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Prof. Ehud[Udi] Qimron

Clinical Microbiology and Immunology

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Position

Full Professor, Department of Clinical Microbiology and Immunology, Sackler Faculty of Medicine

CV

2016 - date - Full Professor
2012 - 2016 - Associate Professor
2009 - 2012 - Senior Lecturer
2004 - 2009 - Postdoctorate - Harvard Medical School
2000 - 2004 - Ph.D. (*direct track*) - Ben Gurion University
1998 - 2000 - B.Sc. (*summa cum laude*) - Ben Gurion University

Basic studies of CRISPR-Cas and bacteriophages for controlling the bacterial-antibiotic resistance threat

Our lab studies the adaptive immune system of bacteria: the CRISPR-Cas. This fascinating system specifically adapts to defend prokaryotes against newly encountered phages by launching a specific RNA-guided attack against their nucleic acids. We also study novel phage interactions with their bacterial hosts, and particularly interactions with defense systems such as CRISPR-Cas. These basic studies are translated to projects aiming at reversing antibiotic resistance and consequently countering the threat from antibiotic-resistant pathogens.

Selected Publications

Yosef I, Goren MG, Globus R, Molshanski-Mor S, and **Qimron U.**
Extending the host range of bacteriophage particles for DNA transduction.
Molecular Cell, 66(5):721-728, 2017.
Cover page – *Molecular Cell* June 1st 2017.

Goren MG, Doron S, Globus R, Amitai G, Sorek R, and **Qimron U.**
Repeat size determination by two molecular size rulers in the type I-E CRISPR array
Cell Reports, 16(11):2811-8, 2016

Yosef I, Edgar R, Levy A, Amitai G, Sorek R, Munitz A, and **Qimron U.**
Natural selection underlies apparent stress-induced mutagenesis in a bacteriophage infection model
Nature Microbiology, (letter), 1(6):16047, 2016.

Yosef I, Manor M, Kiro R, and **Qimron U.**
Temperate and lytic bacteriophages programmed to sensitize and kill antibiotic-resistant bacteria.

Proc Natl Acad Sci USA, 112(23):7267-7272, 2015.

Levy A^{*}, Goren MG^{*}, Yosef I, Auster O, Manor M, Amitai G, Edgar R, **Qimron U**^{†, #}, Sorek R^{†, #} ***contributed equally; †joint supervision of work; #corresponding author**

Spacer acquisition biases explain preference for foreign DNA in CRISPR adaptation
Nature (article), 520(7548):505-510, 2015.

Molshanski-Mor S, Yosef I, Kiro R, Edgar R, Manor M, Gershovits M, Laserson M, Pupko T, and **Qimron U**.

Revealing Bacterial Targets of Growth Inhibitors Encoded by Bacteriophage T7
Proc Natl Acad Sci USA, 111(52):18715–18720, 2014.

Kiro R, Molshanski-Mor S, Yosef I, Milam SL, Erickson HP, and **Qimron U**.

Gene product 0.4 increases bacteriophage T7 competitiveness by inhibiting host cell division
Proc Natl Acad Sci USA, 110(48):19549-54, 2013

Yosef I, Shitrit D, Goren MG, Burstein D, Pupko T, and **Qimron U**

DNA motifs determining the efficiency of adaptation into the *Escherichia coli* CRISPR array.
Proc Natl Acad Sci USA, 110(35):14396-401, 2013

Yosef I, Goren MG, and **Qimron U**

Proteins and DNA elements essential for the CRISPR adaptation process in *Escherichia coli*.
Nucleic Acids Research, 40(12):5569-76, 2012

Yosef I, Goren MG, Kiro R, Edgar R, and **Qimron U**

HtpG is essential for activity of the *Escherichia coli* CRISPR/Cas system.
Proc Natl Acad Sci USA, 108(50):20136-41, 2011

Selected Reviews/Editorials:

Globus R and **Qimron U**

Crystal-clear memories of a bacterium.
Science, 357(6356), 6-7, 2017.

Sternberg S, Richter H, Charpentier E, and **Qimron U**.

Adaptation in CRISPR-Cas systems
Molecular Cell, 61(6):797-808, 2016.

Goren MG, Yosef I, and **Qimron U**.

Programming bacteriophages by swapping their specificity determinants
Trends in Microbiology, 23:744-746, 2016.

Yosef I and **Qimron U**.

Microbiology News and Views: How bacteria get spacers from invaders.
Nature, 519(7542):166-167, 2015.

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