LACCASE II PROTEIN DISPLAY WITH THE YSD SYSTEM AGA1-AGA2

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Yeast surface display (YSD) is a technology for displaying recombinant proteins on the surface of *Saccharomyces cerevisiae* via anchoring them to a native cell agglutination wall protein AGA1- AGA2 complex. YSD is commonly used as a protein engineering and library screening tool. Though, YSD can also be used to arm yeast cell with industrially important enzymes localized on the surface of cells.

In the current work we are aiming to produce *S.cerevisiae* whole cell surface biocatalysts using the recombinant protein technique by fusing Laccase II enzyme with AGA2 protein from the AGA1-AGA2 cell wall two-protein complex. (Fig. 1) Yeast Laccase II is a copper-containing oxidase enzyme that catalytic reaction via one-electron oxidation leads to aromatic compound oxidation. This enzymatic reaction can be implemented for oxidation of aromatic monomers which consequently undergo polymerization. (1) Thus bio assisted synthesis of polymers can be achieved. As main target, such conductive polymers as polyaniline (PANI) and polypyrrole (Ppy) could be produced. They are widely applied in the development of fuel cells [1], "artificial muscles" technology [2], printed circuit board and other smart material manufacturing. Implementing Laccase II specific activity, these novel YSD based biocatalysts can be applicable in bio assisted conductive polymers production. [3]

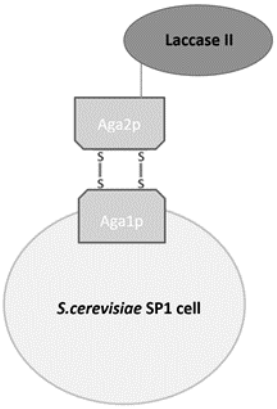
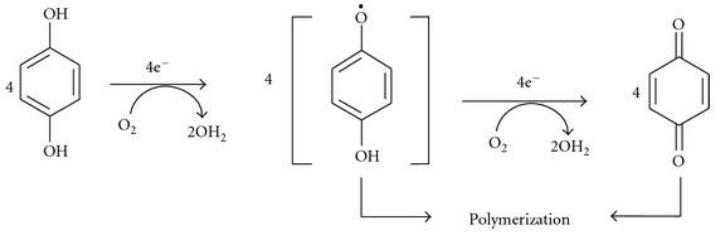


Fig. 1. YSD based on AGA1-AGA2 schematic view.



(1)

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