Stanford



Shirit Einav

Professor of Medicine (Infectious Diseases) and of Microbiology and Immunology

Medicine - Infectious Diseases

CLINICAL OFFICE (PRIMARY)

- **Infectious Disease**

  300 Pasteur Dr Rm L127

  Lane Bldg MC 5107

  Stanford, CA 94305

  Tel (650) 387-6239 **Fax** (650) 723-3474

Bio

CLINICAL FOCUS

- Infectious Disease

ACADEMIC APPOINTMENTS

- Professor, Medicine - Infectious Diseases
- Professor, Microbiology and Immunology
- Member, Bio-X
- Member, SPARK at Stanford
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Professor (with tenure), Department of Medicine, Department of Microbiology and Immunology, (2023- present)
- Associate Professor, Department of Medicine, Department of Microbiology and Immunology, (2018-2023)
- Assistant Professor (UTL), Department of Medicine, Department of Microbiology and Immunology, (2011-2018)
- Instructor of Medicine, Division of Infectious Diseases and Geographic Medicine, Stanford University School of Medicine, (2009-2011)
- Infectious Diseases Fellowship, Division of Infectious Diseases and Geographic Medicine, Stanford University School of Medicine, (2004-2008)
- Postdoctoral Fellowship. Supervisor: Dr. Jeffrey S. Glenn, Division of Gastroenterology and Hepatology, Stanford University School of Medicine, (2003-2004)
- Medical Internship and Residency, Internal Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, (1999-2002)
- Research Studentship, Supervisor: Dr. Michael C. Carroll., Brigham and Women's Hospital and the Center for Blood Research, Harvard Medical School, Boston, MA, (1999-1999)
- Rotating internship (part of the M.D. requirements in Israel), Suraski Medical Center, Tel-Aviv, Israel, (1997-1998)

HONORS AND AWARDS

- Brain Resilience Catalyst, Knight Initiative (2024)
- Interdisciplinary Initiative Program Award, Stanford Bio-X (2024)
- Chan Zuckerberg Biohub Investigator, Chan Zuckerberg Biohub (2022)
- Investigator-Initiated Research Award, Department of Defense (2022)
- Expansion award, Department of Defense (2021)
- Transformation award, Dr. Ralph & Marian Falk Medical Research Trust (2020)
- Investigator-Initiated Research Award, Department of Defense (2019)
- Catalyst Award, Dr. Ralph & Marian Falk Medical Research Trust (2018)
- Interdisciplinary Initiative Program Award, Stanford Bio-X (2016)
- Investigator-Initiated Research Award, Department of Defense (2016)
- McCormick Faculty Award, Stanford University School of Medicine, Office of Diversity and Leadership (2015)
- Research Scholar Grant, American Cancer Society (2014)
- Clinical Scientist Development Award, Doris Duke Charitable Foundation (2013)
- IDSA 2012 IDWeek Investigator Award, Infectious Diseases Society of America (IDSA) (2012)
- Stanford Bio-X Interdisciplinary Initiative Program Award, Stanford, Bio-X (2012)
- DDC Pilot/Feasibility Award, Stanford Digestive Disease Center (DDC) (2009)
- IDSA 2009 Program Committee Choice Award, Infectious Diseases Society of America (IDSA) (2009)
- Mentored Clinical Scientist Development Award (KO8), NIH/NIAID (2008 - 2013)
- ITI Young Investigator Innovation Award, Stanford Institute for Immunity, Transplantation, and Infection (ITI) (2008)
- American Liver Foundation Postdoctoral Fellowship Award, American Liver Foundation (ALF) (2006)
- Dean's Fellowship Award, Stanford University School of Medicine, Stanford, CA (2004)
- Outstanding Thesis Award, Sackler School of Medicine, Tel-Aviv University (1999)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Investigator, Chan Zuckerberg Biohub (2022 - present)
- Fellow (FIDSA), Infectious Diseases Society of America (2018 - present)
- Faculty Fellow, Center for Innovation in Global Health (2016 - present)
- Member, Bio-X Leadership Council (2016 - present)
- Member, Stanford Biosafety committee (2016 - 2020)

