



CURRICULUM VITAE

Liraz Galia (Shmuel), Ph.D.

University of Texas Southwestern Medical Center
Liraz.Galia@utsouthwestern.edu

Current Position

2023- **University of Texas Southwestern Medical Center, Dallas Tx**
Department of Pathology
Assistant Professor

Research interest: Innate Immunity, mucosal immunology, Immunometabolism, post-translational regulation, long noncoding RNAs, Inflammatory diseases, Infectious diseases

Education

2017-2023 University of Massachusetts Chan Medical School, Worcester USA
Post-Doctoral Research Associate

2012-2017 The Weizmann Institute of Science, Rehovot, Israel
Ph.D. in Life Science
Dissertation: Role of Toll-Like Receptor's Trans Membrane Domain and Proximal amino acids in Innate Immunity Pathologies
Advisor: Yechiel Shai, Ph.D.

2009-2011 The Weizmann Institute of Science, Rehovot, Israel
M.Sc. in Life Science
Dissertation: The Trans membrane domains of TLR4/6 are essential for their activation and regulation in Alzheimer's disease
Advisor: Yechiel Shai, Ph.D.

2006-2009 Bar Ilan University, Ramat Gan, Israel
B.Sc. in Life Science, Biotechnology program

Grants

2024- NIH NIAID Director's New Innovator Award (DP2)
2024- STARS (Science Teacher Access to Resources at Southwestern)
2022- The Crohn's and Colitis Foundation of America Career Development Award

Fellowships

2020-2022	The Crohn's and Colitis Foundation of America Research Award
2018-2019	EMBO Long-Term Fellowship
2012-2017	Ph.D. Fellowship at the Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel
2009-2011	M.Sc. Fellowship at the Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel

Academic Honors and Awards

2023	The Robert W. Finberg, MD Memorial Research Training Award, UMass Chan Medical School, Department of Medicine, Worcester, USA
2023	FISEB Travel Award, ILANIT meeting, Eilat, Israel
2022	Milstein Travel Award, The 10 th Annual Meeting of the International Cytokine & Interferon Society, Hawaii, USA
2020	FISEB Travel Award, ILANIT meeting, Eilat, Israel
2019	Milstein Travel Award, The 7 th Annual Meeting of the International Cytokine & Interferon Society, Vienna Austria
2006-2009	B.Sc. in Life Science, Summa Cum Laude, Bar Ilan University, Ramat Gan, Israel

Publications

Peer-Reviewed Research Papers

Humphries F, **Shmuel-Galia L**, Jiang Z, Zhou JY, Barasa L, Mondal S, Wilson R, Sultana N, Shaffer SA, Ng SL, Pesiridis GS, Thompson PR, Fitzgerald KA. Targeting STING oligomerization with small-molecule inhibitors. *Proc Natl Acad Sci U S A*. 2023 Aug 15;120(33):e2305420120. doi: 10.1073/pnas.2305420120. Epub 2023 Aug 7. PubMed PMID: 37549268; PubMed Central PMCID: PMC10434303.

***Joint first author**

Shmuel-Galia L, Humphries F, Vierbuchen T, Jiang Z, Santos N, Johnson J, Shklyar B, Joannas L, Mustone N, Sherman S, Ward D, Houghton J, Baer CE, O'Hara A, Henao-Mejia J, Hoebe K, Fitzgerald KA. The lncRNA HOXA11os regulates mitochondrial function in myeloid cells to maintain intestinal homeostasis. *Cell Metab*. 2023 Aug 8;35(8):1441-1456.e9. doi: 10.1016/j.cmet.2023.06.019. Epub 2023 Jul 25. PubMed PMID: 37494932.

