



KEMIJSKI INŠTITUT

Vabilo na Preglov kolokvij / Invitation to the Pregl colloquium

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Velika predavalnica Kemijskega inštituta /
Great Lecture Hall
National Institute of Chemistry
Hajdrihova 19, Ljubljana, Slovenia

**Synthetic riboswitches –
promising tools for mammalian synthetic biology**

RNA utilises many different mechanisms to control gene expression. Among the regulatory elements that respond to external stimuli, riboswitches are a prominent and elegant example. They are characterised by binding of a small molecule ligand to the so-called aptamer domain, which results in a conformational change of the downstream expression platform that determines the output of the system. The modular organisation of riboswitches has resulted in the adoption of engineered riboswitches as artificial genetic control devices and a number of exciting proof-of-concept studies have been published. Overall, there is no shortage of small molecule-binding aptamers but only a small fraction of them are suitable for RNA engineering. We implemented RNA Capture-SELEX in our riboswitch developmental pipeline to integrate selection for high-affinity binding with RNA conformational switching. We consider this integrated approach a breakthrough in riboswitch development, as suitable sensor domains for RNA-based devices can now be developed easily against any ligand of choice.

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Vljudno vabljeni / Kindly invited