PROFESSIONAL EDUCATION

- Board Certification: Infectious Disease, American Board of Internal Medicine (2006)
- Fellowship: Stanford University Pediatric Infectious Disease Fellowship (2009) CA
- Residency: Beth Israel Deaconess Med Center/Harvard (2002) MA
- Medical Education: Sackler School of Medicine (1998) Israel
- Internship: Beth Israel Deaconess Med Center/Harvard (2000) MA
- MD, Sackler School of Medicine, Israel , Medicine (1999)
- BA, Sackler School of Medicine, Israel , Medical sciences (1994)

LINKS

- Einav Lab Website: http://med.stanford.edu/einavlab
- In the news: http://www.the-scientist.com/?articles.view/articleNo/33759/title/Macro--Mini--Micro/
- In the news: http://news.stanford.edu/news/2013/september/einav-quake-antiviral-092613.html
- In the news: https://med.stanford.edu/news/all-news/2017/02/drug-combination-defeats-dengue-ebola-in-mice-study-finds.html
- In the news: http://www.fiercebiotech.com/research/cancer-drugs-tarceva-and-sutent-hold-ebola-and-dengue-at-bay-mice

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our basic research program focuses on understanding virus-host interactions in viral infection and disease pathogenesis. This program is combined with translational efforts to apply this knowledge toward the development of broad-spectrum, host-targeted antiviral strategies to combat acute emerging viruses and predictive biomarkers for severe disease progression.

We focus on the following emerging concepts and approaches that are transforming our understanding of virus-host interactions and disease pathogenesis:

1. Understanding viral pathogenesis using an integrative systems immunology approach.

Our goal is to elucidate the mechanisms driving severe viral disease. To this end, our lab pioneered the development of viscRNA-seq (virus-inclusive single cell RNA-seq) to simultaneously quantify viral abundance and host transcriptomes in individual cells. We integrate viscRNA-seq with other multi-omics and mechanistic approaches to study human samples, such as PBMCs and cadaver tissues from our Colombia dengue cohort (>600 patients) and brain organoids from a Zika microcephaly cohort. These efforts map an atlas of viral cell tropism and host responses and enable identification of protective and pathogenic programs. Our work has challenged prevailing paradigms, such as by probing for hallmarks of severe dengue progression beyond the widely studied antibody-dependent enhancement mechanism, and by identifying B cells as the main target cells of dengue virus in the human blood vs. the reported myeloid cells. Translationally, we aim to identify biomarkers and therapeutic targets and to inform vaccine strategies. For example, in collaboration with the Khatri lab, we identified an 8-gene set that predicts progression to severe dengue that is ready for clinical translation

2. Deciphering intracellular membrane-trafficking pathways essential for viral replication.

We use integrated transcriptomic, proteomic, genetic, and pharmacological approaches to identify host factors required for replication of multiple globally important RNA viruses. Our work dissects how RNA viruses hijack cellular membrane-trafficking pathways to execute key steps of the viral life cycle. We define the molecular mechanisms and cell-biological functions of these pathways—using viruses as powerful probes. Current efforts focus on: (i) cellular kinases (NUMB-associated kinases, receptor tyrosine kinases, lipid kinases) and adaptor protein complexes that regulate viral trafficking; (ii) the ESCRT machinery in intracellular viral budding; and (iii) ubiquitin signaling networks that control trafficking during viral assembly and release.

3. Advancing small molecules that target host functions as broad-spectrum antivirals with a high barrier to resistance.

Most current antivirals inhibit viral enzymes, yielding a “one drug, one virus” paradigm that is not scalable and is often limited by viral resistance.
We pursue an alternative strategy: host-targeted antivirals that inhibit cell functions commonly hijacked by diverse viruses. We have identified host

pathways exploited across RNA viruses, including NAKs, ErbBs, and lipid kinases, as targets for broad-spectrum antivirals. We have demonstrated the utility of repurposed approaches that inhibit these kinases in suppressing replication of multiple RNA viruses in vitro and in mouse models with a high barrier to resistance. In parallel, we are developing chemically distinct inhibitors of these kinases as pharmacological tools to study cell biology and as therapeutics. These studies provide proof of concepts that host-targeted antivirals can offer scalable, broad-spectrum solutions with a high barrier to resistance—diverting from the prevailing direct-acting antiviral paradigm. One of our strategies was incorporated into a Gates Foundation–supported Ebola clinical trial protocol (NCT02380625), and additional programs are advancing toward interventions for dengue, COVID-19, and alphaviral disease.