Tim Vierbuchen, Shiuli Agarwal, John L. Johnson, **Liraz Galia**, Xuqiu Lei, Karina Stein, David Olgner, Karoline I. Gaede, Christian Herzmann, Christian K. Holm, Holger Heine, Athma Pai, Kasper Hoebe, Katherine A. Fitzgerald. The lncRNA LUCAT1 is elevated in inflammatory disease and restrains inflammation by regulating the splicing and stability of NR4A2. *Proc Natl Acad Sci USA* 2023 Jan 3;120(1):e2213715120. PubMed PMID: 36577072

Xuqiu Lei, Natalia Ketelut Carneiro, **Liraz Shmuel Galia**, Weili Xu, Ruth Wilson, Tim Vierbuchen, Yongzhi Chen, Andrea Reboldi, Joonsoo Kang, Karen Edelblum, Doyle Ward, Katherine Fitzgerald.

Epithelial HNF4A shapes the intraepithelial lymphocyte compartment via direct regulation of immune signaling molecules. **J Exp Med**. 2022 July 1;219(8):e20212563. PubMed PMID: 35792863

Shmuel-Galia L*[§], Humphries F*, Lei X, Ceglia S, Wilson R, Jiang Z, Ketelut-Carneiro N, Foley SE, Pechhold S, Houghton J, Muneeruddin K, Shaffer SA, McCormick BA, Reboldi A, Ward D, Marshak-Rothstein A, Fitzgerald KA[§]. Dysbiosis exacerbates colitis by promoting ubiquitination and accumulation of the innate immune adaptor STING in myeloid cells. **Immunity**. 2021 Jun 8;54(6):1137-1153.e8. PubMed Central PMCID: PMC8237382. * **Joint first author**, [§]**Joint corresponding author**

Humphries F*, **Shmuel-Galia L***, Jiang Z, Wilson R, Landis P, Ng SL, Parsi KM, Maehr R, Cruz J, Morales-Ramos A, Ramanjulu JM, Bertin J, Pesiridis GS, Fitzgerald KA. A diamidobenzimidazole STING agonist protects against SARS-CoV-2 infection. **Sci Immunol**. 2021 May 18;6(59) PubMed Central PMCID: PMC8158975. ***Joint first author**

Humphries F, **Shmuel-Galia L**, Ketelut-Carneiro N, Li S, Wang B, Nemmara VV, Wilson R, Jiang Z, Khalighinejad F, Muneeruddin K, Shaffer SA, Dutta R, Ionete C, Pesiridis S, Yang S, Thompson PR, Fitzgerald KA. Succination inactivates gasdermin D and blocks pyroptosis. **Science**. 2020 Sep 25;369(6511):1633-1637. PubMed PMID: 3282006

Gross-Vered M*, **Shmuel-Galia L***, Zarmi B, Humphries F, Thaïss C, Salame TM, David E, Chappell-Maor L, Fitzgerald KA, Shai Y, Jung S. TLR2 Dimerization Blockade Allows Generation of Homeostatic Intestinal Macrophages under Acute Colitis Challenge. **J Immunol**. 2020 Feb 1;204(3):707-717. PubMed PMID: 31882517. ***Joint first author**

Rotem E, Faingold O, Charni M, Klug YA, Harari D, **Shmuel-Galia L**, Nudelman A, Rotter V, Shai Y. The HTLV-1 gp21 fusion peptide inhibits antigen specific T-cell activation in-vitro and in mice. **PLoS Pathog**. 2018 May;14(5):e1007044. PubMed Central PMCID: PMC5955599

Shmuel-Galia L, Klug Y, Porat Z, Charni M, Zarmi B, Shai Y. Intramembrane attenuation of the TLR4-TLR6 dimer impairs receptor assembly and reduces microglia-mediated neurodegeneration. **J Biol Chem**. 2017 Aug 11;292(32):13415-13427. PubMed Central PMCID: PMC5555200.

