Does oligosaccharide attached to Gamone1 play an important role during preconjugant interaction in *Blepharisma*?

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SUMMARY

Species of *Blepharisma* are classified to four groups according to macronuclear morphology. It was suggested that Gamone1(G1) induces pair formation within the same macronuclear group, whereas it does not work between groups. G1 appeared not to be species-specific but macronuclear group-specific. We recently found that G1 without N-linked oligosaccharide had little activity for pair formation in *B. japonicum*. In this study, we examined characteristics of G1s in *B. undulans* (macronuclear group II), *B. americanum* (III) and *B. japonicum* (IV). As these G1s showed affinity to ConA, they are supposed to have N-linked oligosaccharides. Amino-acid sequence analysis revealed that G1s of *B. americanum* and *B. japonicum* share common oligosaccharide attachment sites. Although the expected molecular weights calculated from amino-acid composition are similar in these three G1s, those estimated from SDS-PAGE of these G1s in which N-linked oligosaccharides were removed by GlycopeptidaseF were different each other. This result suggests that modification of G1s might be responsible for the specificity of G1. To elucidate further the specificity of G1, we examined whether G1s of *B. undulans* and *B. japonicum* compete each other for induction of pairs in *B. stoltei* (IV). The result suggests that they are not competitive but rather synergistic.