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jeanna Enriquez, Ania Howley

Postdoctoral Faculty Sponsor

Aakriti Gangwal, Manon Gourdelier, Lennart Hermanussen, Chieh Wen Lo, Desiree Rodrigues Placa

Postdoctoral Research Mentor

Aakriti Gangwal, Chieh Wen Lo

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Microbiology and Immunology (PhD Program)

Publications

PUBLICATIONS

- **A single-cell atlas of human neutrophils reveals neutrophil heterogeneity across health and disease.** *Nature immunology*
  Zheng, H., Maestri, E., Moore, A. R., Ganesan, A., Enriquez, J., Durán, V., Einav, S., van der Poll, T., Bouma, H. R., Atreya, M. R., Efron, P. A., Moldawer, L. L., Sevransky, et al
  2026
- **Synthesis and evaluation of 3,5-disubstituted isothiazolo[4,5-b]pyridines, pyrazolo[4,3-b]pyridines and isothiazolo[3,4-b]pyrazines as inhibitors of PIKfyve.** *Bioorganic chemistry*
  Gao, L. J., Froeyen, M., Lo, C. W., Tran, D. H., Van Loy, T., Schols, D., Rozenski, J., Dehaen, W., Einav, S., De Jonghe, S.
  2026; 181: 110337
- **Dengue virus envelope epitope-specific antibodies are associated with protection from severe dengue.** *EMBO molecular medicine*
  Lay, S., Auerswald, H., Heng, S., Sorn, S., Ken, S., Duran, V., Rebellón Sanchez, D. E., Vinueza, D., Villar Centeno, L. A., Rosso, F., Einav, S., Sakuntabhai, A., Rey, et al
  2026
- **Preformulated, Shelf-Stable, Dendritic Cell-Targeting Nanogel mRNA Vaccine Delivery Platform.** *Bioconjugate chemistry*
  Laturski, A. E., Durán, V., Schaar, B. T., Dulay, M. T., Einav, S., DeSimone, J. M.
  2026
- **Synthesis, structure-activity relationships, and SARS-CoV-2 antiviral activity of 3,5-disubstituted isothiazolo[4,3-b]pyridines as PIKfyve inhibitors.** *Frontiers in chemistry*
  Gao, L. J., Kalebic, D., Lo, C. W., Gangwal, A., Tran, D. H., Rozenski, J., Schols, D., Froeyen, M., Dehaen, W., Einav, S., De Jonghe, S.
  2026; 14: 1777981
- **Scalable single-cell total RNA sequencing unifies coding and noncoding transcriptomics.** *Nature biotechnology*
  Isakova, A., Liu, D. D., Cvijović, I., Sinha, R., Eastman, A. E., Saul, S., Detweiler, A. M., Neff, N., Einav, S., Weissman, I. L., Quake, S. R.
  2026

- **PIP4K2C: an emerging fulcrum for multiple diseases.** *Nature reviews. Drug discovery*
  Pozzetti, L., Mishra, M., Einav, S., Asquith, C. R.
  2026

- **Comprehensive metabolomics combined with machine learning for the identification of SARS-CoV-2 and other viruses directly from upper respiratory samples.** *Journal of clinical microbiology*
  Hogan, C. A., Le, A. T., Khan, A., Su, L. D., Huang, C., Sahoo, M. K., Lo, C. -., Karim, M., Stein, K. A., Einav, S., Cowan, T. M., Pinsky, B. A.
  2025: e0204224

- **Scalable single-cell total RNA-seq reveals non-coding programs in immunity, infection, and brain development.** *Research square*
  Isakova, A., Quake, S., Liu, D., Cvijovic, I., Sinha, R., Eastman, A., Saul, S., Detweiler, A., Neff, N., Einav, S., Weissman, I.
  2025

- **Structure-Activity Relationship Study of 3-Alkynyl-6-aryl-isothiazolo[4,3-b]pyridines as Dual Inhibitors of the Lipid Kinases PIKfyve and PIP4K2C.** *Pharmaceuticals (Basel, Switzerland)*
  Kalebic, D., Gao, L. J., Martinez-Gualda, B., Karim, M., Saul, S., Tran, D. H., Rozenski, J., Persoons, L., Schols, D., Dehaen, W., Einav, S., De Jonghe, S.
  2025; 18 (9)