***Selected to appear in a special virtual issue on “Amyloids, prions and protein oligomers” at JBC**

Shmuel-Galia L*, Aychek T*, Fink A, Porat Z, Zarmi B, Bernshtein B, Brenner O, Jung S, Shai Y. Neutralization of pro-inflammatory monocytes by targeting TLR2 dimerization ameliorates colitis. **EMBO J**. 2016 Mar 15;35(6):685-98. PubMed Central PMCID: PMC4801944. ***Joint first author**

Fink A, Reuven EM, Arnusch CJ, **Shmuel-Galia L**, Antonovsky N, Shai Y. Assembly of the TLR2/6 transmembrane domains is essential for activation and is a target for prevention of sepsis. **J Immunol**. 2013 Jun 15;190(12):6410-22. PubMed PMID: 2367747

Saar-Dover R, Bitler A, Nezer R, **Shmuel-Galia L**, Firon A, Shimoni E, Trieu-Cuot P, Shai Y. D-alanylation of lipoteichoic acids confers resistance to cationic peptides in group B streptococcus by

increasing the cell wall density. **PLoS Pathog.** 2012 Sep;8(9):e1002891. PubMed Central PMCID: PMC3435245

***Featured Research selection**

Reviews and chapters

Katherine A. Fitzgerald and **Liraz Shmuel-Galia**. Lnc-ing RNA to intestinal homeostasis and inflammation. *Trends Immunol.* 2024 Jan 13:S1471-4906(23)00265-X. Review. PubMed PMID: 38220553.

<https://www.ncbi.nlm.nih.gov/myncbi/1P788VC2gyo1xe/bibliography/public/>

Pending Publications

Liraz Shmuel-Galia, Zhaozhao Jiang, Sze-Ling Ng, Ruth Wilson, Richard Kumaran Kandasamy, Evelyn A. Kurt-Jones, Joshi M. Ramanjulu, John Bertin, Viera Kasparcova, G. Scott Pesiridis, Katherine A. Fitzgerald and Fiachra Humphries. Alternative cGAS signaling promotes herpes simplex encephalitis. In Preparation. 2023.

Patents

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| 2021 | Katherine A. Fitzgerald, Fiachra Humphries, Liraz Shmuel-Galia, Paul Thompson, Santanu Mondal, Aaron Muth; STING inhibitors |
| 2011 | Shai Y, Fink A, Reuven EM, Shmuel-Galia L; Peptides Based on the Transmembrane Domain of A Toll- Like Receptor (TLR) For Treatment of TLR-Mediated Diseases |

Invited talks

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| 2024 | Gordon conference on immunometabolism, Providence, USA |
| 2023 | Innate Immunity Day, UMass Chan Medical School, Worcester, USA |
| 2023 | The Ilanit Meeting, Eilat, Israel |
| 2022 | Mucosal Immunology Interest group, UMass Chan Medical School, Worcester, USA |
| 2022 | The 10 th Annual Meeting of the International Cytokine & Interferon Society, Hawaii, USA |
| 2022 | The Regulatory and Non-coding RNAs meeting, Cold Spring Harbor Laboratory, Long Island NY, USA |
| 2021 | Mucosal Immunology Interest group seminar, UMass Chan Medical School, Worcester, USA |
| 2020 | The Ilanit Meeting, Eilat, Israel |
| 2020 | Innate Immunity Data club seminar, UMass Chan Medical School, Worcester, USA |

- 2019 The 7th Annual Meeting of the International Cytokine & Interferon Society, Vienna Austria
- 2016 The Gordon Research Seminar on Immunochemistry & Immunobiology, Lucca (Barga), Italy
- 2012 IBD and Crohn's disease Helmsley Trust workshop. Weizmann Institute of Science, Rehovot, Israel

Scientific appointments and academic service

- 2021- Society of Mucosal Immunology Member, Society of Mucosal Immunology
- 2021 - Peer review, Frontiers in Immunology
- 2021 - Member of American Association of Immunologists
- 2018 - International Cytokine and Interferon Society Member
- 2018 - F1000 Prime Associate Faculty Member