LUXEMBOURG INSTITUTE OF HEALTH

LECTURE

Prof Judith Feucht

11.08.2025

House of BioHealth
27 Rue Henri Koch,
L-4354 Esch-sur-Alzette

9:00am - 10:30am + Q&A

* Please register by sending an email to: **Florence.Henry@lih.lu**

Advancing CAR therapies for cancer treatment and beyond

Chimeric antigen receptor (CAR) T cell therapy has demonstrated promising outcomes in patients with certain refractory hematological malignancies. However, insufficient functional T cell persistence impedes therapeutic success of CAR therapies in a significant number of patients. FDA-approved CAR designs incorporate CD28 or 4-1BB costimulatory molecules fused to the intracellular CD3z chain to reprogram T cell metabolism, function, and phenotypic properties.

We investigate different strategies to improve CAR therapy against hematological and solid tumors. Furthermore, we aim to extend the successful application of CAR therapy beyond malignant diseases. This talk will cover aspects of our efforts and focus on approaches involving changes in CAR designs and endogenous modulation of immune cell characteristics by using advanced gene editing technologies. We have recently developed strategies to tailor intrinsic T cell signaling capacities to the specific requirements of different CAR designs through introduction of targeted point mutations. These enhanced CAR products lead to improved antitumor efficacy in established preclinical models of hematological and solid tumors without evidence of malignant transformation. Remarkably, fine-tuned CAR T cells demonstrate relevant metabolic and transcriptional changes associated with superior functionality.

The talk will highlight the need to precisely fine-tuning signaling activities to improve CAR functionality and underline the power of precision genome engineering to advance cellular immunotherapies.

SPEAKER:

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HOST:
Ulf Nehrbass