

From bats to cancer—the power of gene regulation Season 3, Episode 7

Episode notes

Join us for an insightful conversation with <u>Dr. Nadav Ahituv</u>, a leader in human genetics and gene regulation at UCSF. He shares his personal journey from scoliosis patient to genetic researcher, exploring the mysteries of <u>non-coding</u> <u>DNA</u>, massively parallel reporter assays, and <u>CRISPR-based</u> <u>therapeutic</u> innovations.

We dive into his lab's diverse projects, from decoding bat wing development and diet adaptation to tackling complex diseases like scoliosis and cancer through gene modulation. Learn how cloning is used alongside technologies like AI, genome-wide sequencing, and CRISPR to revolutionize our understanding of regulatory elements and shape the future of precision medicine.

Plus, discover how a surprising approach—using modified fat cells—could be a game-changer in cancer therapy. This episode is a must-listen for anyone fascinated by the intersection of genetics, technology, and evolution.

Nadav's recent publications

- 1. Nguyen, H.P., An, K., Ito, Y. et al. <u>Implantation of engineered adipocytes suppresses tumor</u> progression in cancer models. Nat Biotechnol (2025).
- Gordon WE, Baek S, Nguyen HP, Kuo YM, Bradley R, Fong SL, Kim N, Galazyuk A, Lee I, Ingala MR, Simmons NB, Schountz T, Cooper LN, Georgakopoulos-Soares I, Hemberg M, Ahituv N. <u>Integrative single-cell characterization of a frugivorous and an</u> insectivorous bat kidney and pancreas. Nat Commun. 2024 Jan 9;15(1):12.

"The advantage of a genome wide approach is getting millions of sequences annotated in the genome. Having that now, along with the era of AI, is leading to a better understanding of regulatory sequences in the genome."

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