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Structure and Gel Formation of Glycolipid Analogues

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We synthesized various glycolipid analogues using artificial lipids in order to examine the function of the sugar moiety. In the course of the study, we found that some of the compounds gelled organic solvents. We previously reported that tris(dodecyloxy)benzamide-based glycolipid analogues gelled organic solvents and that the gel formation was dependent on the carbohydrate structure. In this study, we investigated a new series of structures that contained two amide groups between the lipid and the carbohydrate portion, and studied the effect of carbohydrate on gel formation. There was no great difference in gel formation before and after the introduction of galactose to the lipid containing two amide groups compared with the drastic change before and after the introduction of galactose to the monoamide type lipids. Thus, the gel formation became less dependent on the introduction of the carbohydrate portion when the second amide group was introduced, which was also supported by SEM analysis of the micro structure of the gels.