

【学会発表】

演題名	機能性脂質としての植物セレブロシドの性質と生理活性 Properties and physiological effects of plant cerebroside species as functional lipids
発表者	<sup>1,2</sup> Kazuhiko Aida, <sup>1</sup> Naoya Takakuwa, <sup>1</sup> Mikio Kinoshita, <sup>3</sup> Tatsuya Sugawara, <sup>4</sup> Hiroyuki Imai, <sup>2</sup> Jisaburo Ono, <sup>1</sup> Masao Ohnishi <sup>1</sup> Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido 080-8555, Japan; <sup>2</sup> Nippon Flour Mills Co. Ltd., Atsugi, 243-0041 Japan; <sup>3</sup> National Institute of Health and Nutrition, Tokyo, 162-8636 Japan; <sup>4</sup> Faculty of Science and Technology, Konan University, Kobe, 658-8501 Japan
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【発表内容】

Abstract

Sphingolipid has a unique physiological function in animal cells such as cell growth and apoptosis. Recent studies indicate that dietary sphingolipid from animal tissues such as bovine brain and milk also have physiological function. Here, we report properties and physiological effects of plant cerebroside species as functional lipids.

Plant cerebrosides used in this study were obtained from seeds of five plant species. Physical properties of cerebroside were estimated by fluorescence polarization measurements and DSC analysis. As the physiological effects of plant cerebroside for human, we determined their apoptosis-inducing activity using human cancer cell lines. Apoptotic cells with fragmented nuclei were quantified as reported previously<sup>1)</sup>.

The major sphingoid bases of cerebroside from soybean, maize, and rice bran were *trans*-4, *cis* or *trans*-8-sphingadienine. However, the major sphingoid base in wheat and rye grains were 8-sphingenine mainly with the *cis*-configuration (more than 60%). The fluorescence depolarization values of liposomes composed of asolecthin were increased by the addition of plant cerebroside. However, the existence of the *cis*-8 double bond in the component sphingoid base suppressed increases in depolarization value. Plant cerebroside-derived compounds such as sphingoid base and C2-ceramide induced apoptosis in human colon cancer cell lines. This result suggested that dietary plant cerebroside has a potent physiological function similar to that of animal sphingolipid.

1) *J. Biol. Chem.* 273, 9681–9687 (1998).