Grand Technion Energy Program
תכנית האנרגיה ע"ש גרנד

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תכנית האנרגיה ע"ש גרנד מתכבדת להזמינך להרצאה סמינריונית שתינתן ע"י:

דינה ברנבאום

התכנית הבין-יחידתית לאנרגיה

בנושא:

CRISPR Evolution within Natural Microbial Communities

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The CRISPR-Cas system, and adaptive immune system providing bacteria defense against phages[1], could be of great value for protecting microbial communities, in natural systems and in synthetic bio-energy applications[2].
While CRISPR-based adaptation in the form of spacer acquisitions was observed in the lab[3], the nature of evolution within natural communities still remains unknown. To understand the unique features of natural CRISPR evolution, we employed two methods -- a high-throughput, low-quality method and a high-quality, low-throughput method -- and collected CRISPR sequencing data directly from human stool samples. We complemented the lab work with computational algorithmic workflow analysis. Interestingly, results for Bifidobacteria, derived from the two methods, show evolution mainly via deletions. The profound understanding of data and methodology gained from the first two approaches led us to develop a new method. The revised method aims to produce data for characterizing CRISPR adaptation in natural microbial communities, both in high-throughput and with high quality.

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