- **Development of pyrazolo[1,5-a]pyrimidine based macrocyclic kinase inhibitors targeting AAK1.** *European journal of medicinal chemistry*
  Mensing, T. E., Kurz, C. G., Amrhein, J. A., Ehret, T. A., Preuss, F., Mathea, S., Karim, M., Tran, D. H., Kadlecova, Z., Tolvanen, T. A., Martinez-Molina, D., Müller, S., Einav, et al
  2025; 299: 118076

- **Discovery of antivirally active inhibitors of adaptor protein-2 associated kinase 1 based on various bicyclic heteroaromatic scaffolds derived from a 7-azaindole analogue.** *European journal of medicinal chemistry*
  Anthonissen, S., Van Eynde, W., Karim, M., Gao, L., Nhu Tran, D. H., Schols, D., Voet, A., Einav, S., Dehaen, W., De Jonghe, S.
  2025; 299: 118001

- **PIP4K2C inhibition reverses autophagic flux impairment induced by SARS-CoV-2.** *Nature communications*
  Karim, M., Mishra, M., Lo, C. W., Saul, S., Cagirici, H. B., Gourdelier, M., Ghita, L., Ojha, A., Tran, D. H., Agrawal, A., McGraw, C., East, M. P., Gammeltoft, et al
  2025; 16 (1): 6397

- **Replication Capacity and Susceptibility of Nirmatrelvir-Resistant Mutants to Next-Generation Mpro Inhibitors in a SARS-CoV-2 Replicon System.** *Antiviral research*
  Lo, C., Kariv, O., Hao, C., Gammeltoft, K. A., Bukh, J., Gottwein, J., Westberg, M., Lin, M. Z., Einav, S.
  2024: 106022

- **Synthesis of 3-heteroaryl-pyrrolo[2,3-b]pyridines as potent inhibitors of AP-2-associated protein kinase 1 (AAK1) with antiviral activity.** *European journal of medicinal chemistry*
  Ravi, N. P., Van Eynde, W., Karim, M., Nhu Tran, D. H., Agrawal, A., Schols, D., Voet, A., Einav, S., Dehaen, W., De Jonghe, S.
  2024; 280: 116967

- **Back-Pocket Optimization of 2-Aminopyrimidine-Based Macrocycles Leads to Potent EPHA2/GAK Kinase Inhibitors.** *Journal of medicinal chemistry*
  Gerninghaus, J., Zhubi, R., Krämer, A., Karim, M., Tran, D. H., Joerger, A. C., Schreiber, C., Berger, L. M., Berger, B. T., Ehret, T. A., Elson, L., Lenz, C., Saxena, et al
  2024

- **Numb-associated kinases regulate sandfly-borne Toscana virus entry.** *Emerging microbes & infections*
  Moalem, Y., Katz, R., Subramaniam, A. G., Malis, Y., Yaffe, Y., Borenstein-Auerbach, N., Tadmor, K., Raved, R., Maoz, B. M., Yoo, J. S., Lustig, Y., Luxenburg, C., Perlson, et al
  2024: 2382237

- **PIP4K2C inhibition reverses autophagic flux impairment induced by SARS-CoV-2.** *bioRxiv : the preprint server for biology*
  Karim, M., Mishra, M., Lo, C. W., Saul, S., Cagirici, H. B., Tran, D. H., Agrawal, A., Ghita, L., Ojha, A., East, M. P., Gammeltoft, K. A., Sahoo, M. K., Johnson, et al
  2024

- **An orally bioavailable SARS-CoV-2 main protease inhibitor exhibits improved affinity and reduced sensitivity to mutations.** *Science translational medicine*

Westberg, M., Su, Y., Zou, X., Huang, P., Rustagi, A., Garhyan, J., Patel, P. B., Fernandez, D., Wu, Y., Hao, C., Lo, C. W., Karim, M., Ning, et al
2024; 16 (738): eadi0979

