

## Study on Bulk Adhesive Property of Coacervated Mussel Adhesive Proteins

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Mussels inhabit seashore by attachment themselves using their foot proteins (fps) which has underwater adherent properties. L-3,4-dihydroxyphenyl alanine (Dopa) is regarded as a key factor for strong and submerged adhesion. Previously, we successfully produced hybrid fp proteins, fp-151 which is composed of six fp-1 decapeptide repeats at both termini of fp-5 and fp-131 which is composed of six fp-1 decapeptide repeats at both termini of fp-3 variant A, and confirmed that both fp-151 and fp-131 formed complex coacervation with hyaluronic acid (HA) as a negative partner. Complex coacervation process enhanced density and bulk adhesive force of fps in dried condition. Moreover, complex coacervated fps/HA material is watery liquid with no dispersion into water, thus it is expected having a adhesive property in even wet condition such as inside of body. In the present work, glutaraldehyde (GA) was added on fps and its amount was optimized to enhance the strength in dried condition. Then, optimized glutaraldehyde-added fps and dopa-adapted fps were compared in both dried and wet conditions.