Is the oligosaccharide attached to gamone 1 in the ciliate *Blepharisma japonicum* essential for conjugation-inducing activity?

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SUMMARY

The complementary mating types I and II of the ciliate *Blepharisma japonicum* interact sexually by gamones. Gamone 1 (produced by mating type I) is the first glycoprotein that was discovered among conjugation-inducing substances in ciliates. It was suggested that the oligosaccharide of gamone 1 is an *N*-linked type without fucose modification. Its structure was estimated to have two additional *N*-acetylglucosamines attached to the mannose residue at the end of the common core structure [Manα1–3 (Manα1–6) Manβ1–4 GlcNAcβ1–4 GlcNAc-Asn] of the *N*-linked oligosaccharides. Gamone 1 is considered to have only one such simple oligosaccharide chain. To investigate whether the oligosaccharide attached to gamone 1 is indispensable for conjugation-inducing activity, we produced a gamone 1 that did not have an oligosaccharide by treating the gamone 1 with enzyme―glycopeptidase F. We then examined the treated gamone 1 by SDS-PAGE and by bioassay. We found that the gamone 1 without the oligosaccharide displayed a much reduced conjugation-inducing activity. We concluded that the oligosaccharide attached to gamone 1 may not be indispensable for conjugation-inducing activity.