

Sphingolipids

Sphingolipids are lipids that contain certain amino alcohol in their structure called sphingosine. Many sphingolipids are members of cell membranes, where they act as antigen determinants.

In terms of substituents at C₁ and C₂ positions, sphingolipids can be further divided into 3 groups:

1. ceramides (*N-acylsphingosines*)
2. phosphosphingolipids (*sphingomyelins*)
3. glycosphingolipids (*cerebrosides* and *gangliosides*)

Ceramides (*N-acylsphingosines*)

Ceramides are synthesized by bonding fatty acid to amino group of sphingosine via amide bond. Fatty acids usually encountered in these compounds are palmitic, stearic, nervonic and lignoceric acid. Ceramides are found in brain tissues where take part in biosynthesis and catabolism of sphingolipids.

Phosphosphingolipids (*sphingomyelins*)

These compounds are **derivatives of ceramides** with their C₁ having ester bonded phosphoric acid. This phosphoric acid has another ester bond to choline. Phosphosphingolipids are **the most common sphingolipids** in animal tissues. They are also part of white brain matter and myelin sheaths of nerves.

Glycosphingolipids

They are derivatives of ceramides where the first carbon is bonded to sugar backbone. If this sugar backbone is a hexose(usually galactose or glucose or their derivatives), they are called **cerebrosides**. Cerebrosides play an important role in the structure of myelin sheaths and are also precursors to other more complex glycosphingolipids such as sulfatides(galactosylceramides esterized by sulfuric acid), globosides or gangliosides.

Gangliosides contain more than one of monosaccharide units and certain sialic acid(which is derivative of neuramine acid).

Links

- Lipids

Sources

- MATOUŠ, Bohuslav, et al. *Základy lékařské chemie a biochemie*. 2010. vydání. Praha : Galen, 2010. 0 s. ISBN 978-80-7262-702-8.
- MURRAY, Robert K. *Harperova biochemie*. 2. vydání. Jinočany : H&H, 2002. 871 s. ISBN 80-7319-013-3.