



Università degli Studi di Roma “Tor Vergata”

Dipartimento di Scienze e Tecnologie Chimiche

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AVVISO DI SEMINARIO

La Dr.ssa Velia Siciliano

Synthetic and Systems Biology for Biomedicine

Istituto Italiano di Tecnologia-IIT

il giorno 13/04/2023 alle ore 15: 00

Nell' Aula seminari del Dipartimento di Scienze e Tecnologie Chimiche

Terrà un seminario dal titolo:

Synthetic Biology: what, why and how

Proponente: Prof. Francesco Ricci



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Synthetic Biology: what, why and how

Synthetic Biology is a Bioengineering discipline that aims at reprogramming cell fate by designing genetic circuits that perform sophisticated information processing.

Synthetic biology has the potential to revolutionise the treatment of hard-to-tackle diseases by reprogramming cells with synthetic device. To obtain robust and specific activity, synthetic circuits must sense and respond to the intracellular or extracellular environment recognizing the unhealthy condition. Over the talk I will focus on the design of a platform that can be easily readapted to sense intracellular protein of interest, and their application for engineering potential cell-based therapies. I will also show our work on RNA-encoded circuits that use RNA-binding proteins, siRNAs and proteases to engineer sensors, cascade and switches. Finally, I will present our recent research to address one of the standing bottlenecks of mammalian synthetic biology, namely the burden given by competition for intracellular resources that synthetic circuits impose to the cells.