Dermatology Innovation Forum
an Advancing Innovation in Dermatology conference

Hilton Orlando
6001 Destination Pkwy, Orlando, FL
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Innovation in the Non-Surgical Treatment of Cutaneous Malignancy by Local Delivery

Michael Girardi, MD (michael.girardi@yale.edu)
The Evans Professor
Vice Chair of Faculty Development & Scientific Innovation
Department of Dermatology
Yale School of Medicine

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Michael Girardi, MD
Professor, Dermatology
Yale School of Med.
Co-Founder, Stradefy Bio

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Howard Kaufman, MD
President & CEO
Ankyra Therapeutics

ANKYRA

Vincent Menard, PhD, MBA
CFO, Feldan Therapeutics

FELDAN THERAPEUTICS

John Vasilakos, PhD
CEO, TLR Biosciences

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Innovation in the Non-Surgical Treatment of Cutaneous Malignancy by Local Delivery

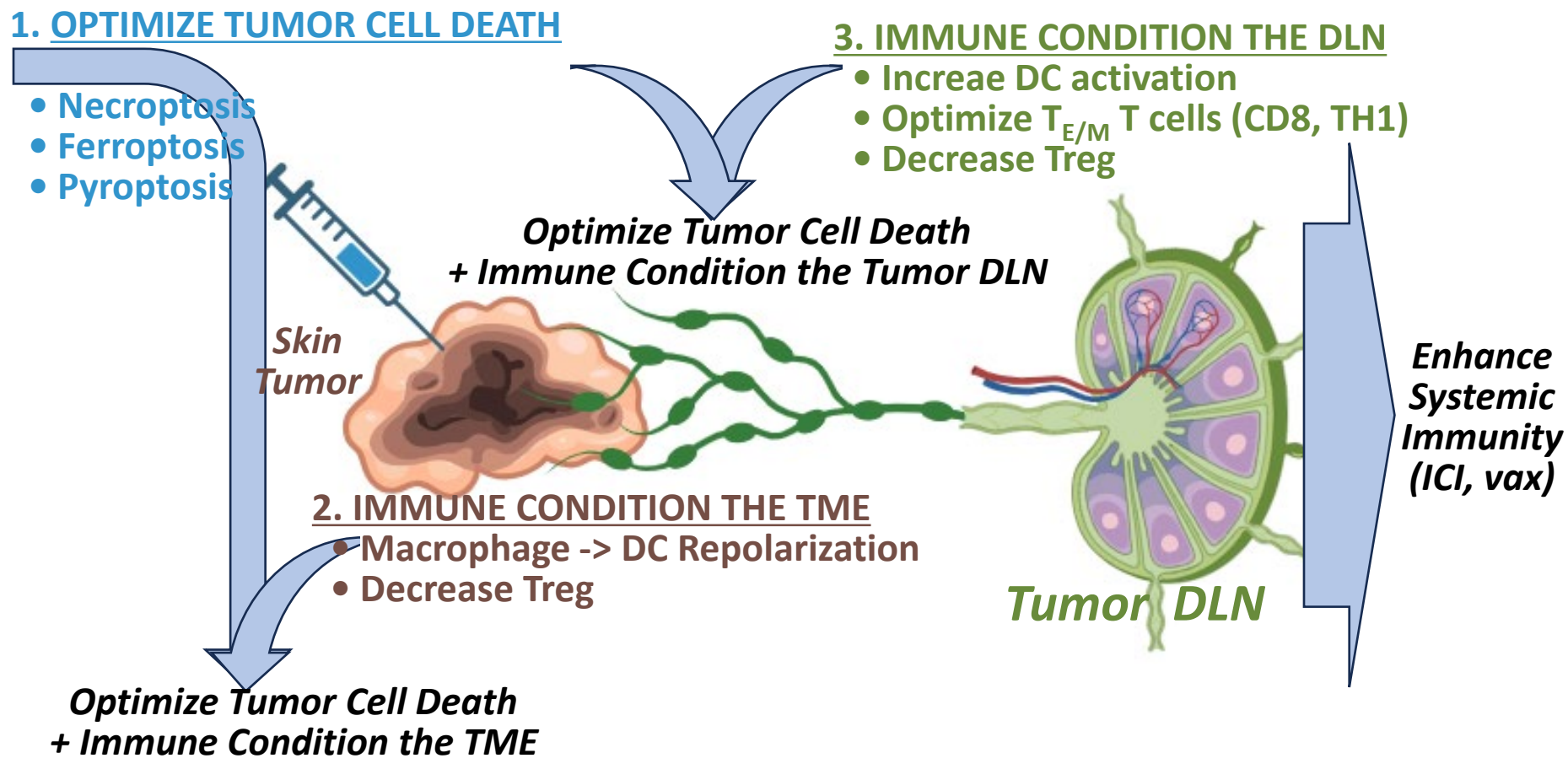
NON-MELANOMA (BCC, SCC)

