

NIH-FDA IIG

National Institutes of Health // Food and Drug Administration // Immunology Interest Group

NEWSLETTER

AUGUST 2021

PUBLICATIONS

Sensory modulation of airways immunity.

La Russa F, Dehmel S, Braun A, Veres TZ. *Neurosci Lett.* 2021 Aug 24;760:136042. doi: 10.1016/j.neulet.2021.136042. Epub 2021 Jun 10. PMID: 34118306

The airways are densely innervated by sensory nerves which, together with immune cells, provide a first line of tissue defense. In this review, we discuss how neuroimmune interactions occur and play a role in lung immunity.

Application of targeted mass spectrometry in bottom-up proteomics for systems biology research.

Manes NP, Nita-Lazar A. *J Proteomics.* 2018 Oct 30;189:75-90. doi: 10.1016/j.jprot.2018.02.008. Epub 2018 Feb 13. PMID: 29452276 Free PMC article. Review.

This minireview describes the molecular mechanisms of the Toll-like receptor, STING, MAVS, and inflammasome pathways. A detailed molecular mechanism network is included in the supplemental material.

Identification of drugs associated with reduced severity of COVID-19 - a case-control study in a large population.

Dutta A, Zhao B, Love PE. *Trends Immunol.* 2021 Israel A, Schäffer AA, Cicurel A, Cheng K, Sinha S, Schiff E, Feldhamer I, Tal A, Lavie G, Ruppin E. *Elife.* 2021 Jul 27;10:e68165. doi: 10.7554/eLife.68165. PMID: 34313216 Free PMC article.

This study used a large-collection of electronic health records to identify systematically drugs and other medical equipment whose usage in advance is associated with reduced risk of either COVID-19 infection or COVID-19 hospitalization. Several beneficial drugs target the mevalonate pathway and its two branches leading to synthesis of cholesterol and ubiquinone.

The tumour microenvironment shapes innate lymphoid cells in patients with hepatocellular carcinoma.

Heinrich B, Gertz EM, Schäffer AA, Craig A, Ruf B, Subramanyam V, McVey JC, Diggs LP, Heinrich S, Rosato U, Ma C, Yan C, Hu Y, Zhao Y, Shen TW, Kapoor V, Telford W, Kleiner DE, Stovroff MK, Dhani HS, Kang J, Fishbein T, Wang XW, Ruppin E, Kroemer A, Greten TF, Korangy F. *Gut.* 2021 Aug 2;gutjnl-2021-325288. doi: 10.1136/gutjnl-2021-325288. Online ahead of print. PMID: 34340996

This is a study of innate lymphoid cells and their plasticity in hepatocellular carcinoma (HCC).

Hedgehog dysregulation contributes to tissue-specific inflammaging of resident macrophages.

Babagana M, Oh KS, Chakraborty S, Pacholewska A, Aqdas M, Sung MH. *Aging (Albany NY).* 2021 Aug 14;13(15):19207-19229. doi: 10.18632/aging.203422. Epub 2021 Aug 14. PMID: 34390567 Free PMC article.

Here we characterized the transcriptional changes associated with physiological aging in mouse resident macrophage populations across different tissues and sexes. Our data suggest that hedgehog signaling could be a potential intervention axis for mitigating age-associated inflammation and related diseases.

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CD11b⁺ lung dendritic cells at different stages of maturation induce Th17 or Th2 differentiation.

Izumi G, Nakano H, Nakano K, Whitehead GS, Grimm SA, Fessler MB, Karmaus PW, Cook DN.

Nat Commun. 2021 Aug 19;12(1):5029. doi: 10.1038/s41467-021-25307-x.PMID: 34413303

Dendritic cells are specialized to mediate specific types of immune responses. In this paper, we show that subpopulations of mouse CD11b⁺ lung DCs at different stages of maturation promote Th17 or Th2 CD4⁺ T cell differentiation.

CONGRATULATIONS TO DR. ART SHAFFER **for receiving the IIG Distinguished Service Award!**

This award was established in 2021 to honor people who have rendered outstanding service to the Immunology Interest Group and the Immunology community at the NIH. Dr. Shaffer is the first recipient of this award, and no one deserves it more. His service to the immunology community spans decades. He has always been an active member of the NIH/FDA immunology community and has been a key contributing member and organizer of the yearly IIG workshops. He is also an active member of the NIH Assembly of Scientists. He enjoys working with the immunology community and considers it a family, and his services to the community have always been valued and appreciated.