- **Chemical inactivation strategies for SARS-CoV-2-infected cells and organoids.** *STAR protocols*
  Karim, M., Pohane, A. A., Lo, C. W., Einav, S., Garhyan, J.
  2024; 5 (1): 102906

- **Back-pocket optimization of 2-aminopyrimidine-based macrocycles leads to potent dual EPHA2/GAK kinase inhibitors with antiviral activity.** *bioRxiv : the preprint server for biology*
  Gerninghaus, J., Zhubi, R., Krämer, A., Karim, M., Tran, D. H., Joerger, A. C., Schreiber, C., Berger, L. M., Berger, B. T., Ehret, T. A., Elson, L., Lenz, C., Saxena, et al
  2024

- **Systems immunology of transcriptional responses to viral infection identifies conserved antiviral pathways across macaques and humans.** *Cell reports*
  Ratnasiri, K., Zheng, H., Toh, J., Yao, Z., Duran, V., Donato, M., Roederer, M., Kamath, M., Todd, J. M., Gagne, M., Foulds, K. E., Francica, J. R., Corbett, et al
  2024; 43 (2): 113706

- **Global and cell type-specific immunological hallmarks of severe dengue progression identified via a systems immunology approach.** *Nature immunology*
  Ghita, L., Yao, Z., Xie, Y., Duran, V., Cagirici, H. B., Samir, J., Osman, I., Rebellón-Sánchez, D. E., Agudelo-Rojas, O. L., Sanz, A. M., Sahoo, M. K., Robinson, M. L., Gelvez-Ramirez, et al
  2023

- **Single B cell transcriptomics identifies multiple isotypes of broadly neutralizing antibodies against flaviviruses.** *PLoS pathogens*
  Lubow, J., Levoir, L. M., Ralph, D. K., Belmont, L., Contreras, M., Cartwright-Acar, C. H., Kikawa, C., Kannan, S., Davidson, E., Duran, V., Rebellon-Sanchez, D. E., Sanz, A. M., Rosso, et al
  2023; 19 (10): e1011722

- **Anticancer pan-ErbB inhibitors reduce inflammation and tissue injury and exert broad-spectrum antiviral effects.** *The Journal of clinical investigation*
  Saul, S., Karim, M., Ghita, L., Huang, P. T., Chiu, W., Durán, V., Lo, C. W., Kumar, S., Bhalla, N., Leyssen, P., Alem, F., Boghdeh, N. A., Tran, et al
  2023

- **Preparing for the next viral threat with broad-spectrum antivirals.** *The Journal of clinical investigation*
  Karim, M., Lo, C. W., Einav, S.
  2023; 133 (11)

- **Magnitude and kinetics of the human immune cell response associated with severe dengue progression by single-cell proteomics.** *Science advances*
  Robinson, M. L., Glass, D. R., Duran, V., Agudelo Rojas, O. L., Sanz, A. M., Consuegra, M., Sahoo, M. K., Hartmann, F. J., Bosse, M., Gelvez, R. M., Bueno, N., Pinsky, B. A., Montoya, et al
  2023; 9 (12): eade7702

- **Nonlytic cellular release of hepatitis A virus requires dual capsid recruitment of the ESCRT-associated Bro1 domain proteins HD-PTP and ALIX.** *PLoS pathogens*
  Shirasaki, T., Feng, H., Duyvesteyn, H. M., Fusco, W. G., McKnight, K. L., Xie, L., Boyce, M., Kumar, S., Barouch-Bentov, R., Gonzalez-Lopez, O., McNamara, R., Wang, L., Hertel-Wulff, et al
  2022; 18 (8): e1010543

- **Numb-associated kinases are required for SARS-CoV-2 infection and are cellular targets for antiviral strategies.** *Antiviral research*
  Karim, M., Saul, S., Ghita, L., Sahoo, M. K., Ye, C., Bhalla, N., Lo, C. W., Jin, J., Park, J., Martinez-Gualda, B., East, M. P., Johnson, G. L., Pinsky, et al
  2022: 105367

- **The cargo adaptor protein CLINT1 is phosphorylated by the Numb-associated kinase BIKE and mediates dengue virus infection.** *The Journal of biological chemistry*
  Schor, S., Pu, S., Nicolaescu, V., Azari, S., Koivomagi, M., Karim, M., Cassonnet, P., Saul, S., Neveu, G., Yueh, A., Demeret, C., Skotheim, J. M., Jacob, et al
  2022: 101956

