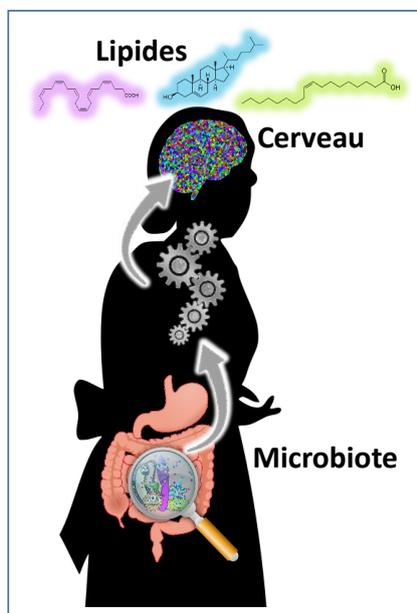


DOES THE GUT MICROBIOTA INFLUENCE THE AGEING OF OUR BRAIN?



Ageing is a complex process that gradually and irreversibly changes the structure and the functions of the body. More specifically, previous studies have shown that ageing is accompanied by an alteration to the brain's lipid content that plays an essential role in maintaining brain function.

Meanwhile other studies have shown that age brings changes to the composition of the gut microbiota - all the microorganisms living in the gastrointestinal tract in symbiosis with the host. Knowing that the gut microbiota is a key factor in the regulation of lipid metabolism, CSGA researchers hypothesized that changes within the gut microbiota during ageing could affect the lipid content of the brain.

To test this hypothesis, the gut microbiota of young and old mice were transplanted to germ-free mice, *i.e.* mice without gut microbiota. The results showed that animals colonized with the gut microbiota from old mice displayed lipid alterations in the brain (a decrease in cholesterol and

polyunsaturated fatty acid levels and an increase in monounsaturated fatty acid levels), which were similar to those found in elderly people. The researchers also found that these lipid alterations are likely to partly result from modulation of the expression of lipid metabolism enzymes in the liver by the gut microbiota.

This work highlighted the role played by the gut microbiota in lipid alterations that affect the brain during the ageing process. It offers interesting prospects for future research into developing strategies based on the gut microbiota to prevent lipid dysregulations affecting the organs during the ageing process.

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To know more

Albouery M, Buteau B, Grégoire S, Cherbuy C, Pais de Barros JP, Martine L, Chain F, Cabaret S, Berdeaux O, Bron AM, Acar N, Langella P, Bringer MA (2020). Age-Related Changes in the Gut Microbiota Modify Brain Lipid Composition. *Front Cell Infect Microbiol*, 14, 9:444.

Keywords

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