

Aptasense

Rapid detection of MRSA on hospital surfaces

The problem

Current detection systems either achieve high sensitivity and specificity or perform well in terms of speed, cost, and ease of use. Hospitals require a quick and affordable test that allows daily monitoring of Methicillin-resistant *Staphylococcus aureus*.

	Sensitivity	Specificity	Speed	Equipment	Ease of use	Cost	Applications
Cultures							
Culture	Best	Best	Worst	Worst	Worst	Worst	General surface testing Confirmatory analysis
RODAC plates	Best	Best	Best	Worst	Worst	Best	Surface contamination levels
Nucleic acid amplification							
Next generation sequencing	Best	Best	Worst	Worst	Worst	Worst	Comprehensive microbial profiling Epidemiology, research
PCR	Best	Best	Best	Worst	Worst	Worst	Specific pathogen detection Clinical diagnostics
LAMP	Best	Best	Best	Best	Best	Best	Rapid on-site field testing Field applications
Rapid detection kits	Best	Best	Best	Best	Best	Best	On-site testing Quick screening

Best Worst

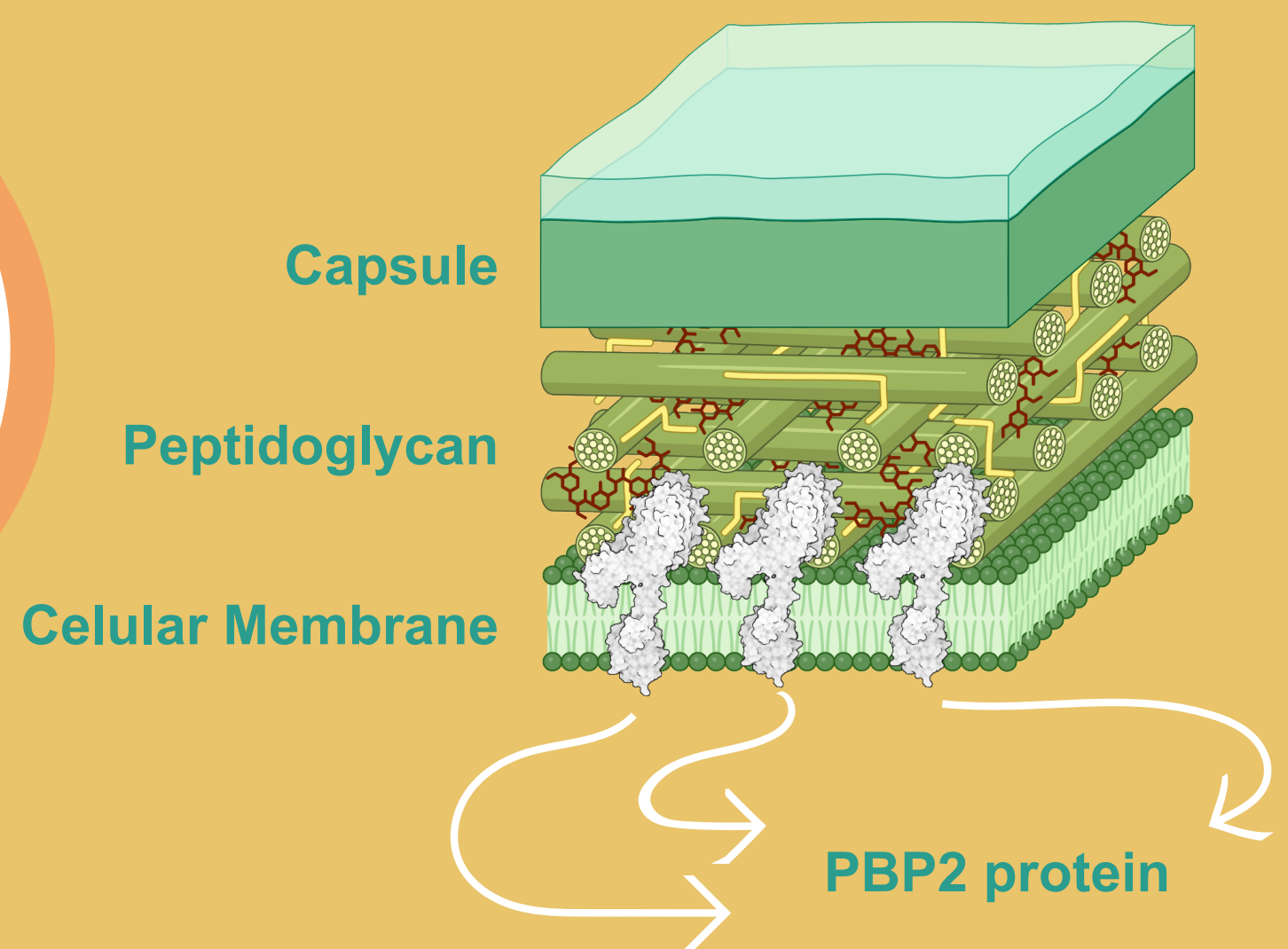
Too expensive!

