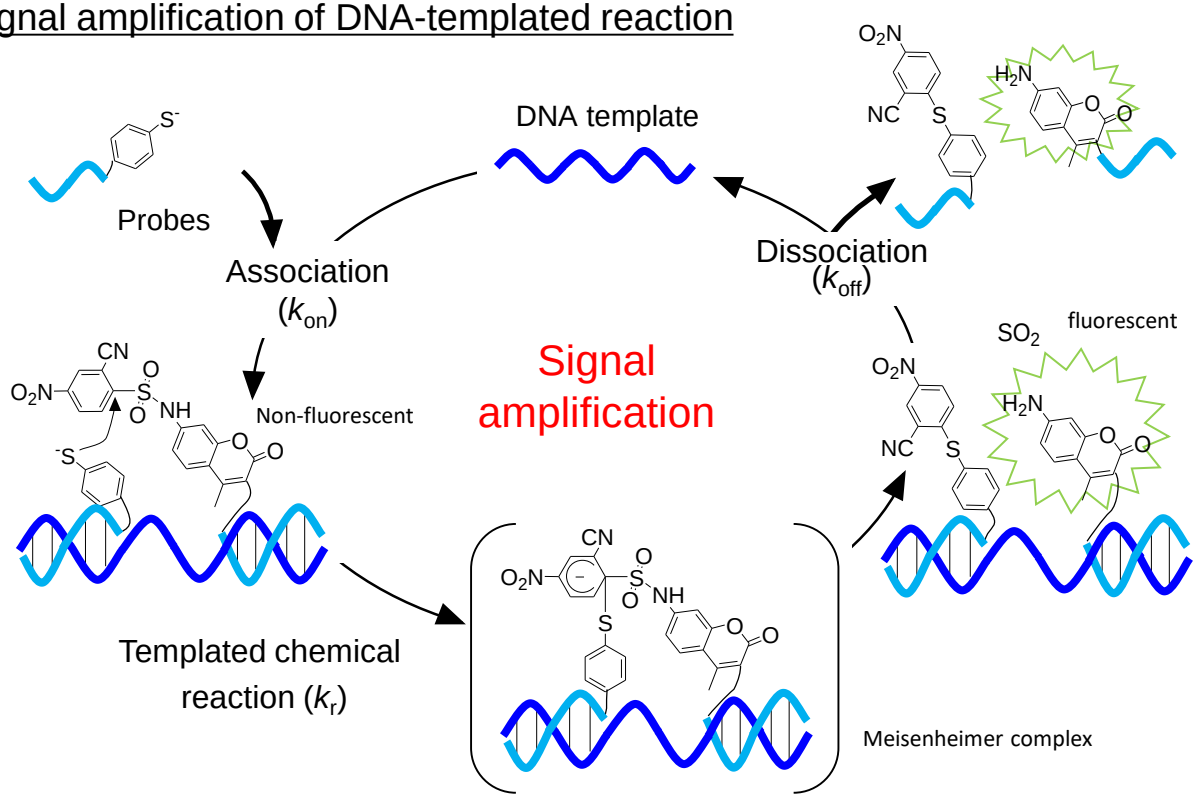
Oligonucleotide-templated reactions are powerful tools for the detection of nucleic acid sequences. One of the major scientific challenges associated with this technique is the rational design of non-enzyme-mediated catalytic templated reactions capable of multiple turnovers that provide high levels of signal amplification.

We have developed the nucleophilic aromatic substitution (S_NAr) reaction-triggered fluorescent probe. The probe underwent a rapid templated reaction without any of the undesired background reactions, and provided an efficient level of signal amplification that ultimately enabled particularly sensitive levels of detection.

Signal amplification of DNA-templated reaction



The reaction yields after 15 h and turnover numbers (TO).