Dr. Shaffer will soon transition to AstraZeneca to lead the Hematological Malignancy group and will be responsible for driving and coordinating target discovery. Dr. Shaffer joined the NCI Metabolism Branch (now the LYMB) as a post-doctoral fellow in 1996, after completing his Ph.D. training in Immunology with Dr. Mark Schlissel at Johns Hopkins University. In 2001, he was appointed as a Staff Scientist. He continued to use cutting-edge methods to understand the wiring of normal and malignant B cells and his work has led to the development of rationally targeted therapies. He has authored over 62 papers has been cited over 17000 times.

The IIG will be forever indebted to his contributions and service. The IIG committee and the immunology community congratulates him as he begins his new scientific endeavor in the pharmaceutical industry. His position may be replaceable but his successors have tremendous shoes to fill.



Dr. Art Shaffer

CONGRATULATIONS TO DR. RUF BENJAMIN

for receiving the International Liver Cancer Association (ILCA) fellowship award 2021 for his work on Liver Cancer Immunology in Dr. Tim Greten's Lab at NCI Bethesda!

ILCA will support his research on “Elucidating the role of mucosal-associated invariant T cells (MAITs) in hepatocellular carcinoma (HCC) using spatial transcriptomic analysis by combining CODEX and single-cell RNA-sequencing”. The ultimate goal of this project is to understand the function of these cells and then develop MAIT-directed therapies to treat patients with liver cancer



Dr. Ruf Benjamin

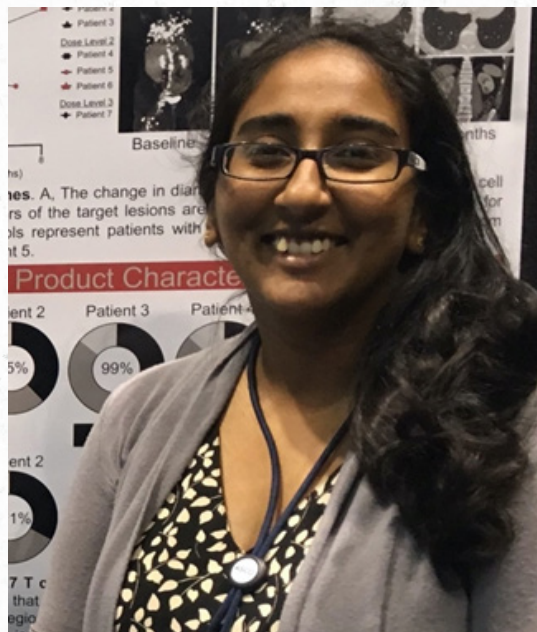
CONGRATULATIONS TO DR. NISHA NAGARSHETH

for being appointed as a STAFF SCIENTIST in the Immune Deficiency Cell Therapy Program (ID-CTP) and will be working with the branch chief, Dr. Sung-Yun Pai

Her work will focus on gene therapy and transplant for primary immune deficiencies and understand basic human immune cell biology and immune interactions by studying patients with primary immunodeficiencies such as WAS, SCID, and DOCK8.

Dr. Nisha Nagarsheth recently finished her postdoctoral fellowship with Dr. Christian Hinrichs in NCI. She was involved in clinical translational research in clinical trials related to the adoptive transfer of gene engineered T cells in HPV-16+ cancers (study #'s: NCT02858310, NCT03197025, and NCT03937791). Her work was focused on why some patients respond, and others do not, using human blood and tumor tissue samples. Dr. Nagarsheth's research focused on human immunology (especially T cell immunology) and the tumor-immune cell crosstalk. Her work on the first-in-human trial using TCR-engineered T cells for treating cancer was recently published in Nature Medicine. (Nagarsheth et al., TCR-engineered T cells targeting E7 for patients with metastatic HPV-associated epithelial cancers. Nature Medicine. 2021; <https://pubmed.ncbi.nlm.nih.gov/33558725/>).

Dr. Nisha Nagarsheth looks forward to meeting and collaborating with more people at the wonderful NIH immunology community! Please reach out to her.



Dr. Nisha Nagarsheth