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[\[PDF \(148K\)\]](#) [\[References\]](#)**Present Status and Future Prospects of Functional Oligosaccharide Development in Japan**Teruo Nakakuki¹⁾

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This paper reviews the present status for the development of functional oligosaccharides in Japan and looks over the future prospects of these saccharides. Since 1970, several novel microbial enzymes producing specific oligosaccharides have been discovered. Using these new enzymes, it is now possible to produce on an industrial scale various oligosaccharides such as glycosylsucrose, fructooligosaccharides, maltooligosaccharides, isomaltooligosaccharides (branched-oligosaccharides), galactooligosaccharides, xylooligosaccharides, palatinose (isomaltulose), lactosucrose and so on. Recent developments in industrial enzyme-utilization technology have made possible a series of new oligosaccharides such as β -1,6-linked gentiooligosaccharides, α , α -1,1-linked trehalose, α -1,3-linked nigerooligosaccharides, branched-cyclodextrins, maltosyltrehalose, cyclic difructose and cyclic tetrasaccharide. The development of novel and highly functional oligosaccharides with physiological properties is now continuing and the market is expanding gradually. Recent human intervention and animal studies have revealed that foods are able to modulate the functions of innate or acquired immunity. In the near future, the development of oligosaccharides as immune system modulators including prebiotics is expected, and these saccharides may play an important role, especially in the reduction of lifestyle-related diseases as well as the maintenance and improvement of human health.

Key words: functional oligosaccharide, starch oligosaccharide, sucrose-related oligosaccharide, lactose-related oligosaccharide

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