talk**, USA.
- 2006 The Young Scientists Program of the 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB congress, **selected talk**, Japan.
- 2006 Life: Molecular integration and biological diversity, 20th IUBMB International Congress of Biochemistry and Molecular Biology and the 11th FAOBMB congress, **Poster presentation**, Japan.
- 2006 30 Years to The Unraveling of the Regulatory GTPase Cycle Conference, in honor of Zvi Selinger, **organizer and speaker**, Israel.
- 2001 The Amos De-Shalit workshop for undergraduate students at the Weizmann institute, Israel.

Teaching & mentoring

- 2018 **Guest lecturer**, University of California Davis.
Our microbial self: *The endogenous microbiota in health and disease*, course for graduate students.
- 2005-2008 **Teaching assistant**, The Hebrew University.
Biochemistry of the Cell – laboratory, practical course for excellent students.
- 2002-2005 **Teaching assistant** The Hebrew University.
Biochemistry of the Cell, course for undergraduate students.
- 2018-present Mentor to Junior Specialist Cheng Saechoa, UC Davis.
- 2018-present Mentor to Junior Specialist Austin Byndloss, UC Davis.
- 2016-present Mentor to Graduate Student Megan Liou, UC Davis.
- 2016-present Mentor to Graduate Student Brittany Miller, UC Davis.
- 2016-present Mentor to Junior Specialist Henry Nguyen, UC Davis.
- 2017 Mentor to Visiting Scholar from Germany Laura Kutter, UC Davis.
- 2016-2017 Mentor to undergraduate student Monique Mary Alcantara, UC Davis.
- 2006-2007 Mentor to undergraduate student Moti Avner, Hebrew University.
- 2006-2007 Mentor to undergraduate student Rena Levine-Klein, Hebrew University.
- 2004-2005 Mentor to undergraduate student Avigail Dreazen, Hebrew University.

Published articles

1. **Litvak Y**, Bäumlner AJ. *Microbiota-Nourishing Immunity: A Guide to Understanding Our Microbial Self*. **Immunity**. 2019 Aug 20;51(2):214-224.

2. Velazquez EM, Nguyen H, Heasley KT, Saechao CH, Gil LM, Rogers AWL, Miller BM, Rolston MR, Lopez CA, **Litvak Y**, Liou MJ, Faber F, Bronner DN, Tiffany CR, Byndloss MX, Byndloss AJ, Bäumlér AJ. *Endogenous Enterobacteriaceae underlie variation in susceptibility to Salmonella infection.*
Nature Microbiology. 2019 Jun;4(6):1057-1064.
3. **Litvak Y**, Bäumlér AJ. *The founder hypothesis: A basis for microbiota resistance, diversity in taxa carriage, and colonization resistance against pathogens.*
PLoS Pathogens. 2019 Feb 21;15(2):e1007563.
4. Byndloss MX, **Litvak Y**, Bäumlér AJ. *Microbiota-nourishing Immunity and Its Relevance for Ulcerative Colitis.*
Inflammatory Bowel Disease. 2019 Apr 11;25(5):811-815.
5. **Litvak Y**, Mon KKZ, Nguyen H, Chanthavixay G, Liou M, Velazquez EM, Kutter L, Alcantara MA, Byndloss MX, Tiffany CR, Walker GT, Faber F, Zhu Y, Bronner DN, Byndloss AJ, Tsolis RM, Zhou H, Bäumlér AJ. *Commensal Enterobacteriaceae Protect against Salmonella Colonization through Oxygen Competition.*
Cell Host & Microbe. 2019 Jan 9;25(1):128-139.e5.
6. Sorbara MT, Dubin K, Littmann ER, Moody TU, Fontana E, Seok R, Leiner IM, Taur Y, Peled JU, van den Brink MRM, **Litvak Y**, Bäumlér AJ, Chaubard JL, Pickard AJ, Cross JR, Pamer EG. *Inhibiting antibiotic-resistant Enterobacteriaceae by microbiota-mediated intracellular acidification.*
Journal of Experimental Medicine. 2019 Jan 7;216(1):84-98.
7. **Litvak Y**, Byndloss MX, Bäumlér AJ. *Colonocyte metabolism shapes the gut microbiota.*
Science. 2018 Nov 30;362(6418).
8. Byndloss MX, Olsan EE, Rivera-Chávez F, Tiffany CR, Cevallos SA, Lokken KL, Torres TP, Byndloss AJ, Faber F, Gao Y, **Litvak Y**, Lopez CA, Xu G, Napoli E, Giulivi C, Tsolis RM, Revzin A, Lebrilla CB, Bäumlér AJ. *Microbiota-activated PPAR- γ signaling inhibits dysbiotic Enterobacteriaceae expansion.*
Science. 2017 Aug 11;357(6351):570-575.
9. **Litvak Y**, Byndloss MX, Tsolis RM, Bäumlér AJ. *Dysbiotic Proteobacteria expansion: a microbial signature of epithelial dysfunction.*
Current Opinion in Microbiology. 2017 Oct;39:1-6.
10. **Litvak Y**, Sharon S, Hyams M, Zhang L, Kobi S, Katsowich N, Dishon S, Nussbaum G, Dong N, Shao F, Rosenshine I. *Epithelial cells detect functional type III secretion system of enteropathogenic Escherichia coli through a novel NF- κ B signaling pathway.*
PLoS Pathogens. 2017 Jul 3;13(7):e1006472.
11. Faber F, Thiennimitr P, Spiga L, Byndloss MX, **Litvak Y**, Lawhon S, Andrews-Polymeris HL, Winter SE, Bäumlér AJ. *Respiration of Microbiota-Derived 1,2-propanediol Drives Salmonella Expansion during Colitis.*
PLoS Pathogens. 2017 Jan 5;13(1):e1006129.
12. Dupont A, Sommer F, Zhang K, Repnik U, Basic M, Bleich A, Kühnel M, Bäckhed F, **Litvak Y**, Fulde M, Rosenshine I, Hornef MW. *Age-Dependent Susceptibility to Enteropathogenic Escherichia coli (EPEC) Infection in Mice.*
PLoS Pathogens. 2016 May 9;12(5):e1005616.

13. Yerushalmi G, **Litvak Y**, Gur-Arie L, Rosenshine I. *Dynamics of expression and maturation of the type III secretion system of enteropathogenic Escherichia coli.* **Journal of Bacteriology.** 2014 Aug;196(15):2798-806.
14. **Litvak Y**, Levin-Klein R, Avner M, Selinger Z. *High catalytic efficiency and resistance to denaturing in bacterial Rho GTPase-activating proteins.* **Biological Chemistry.** 2011 Apr;392(6):505-16.
15. **Litvak Y**, Selinger Z. *Aeromonas salmonicida toxin AexT has a Rho family GTPase-activating protein domain.* **Journal of Bacteriology.** 2007 Mar;189(6):2558-60.
16. Opatowsky Y, Sasson Y, Shaked I, Ward Y, Chomsky-Hecht O, **Litvak Y**, Selinger Z, Kelly K, Hirsch JA. *Structure-function studies of the G-domain from human gem, a novel small G-protein.* **FEBS Letters.** 2006 Oct 30;580(25):5959-64.
17. **Litvak Y**, Selinger Z. *Bacterial mimics of eukaryotic GTPase-activating proteins (GAPs).* **Trends in Biochemical Sciences.** 2003 Dec;28(12):628-31.