MERKEL CELL CARCINOMA

MELANOMA

CUTANEOUS T CELL LYMPHOMA

Engineering the Optimization of Locoregional Treatment of Skin Malignancy



~ Dermatology Innovation Forum 2025 ~ Orlando, FL ~

Bioadhesive Drug Carriers (BDCs)

Yale University
School of Medicine

New Haven, Connecticut, USA

STRADEFY BIOSCIENCES

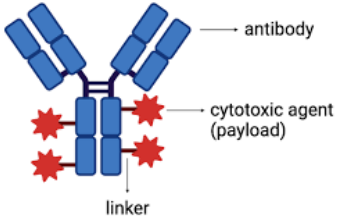
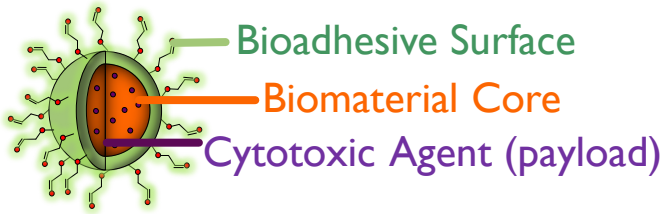
ELM STREET VENTURES

biohaven
Yale




Mark Saltzman, Yale School of BME
Michael Girardi, Yale School of Med
Jeff Goldberg, Exec. Chair, Stradefy
Brian Dixon, Elm Street Ventures

BDC Mechanism of Action - localized and differentiated

	ADC	BDC Biodegradable Drug Carriers™ STRADEFY
		
Delivery	**Systemic**	**Local**
Localization	**Cell surface**	**Cell surface & TME**
Internalization	**Endocytosis (requires tumor Ag)**	**Endocytosis (tumor Ag agnostic)**
Release/ Tumor Kill	**Linker cleavage (<10 actives/ADC)**	**Diffusion, long residence (>10,000 actives/BDC)**
Manufacturing	**Biologic synthesis**	**Chemical synthesis**

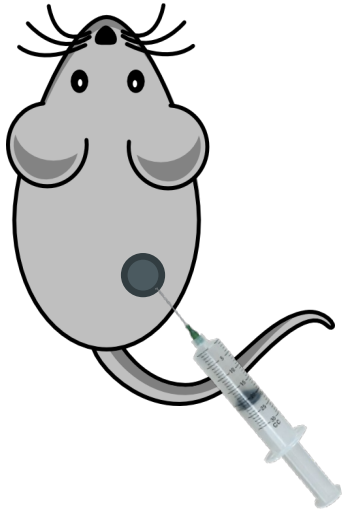
PNAS

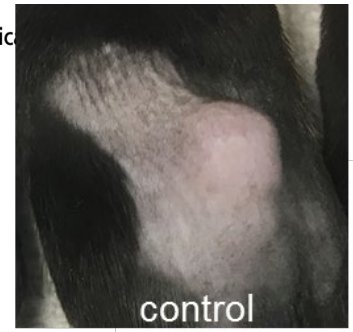
Nonsurgical treatment of skin cancer with local delivery of bioadhesive nanoparticles

