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seminar

Wednesday, 1st June, 12.00pm

Seminar Room

Host: Prof. Aitziber L. Cortajarena

Harnessing nuclease biology for the development of diagnostic and therapeutic strategies

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https://liu.se/en/research/nat-lab

Over expression of nucleases has been reported as promising biomarker for infectious diseases, and other human conditions such as cancer and autoimmune diseases. In our studies, we have demonstrated the capability of nucleases for detecting specific bacteria in animal models of disease. With this strategy we developed nucleic acid probes with high sensitivity and specificity that allows in vivo detection of bacteria in 45 min, clearly demonstrating the great potential of this technology for targeting applications where nuclease activity is present (Hernandez et. al. Nat Med. 2014, 20, 301-306). Therefore, any method based on this property (nuclease degradation activity) represents a novel alternative for diagnostic and therapeutic intervention.

Our actual work involves the development of therapeutic strategies that uses nucleases as biomarkers and short oligonucleotides as substrates (TOUCAN technology). This technology combines the target recognition power of oligonucleotide probes substrates and the clinical efficacy of nucleoside analogues in a single approach. MRI oligonucleotide probes and cancer nuclease will be also discussed during the presentation.