- **An 8-gene machine learning model improves clinical prediction of severe dengue progression.** *Genome medicine*
  Liu, Y. E., Saul, S., Rao, A. M., Robinson, M. L., Agudelo Rojas, O. L., Sanz, A. M., Verghese, M., Solis, D., Sibai, M., Huang, C. H., Sahoo, M. K., Gelvez, R. M., Bueno, et al
  2022; 14 (1): 33

- **Synthesis and evaluation of 3-alkynyl-5-aryl-7-aza-indoles as broad-spectrum antiviral agents.** *Frontiers in chemistry*
  Martinez-Gualda, B., Graus, M., Camps, A., Vanhulle, E., Saul, S., Azari, S., Nhu Tran, D. H., Vangeel, L., Chiu, W., Neyts, J., Schols, D., Einav, S., Vermeire, et al
  2022; 10: 1058229

- **Optimization of 4-Anilinoquinolines as Dengue Virus Inhibitors.** *Molecules (Basel, Switzerland)*
  Huang, P., Saul, S., Einav, S., Asquith, C. R.
  2021; 26 (23)

- **PIKfyve: a lipid kinase target for COVID-19, cancer and neurodegenerative disorders** *NATURE REVIEWS DRUG DISCOVERY*
  Huang, P., Einav, S., Asquith, C. R. M.
  2021; 20 (10): 730

- **Discovery of 3-phenyl- and 3-N-piperidinyl-isothiazolo[4,3-b]pyridines as highly potent inhibitors of cyclin G-associated kinase.** *European journal of medicinal chemistry*
  Martinez-Gualda, B., Saul, S., Froeyen, M., Schols, D., Herdewijn, P., Einav, S., De Jonghe, S.
  2021; 213: 113158

- **The transcriptional landscape of Venezuelan equine encephalitis virus (TC-83) infection.** *PLoS neglected tropical diseases*
  Yao, Z. n., Zanini, F. n., Kumar, S. n., Karim, M. n., Saul, S. n., Bhalla, N. n., Panpradist, N. n., Muniz, A. n., Narayanan, A. n., Quake, S. R., Einav, S. n.
  2021; 15 (3): e0009306

- **Evaluation and identification of 4-anilinoquin(az)olines as potent inhibitors of both dengue virus (DENV) and Venezuelan equine encephalitis virus (VEEV).** *Bioorganic & medicinal chemistry letters*
  Saul, S., Huang, P. T., Einav, S., Asquith, C. R.
  2021: 128407

- **BIKE regulates dengue virus infection and is a cellular target for broad-spectrum antivirals.** *Antiviral research*
  Pu, S., Schor, S., Karim, M., Saul, S., Robinson, M., Kumar, S., Prugar, L. I., Dorosky, D. E., Brannan, J., Dye, J. M., Einav, S.
  2020: 104966

- **Potent antiviral activity of novel multi-substituted 4-anilinoquin(az)olines.** *Bioorganic & medicinal chemistry letters*
  Saul, S., Pu, S., Zuercher, W. J., Einav, S., Asquith, C. R.
  2020; 30 (16): 127284

- **Towards Predicting Progression to Severe Dengue.** *Trends in microbiology*
  Robinson, M. n., Einav, S. n.
  2020

- **Old Drugs for a New Virus: Repurposed Approaches for Combating COVID-19.** *ACS infectious diseases*
  Saul, S. n., Einav, S. n.
  2020

- **Broadly neutralizing human antibodies against dengue virus identified by single B cell transcriptomics.** *eLife*
  Durham, N. D., Agrawal, A., Waltari, E., Croote, D., Zanini, F., Fouch, M., Davidson, E., Smith, O., Carabajal, E., Pak, J. E., Doranz, B. J., Robinson, M., Sanz, et al
  2019; 8

- **Structure-activity relationship study of the pyridine moiety of isothiazolo[4,3-b]pyridines as antiviral agents targeting cyclin G-associated kinase.** *Bioorganic & medicinal chemistry*
  Martinez-Gualda, B., Pu, S., Froeyen, M., Herdewijn, P., Einav, S., De Jonghe, S.
  2019: 115188