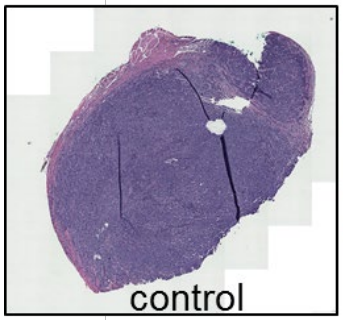
Jamie K. Hu[a], Hee-Won Suh[b], Munibah Qureshi[a], Julia M. Lewis[a], Sharon Yaqoob[a], Zoe M. Moscato[b], Sofia Griff[b], Alison K. Lee[a], Emily S. Yin[a], W. Mark Saltzman[b], and Michael Girardi[a,1]

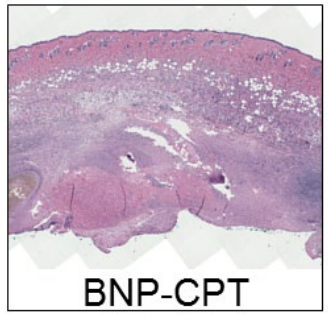
[a]Department of Dermatology, School of Medicine, Yale University, New Haven, CT 06520; and [b]Department of Biomedical Engineering and Applied Science, Yale University, New Haven, CT 06511

Intratumoral injection of BNP-CPT (20mg/kg)









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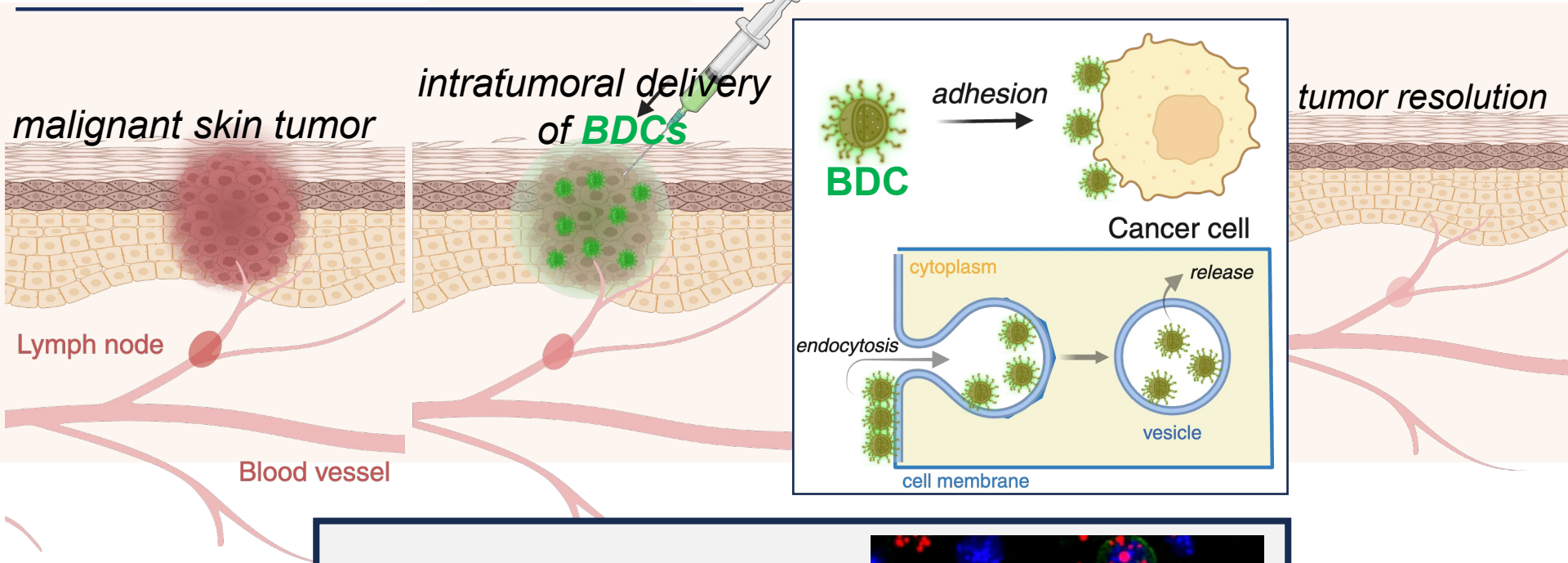
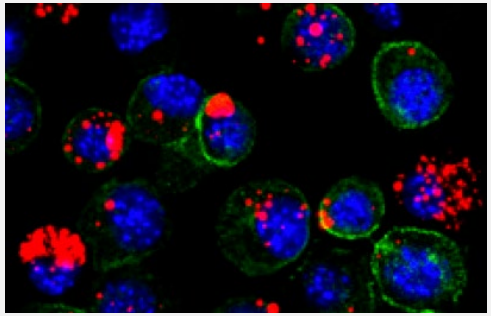
BDC Mechanism of Action



