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# Fluorescent probes for the detection of bacteria in body fluids

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## Résumé

Rapid diagnosis of bacterial infections is a major challenge in the fight against antimicrobial resistance, particularly to enable targeted antibiotic administration and to avoid antibiotic overuse. Current diagnostic methods are slow as they rely on bacterial culture (Váradí, Chem. Soc. Rev. 2017), leading to the widespread use of broad-spectrum antibiotics, which promotes resistance development and increases patient mortality. To address this critical challenge, we are developing an innovative strategy for bacterial detection in body fluids based on enzyme-activable "turn-on" fluorescent probe. These probes consist of two Nile Red fluorophores linked by a peptide substrate specific to an exoenzyme from *Staphylococcus* species. In aqueous environments, the fluorescence of the probes is quenched due to the formation of non-fluorescent H-aggregates (Karpenko, JACS 2015). Upon enzymatic cleavage, the fluorophores are separated, leading to the fluorescence "turn on". This approach may ultimately enable faster and more specific diagnosis, helping to limit the misuse of antibiotics and contributing to the fight against bacterial resistance.

**Mots-Clés:** Bacterial detection, Nile Red, Glutamyl endopeptidase

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