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Screen of RNA aptamers to target CHS5 chitin trafficking signal as anti-fungal

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Chitin is a glycan composed of β-1, 4-linked N-acetyl-D-glucosamine that exist in cell wall of *Saccharomyces cerevisiae* (*S. cerevisiae*). One of the emerging fungal pathogens is *S. cerevisiae*, when host defenses are weakened. *S. cerevisiae* strains show a specific transcription pattern after human blood infection and sequencing of genomes in yeast and mammals that encode very similar proteins. They make systemic infection and even death in the worst scenarios. In this work, *in silico* approach to screening RNA with potential binding affinity to a desired Chs5 (Chitin localization protein agent) to block chitin transferred. Atom coordinate of Chs5 were extracted from one of the conformations which had been determined by solution nuclear magnetic resonance (NMR) spectroscopy (PDB accession code: 4WJW). Aptamer were extracted from protein data bank Europe. Screening was performed using the Chimera program to prepare ligands and receptor for dock. The calculation procedure for aptamers and receptor was using dock 6.7. For a better understanding of docking structures, the best positions of interaction of aptamer on *S. cerevisiae* protein were monitored. All structures with low level of energy were extracted and visualized by PyMol. In this present work, I will discuss aptamer inhibitor against *S. cerevisiae* as antibiotic; more about how aptamer can more specific target protein than antibody, also, about similar genome of *S. cerevisiae* with human and why this friendly yeast has become dangerous to human body.

Biography

Vahed Mohammad is a PhD student in department of Medical Mycology Research Center (MMRC), Chiba University. He researches on genome and write software for Next generation sequence. He also considered similarity of genome between human and fungal to using specific method (RNA aptamer screening) as anti-fungal compound.

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