Too slow!

Innaccurate!

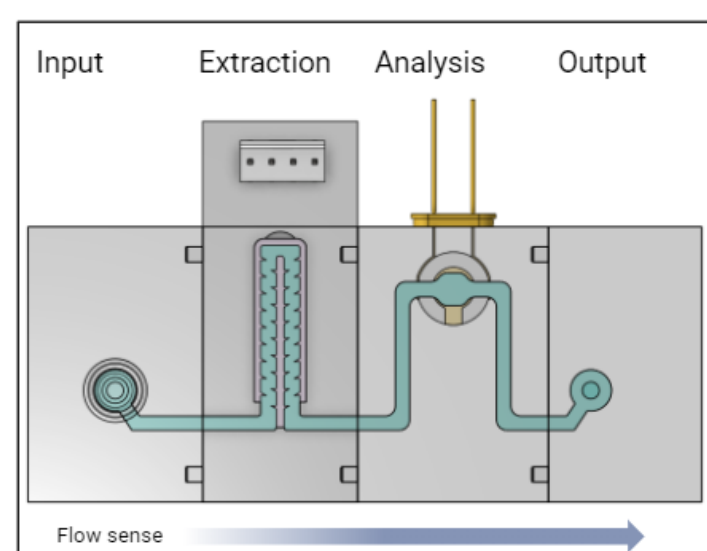
Methicillin-resistant *Staphylococcus aureus*

Methicillin normally works by stopping bacteria from making their cell walls, but MRSA bacteria have a special protein, PBP2a, that allows them to bypass this blockade and keep building the cell wall, leading to resistance.

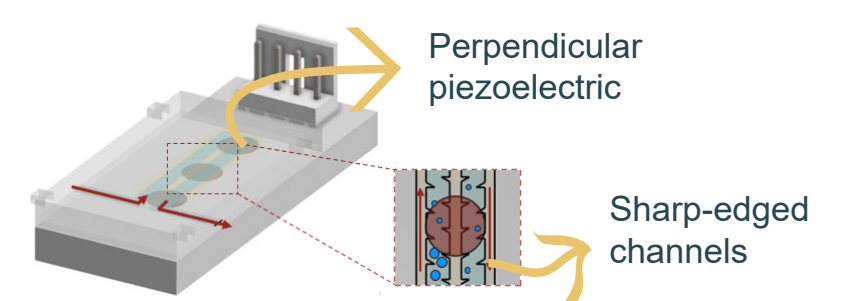


Our solution: AS 4.2

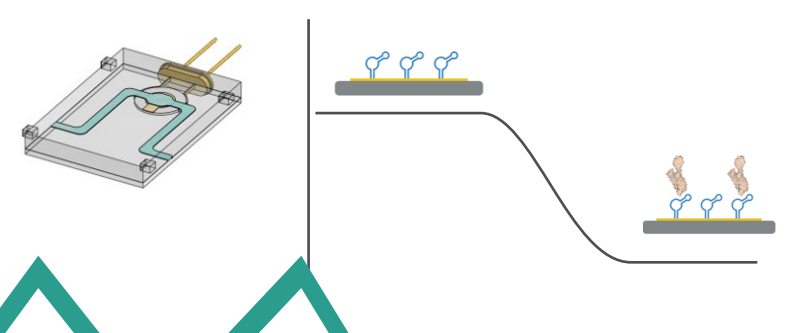
2-stage microfluidic chip



1 Sonication-based cell lysis



2 Aptamer bioactivated QCM



With reusable chips!

