

## Effect of pH on the stability of self-assembled S-layer proteins of *Lactobacillus brevis*

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### Abstract

Microbial S-layer proteins were known to have regular arrays of subunit on the cell surface and the ability of self-assembly in water. The high density and regular arrangement of functional groups in the S-layer lattice have opened a broad potential for application in biotechnology, molecular nanotechnology, and biomimetics. We constructed a chimeric gene encoding a N-terminally truncated form of the S-layer protein of *Lactobacillus brevis* and Enhanced green fluorescent protein(EGFP). The fusion proteins were self-assembled in water showing the net-like structures. The self-assembled S-layer proteins were stable at pH5-8 but not stable either below pH4 or above pH9. The structural difference of assembled S-layer proteins at each pH was observed use of electronic microscopy. Industrial enzymes such as cellulase, peroxidase, glucose oxidase, and D-amino acid oxidase were tested to co-immobilize with S-layer proteins on plastic or glass plates.

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### Reference

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