Confocal images of SCC cells after 24hr exposure with red dye-loaded BDCs



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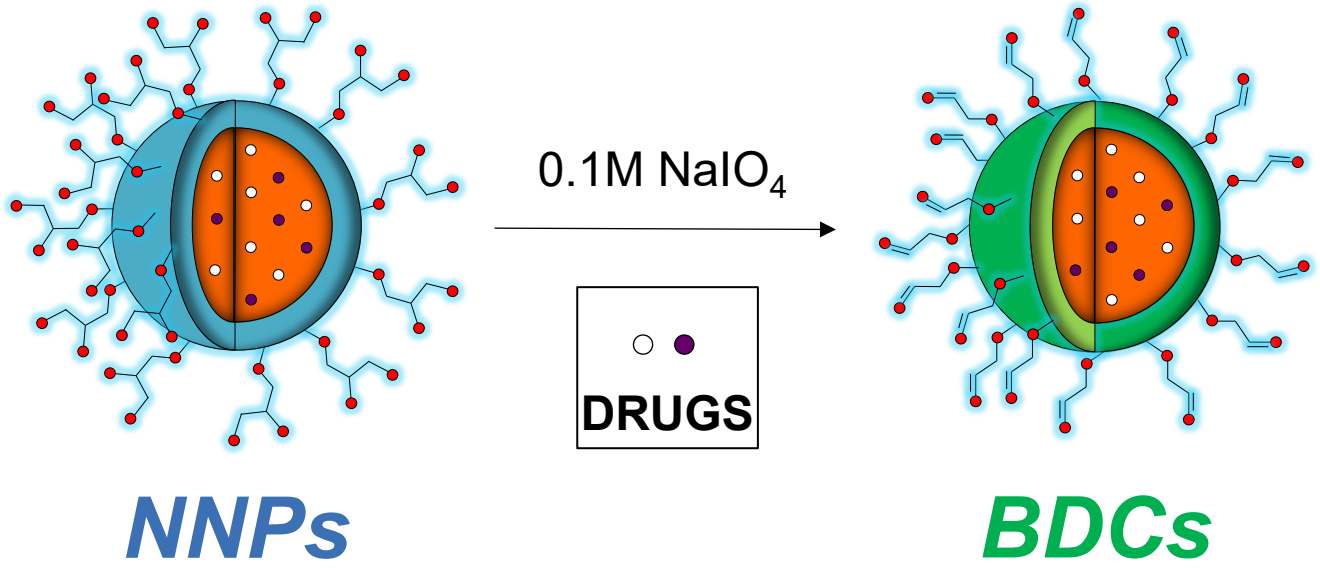
Non-Adhesive Nanoparticle
(PLA-HPG-vicinyl diol)

Biodegradable Drug Carriers (BDCs)
(PLA-HPG-aldehyde)



NNPs ***BDCs***

NNP or BDC use depends on the indication and desired properties.

