

Potential of RNA-Aptamer Ca-Apt 12 as inhibiting biomaterial towards biofilm formation and viability of streptococcus mutants serotype C, D, E in vitro

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Abstract

Streptococcus mutans is the main causative agent of tooth caries, and aptamer is a single-stranded DNA or RNA oligonucleotide synthesized in vitro using the SELEX (Systematic Evolution of Ligands by Exponential Enrichment) technique that has the ability to bind with high affinity and specificity towards the target molecule. One of the RNA strand being developed is Ca-apt 12 (in concentration 10; 1; 0,1 ng/ μ L) as the biomaterial to inhibit biofilm formation and viability of *Streptococcus mutans* serotype c, d, e (each serotype in different concentration 10^2 , 10^4 , 10^6 , 10^8 CFU/ml). Ca-apt 12 binded with bacterias were inoculated in well microplates and incubated within 3 hours and 24 hours period in room temperature (37°C). Results showed that Ca-apt 12 has

the potential as ligand inhibiting *Streptococcus mutans* biofilm formation that is not differentiated based on bacterial serotype, bacterial concentration, nor the aptamer concentration, but by the incubation period.

Biography

Deajeng Laras Hanayurianingtyas is a dentist by profession and works in dental clinic in Depok, West Java, Indonesia. She holds a Dentist from Faculty of Dentistry University Indonesia and currently pursuing a Master of Biomedical Sciences in Faculty of Medicine Universitas Indonesia. Her research is focused in Microbiology and Oral Biology. She has presented and winning some research competition in Indonesia, Hong Kong, and India.