

## Yael Litvak, PhD

Senior Lecturer (Assistant Professor)

Laboratory for Host-pathogen-microbiota interactions | Dept. of Biological Chemistry |  
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### Scientific Education & Training

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#### 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

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2020	Golda-Meir Fellowship Lectureship Awards
2019	UC Davis Academic Federation Research Award.
2017	Academic Federation Research Travel Award.

### Service and leadership

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#### Gnotobiotic Mouse Facility

2017-2019 Director of the Bäumlner Gnotobiotic Mouse Facility (BGF).

2014-2017 Manager of husbandry and logistics, Bäumlner Gnotobiotic Mouse Facility.



#### Academic journals and societies

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

## Selected talks

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- 2020 Faculty of Biotechnology and Food Engineering, Technion, **invited speaker**, Israel.
- 2019 Topics in Life Sciences for high-school biology teacher, The Belmonte Science Laboratories Center, **invited speaker**, Israel.
- 2019 UK-Israel Synergy Meeting on Antimicrobial Resistance, University of Cambridge, **invited speaker**, UK.
- 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 Host-pathogen forum meeting, UC Davis, **invited speaker**, USA.
- 2018 Bay area pathogenesis PO1 meeting, UC Berkeley, **invited speaker**, 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.

## Publications

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1. **Litvak Y**, Bäumler 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, Bäumler AJ. *Endogenous Enterobacteriaceae underlie variation in susceptibility to Salmonella infection. Nature Microbiology*. 2019 Jun;4(6):1057-1064.
3. **Litvak Y**, Bäumler 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**, Bäumler 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, Tsois RM, Zhou H, Bäumler 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**, Bäumler 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, Bäumler 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, Tsois RM, Revzin A, Lebrilla CB, Bäumler AJ. *Microbiota-activated PPAR- $\gamma$  signaling inhibits dysbiotic Enterobacteriaceae expansion. Science*. 2017 Aug 11;357(6351):570-575.

9. **Litvak Y**, Byndloss MX, Tsohis 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- $\kappa$ B signaling pathway*. **PLoS Pathogens**. 2017 Jul 3;13(7):e1006472. \*Equal contribution.
11. Faber F, Thiennimitr P, Spiga L, Byndloss MX, **Litvak Y**, Lawhon S, Andrews-Polymenis 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.