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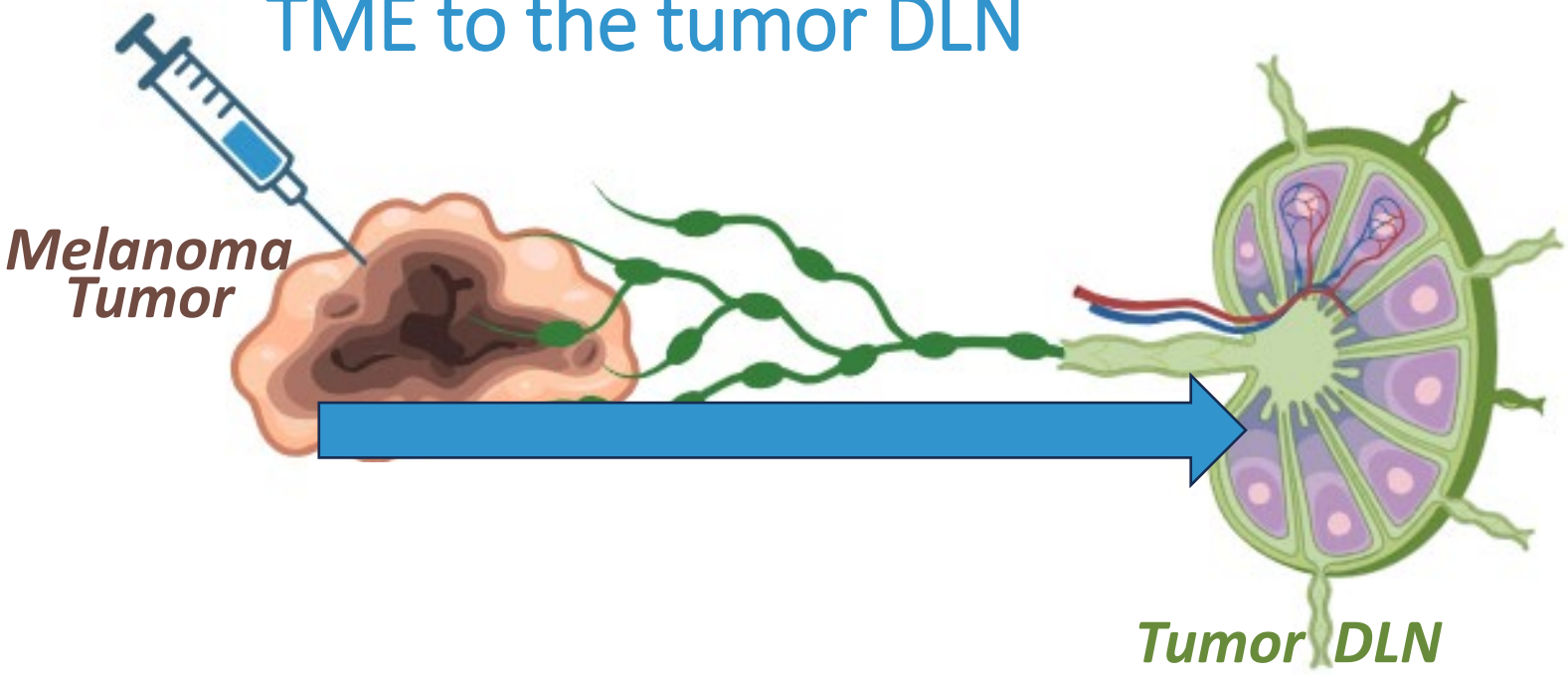
NNP = Non-Adherent NP of HPG-PLA

Engineered to release agent from the TME to the tumor DLN



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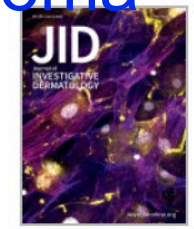
NNP-MPLA for Locoregional Melanoma

Journal of Investigative Dermatology
Volume 145, Issue 3
Pages A1-A8, 461-714 (*March 2025*)



ORIGINAL ARTICLE

Enhanced Intratumoral Delivery of Immunomodulator Monophosphoryl Lipid A through Hyperbranched Polyglycerol–Coated Biodegradable Nanoparticles

Jungsoo Chang[1,2,10], Kwangsoo Shin[2,10], Julia M. Lewis[1], Hee Won Suh[2], Joohyung Lee[1], William Damsky[1], Suzanne Xu[1], Marcus Bosenberg[1,3,4,5,6,7], W. Mark Saltzman[1,2,6,8,9] and Michael Girardi[1,6]