- **A 20-Gene Set Predictive of Progression to Severe Dengue.** *Cell reports*

Robinson, M., Sweeney, T. E., Barouch-Bentov, R., Sahoo, M. K., Kalesinskas, L., Vallania, F., Sanz, A. M., Ortiz-Lasso, E., Albornoz, L. L., Rosso, F., Montoya, J. G., Pinsky, B. A., Khatri, et al

2019; 26 (5): 1104

- **A 20-Gene Set Predictive of Progression to Severe Dengue** *CELL REPORTS*

  Robinson, M., Sweeney, T. E., Barouch-Bentov, R., Sahoo, M., Kalesinskas, L., Vallania, F., Maria Sanz, A., Ortiz-Lasso, E., Luis Albornoz, L., Rosso, F., Montoya, J. G., Pinsky, B. A., Khatri, et al

  2019; 26 (5): 1104-+

- **Screening of Interactions with the ESCRT Machinery by a Gaussia princeps Split Luciferase-Based Complementation Assay.** *Methods in molecular biology (Clifton, N.J.)*

  Barouch-Bentov, R. n., Jacob, Y. n., Einav, S. n.

  2019; 1998: 291–304

- **MARCH8 Ubiquitinates the Hepatitis C Virus Nonstructural 2 Protein and Mediates Viral Envelopment.** *Cell reports*

  Kumar, S. n., Barouch-Bentov, R. n., Xiao, F. n., Schor, S. n., Pu, S. n., Biquand, E. n., Lu, A. n., Lindenbach, B. D., Jacob, Y. n., Demeret, C. n., Einav, S. n.

  2019; 26 (7): 1800–1814.e5

- **Synthesis and Structure-Activity Relationships of 3,5-Disubstituted-pyrrolo[2,3- b]pyridines as Inhibitors of Adaptor-Associated Kinase 1 with Antiviral Activity.** *Journal of medicinal chemistry*

  Verdonck, S. n., Pu, S. Y., Sorrell, F. J., Elkins, J. M., Froeyen, M. n., Gao, L. J., Prugar, L. I., Dorosky, D. E., Brannan, J. M., Barouch-Bentov, R. n., Knapp, S. n., Dye, J. M., Herdewijn, et al

  2019

- **Virus-inclusive single-cell RNA sequencing reveals the molecular signature of progression to severe dengue.** *Proceedings of the National Academy of Sciences of the United States of America*

  Zanini, F., Robinson, M. L., Croote, D., Sahoo, M. K., Sanz, A. M., Ortiz-Lasso, E., Albornoz, L. L., Rosso, F., Montoya, J. G., Goo, L., Pinsky, B. A., Quake, S. R., Einav, et al

  2018

- **Cyclin G-associated kinase (GAK) affinity and antiviral activity studies of a series of 3-C-substituted isothiazolo[4,3-b]pyridines.** *European journal of medicinal chemistry*

  Wouters, R., Pu, S., Froeyen, M., Lescrinier, E., Einav, S., Herdewijn, P., De Jonghe, S.

  2018; 163: 256–65

- **Viral journeys on the intracellular highways.** *Cellular and molecular life sciences : CMLS*

  Robinson, M., Schor, S., Barouch-Bentov, R., Einav, S.

  2018

- **Repurposing of Kinase Inhibitors as Broad-Spectrum Antiviral Drugs.** *DNA and cell biology*

  Schor, S., Einav, S.

  2018; 37 (2): 63-69

- **Single-cell transcriptional dynamics of flavivirus infection.** *eLife*

  Zanini, F. n., Pu, S. Y., Bekerman, E. n., Einav, S. n., Quake, S. R.

  2018; 7

- **Hepatitis C Virus Proteins Interact with the Endosomal Sorting Complex Required for Transport (ESCRT) Machinery via Ubiquitination To Facilitate Viral Envelopment (vol 47, e01456-16, 2016)** *MBIO*

  Barouch-Bentov, R., Neveu, G., Xiao, F., Beer, M., Bekerman, E., Schor, S., Campbell, J., Boonyaratanakornkit, J., Lindenbach, B., Lu, A., Jacob, Y., Einav, S.

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