

## Peptide/IFA emulsions limit tumor-specific CD8<sup>+</sup> T cells tumor trafficking

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Immune responses in mice vaccinated with gp100 melanoma peptide in incomplete Freund's adjuvant (IFA) studied, commonly used vaccine adjuvant for the experimental treatment of patients with cancer.

A major obstacle to therapeutic anti-cancer vaccination is that vaccine-activated killer T cells can eventually lose their tumor-killing function and thus become unable to ion site and the vaccine draining lymph node, never reaching the tumor. T cell apoptosis at the vaccination site was IFN- $\gamma$  and FasL driven. By providing immunostimulatory CD40-specific antibody, Toll-like receptor 7 (TLR7) agonist and interleukin-2 (IL-2) (together referred as covax), T cell death was reduced, however T cell accumulation continued at the vaccination site. Replacing the non-biodegradable IFA formulation with a saline-based, biodegradable formulation allowed the T cells to leave the vaccination site and traffic toward tumors, causing their regression. Saline-based vaccination induced preferential T cell localization and tissue destruction at the tumor site, whereas IFA-based vaccination induced the reverse pattern of T cell sequestration, local tissue destruction and killing of normal gp100+ pigment cells (vitiligo) at the vaccination site.

### Biography

Yared Hailemichael earned his Ph.D. at Texas A&M University and is currently a postdoctoral fellow at the University of Texas MD Anderson Cancer Center, Department of Melanoma Medical Oncology. He is a recipient of many awards and member of various national immunology and cancer research societies. He has published more than 12 research articles in peer-reviewed journals including his latest first-authored paper in Nature Medicine.

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