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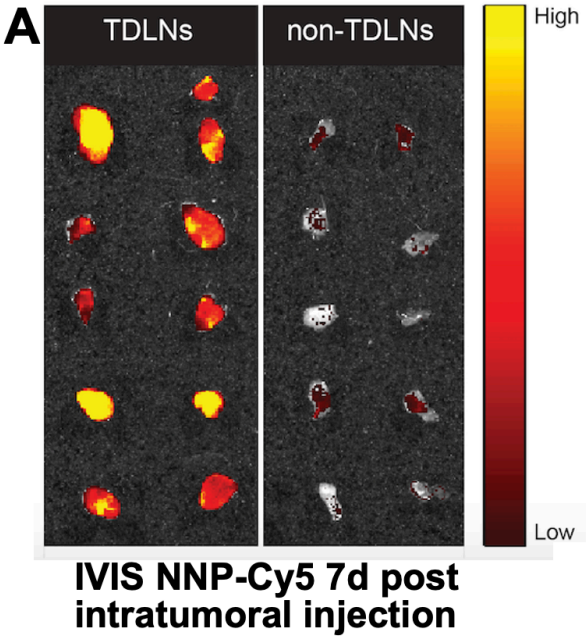
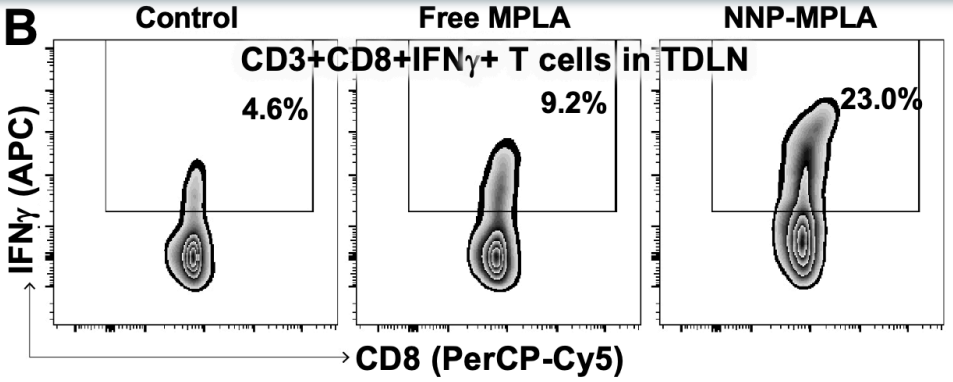
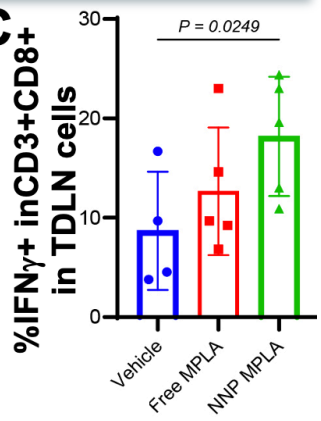
NNP-MPLA for Locoregional Melanoma

