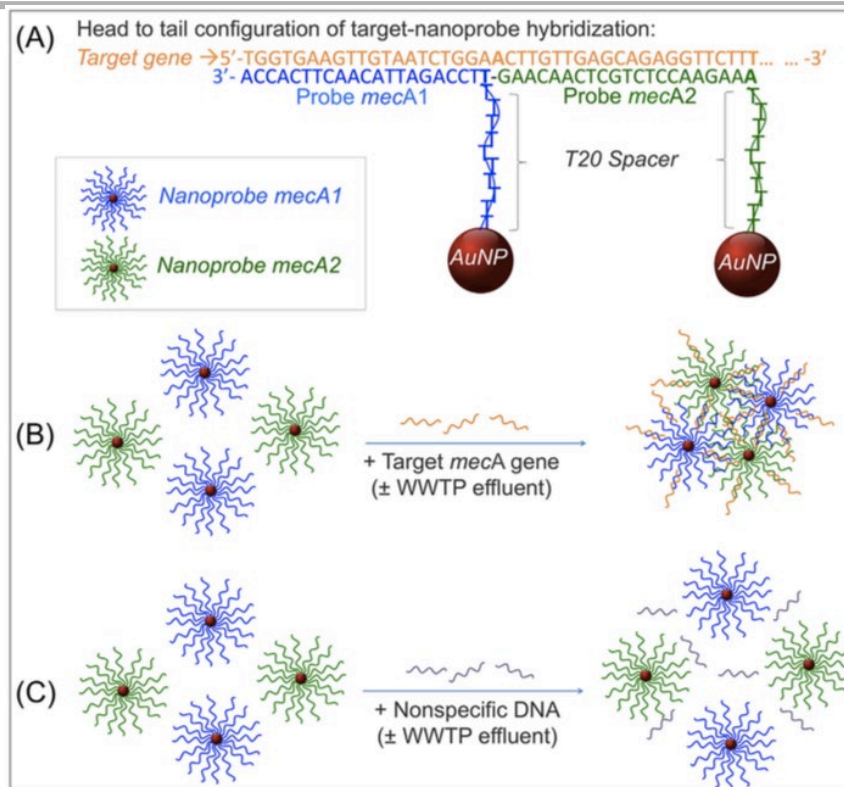


Stable oligonucleotide-functionalized gold nanosensors for enviro-biocontaminant monitoring

The global propagation of environmental biocontaminants such as antibiotic resistant pathogens and their antibiotic resistance genes (ARGs) is a public health concern that highlights the need for improved monitoring strategies. This group demonstrated the environmental stability and applicability of an oligonucleotide-functionalized gold nanosensor. The *mecA* ARG was targeted as model biocontaminant due to its presence in clinically-relevant pathogens and to its emergence as an environmental contaminant. *mecA*-specific nanosensors were tested for antibiotic resistance gene (ARG) detection in ARG-spiked effluent from four wastewater treatment plants (WWTPs). This contribution supports the environmental applicability of a new line of cost-effective, field-deployable tools needed for wide-scale biocontaminant monitoring.



Schematic of nanoprobe-DNA interactions using surface enhanced Raman spectroscopy as a nano-detector: A&B = sensing target genes; C = sensing failure, as designed. Journal of Environmental Sciences (<http://dx.doi.org/10.1016/j.jes.2017.08.005>)

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