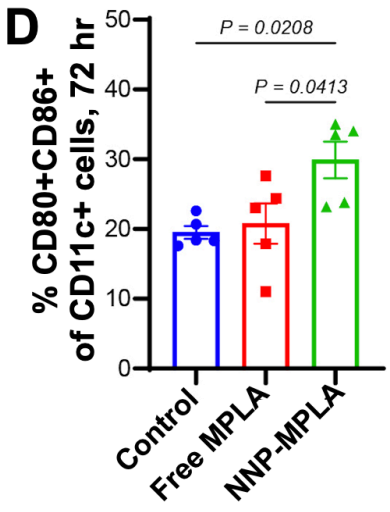
From the TME –> to the TDLN

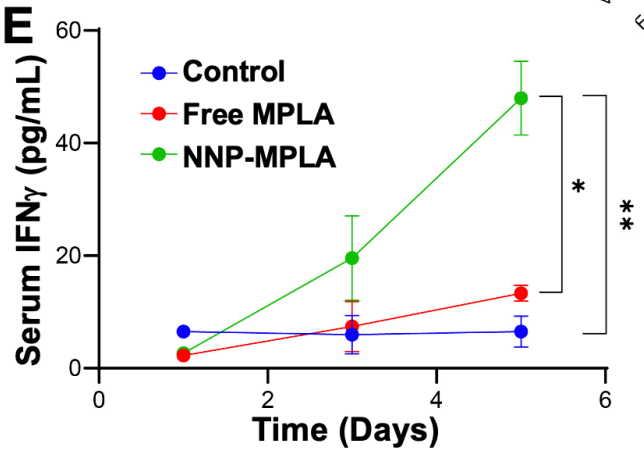


IVIS NNP-Cy5 7d post intratumoral injection









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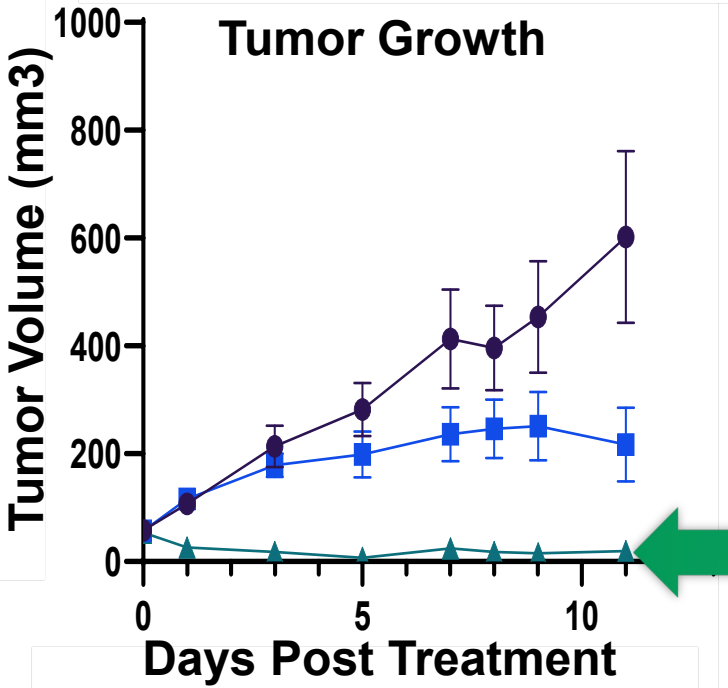
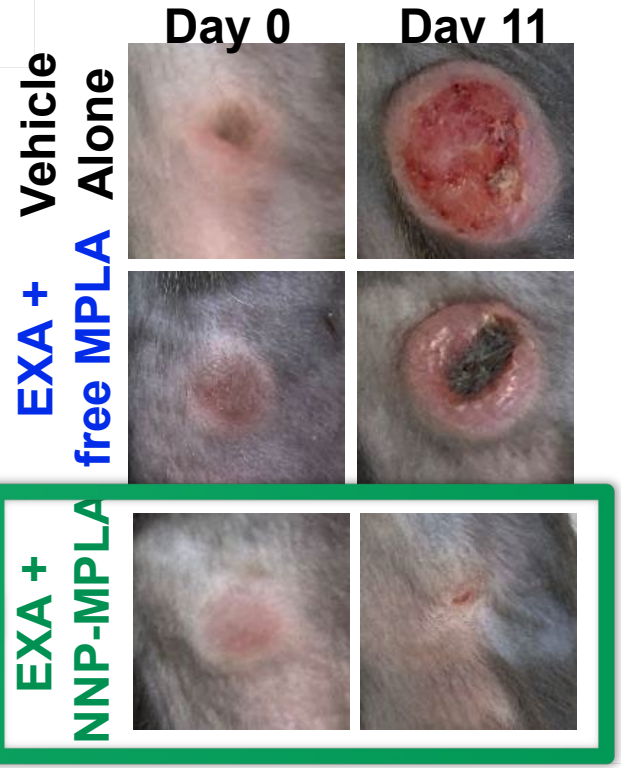
Enhancing Melanoma Local Immunotherapy

Intralesional CHEMO + NNP-MPLA

- *YUMMER-1.7 model of established melanoma.*
- *MPLA is a TLR-4 agonist.*





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Stradefy Bio: Innovative Site-Directed Therapeutics

Core technology - Bioadhesive Drug Carriers (BDCs)

- Like ADCs, but higher drug load, better retention & cell internalization

Complimented by NNP that drive agents from TME→DLN

- Ideal for packaging immunostimulatory agents like MPLA

First Indication is Non-Melanoma Skin Cancer.

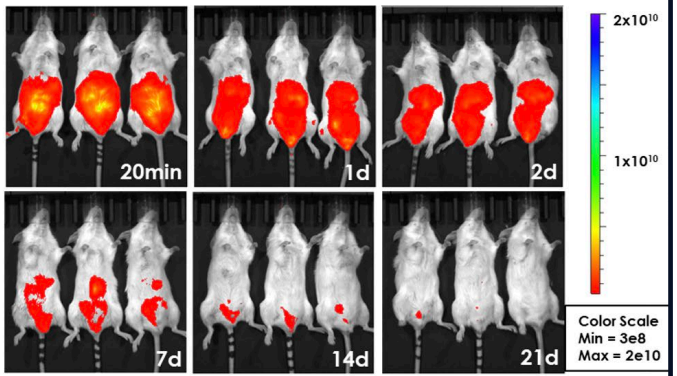
- BCC, SCC, Melanoma, MCC, ovarian cancer

BNP-EXA Intraperitoneal Delivery

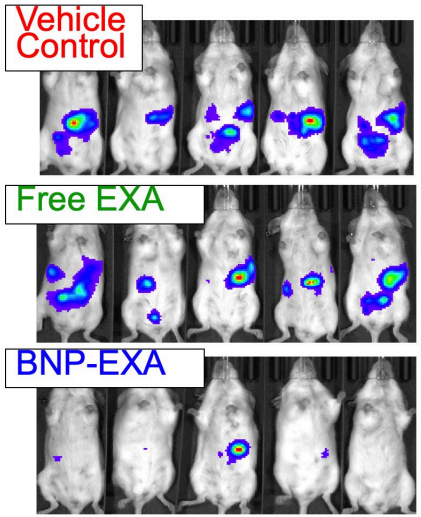
Ovarian cancer metastasized to the peritoneum….

- Ovarian cancer cell line w/ luciferase reporter for imaging (ID8 Luc)
- Stradefy BNPs with fluorescent label for location tracking

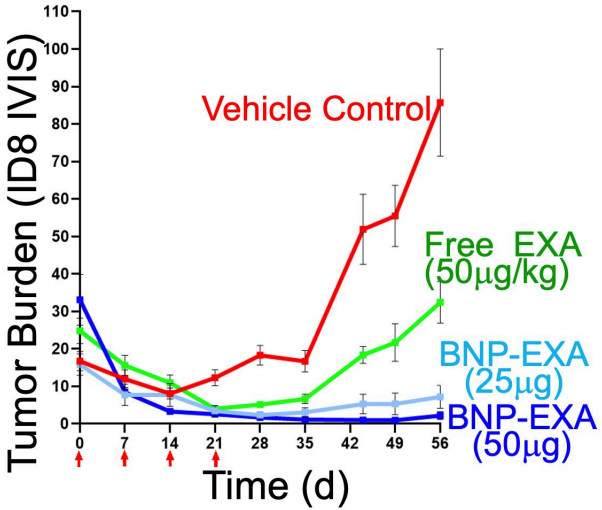
BNP Retention Signal



Tumor Imaging Day 49



Tumor Signal



Unpublished – Yale Center for Cancer Modeling

Thank you!

W. Mark Saltzman, PhD
Yale Biomedical Engineering

Jeffrey Goldberg
Executive Chair
jgoldberg@stradefybio.com

Yale CANCER CENTER

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BLAVATNIK FUND
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