

The French Society for the Study of Lipids (SFEL, ex AFECG) organized for the second time an international Lipids & Brain meeting during the Journées Chevreul 2011 held in Paris. This meeting is a follow-up to previous successful conferences held in Paris in 2007¹ (Journées Chevreul Lipids & Brain) and in Oslo in 2008 (the Brain Lipids Conference). It has been devoted to both fundamental and applied research on the metabolism and the biological effects of polyunsaturated fatty acids (PUFA), essentially omega-3, within the central nervous system and addressed new concerns on brain health and disease in young or elderly.

Since we know that docosahexaenoic acid (DHA, 22:6n3), the longest and most unsaturated fatty acid found in nervous membranes, is involved in the maintenance of normal neurophysiological function, the interest has been growing for omega-3 PUFA.

New advances in this field of research have been depicting the different cellular processes modulated by DHA during growth and

ageing (synaptogenesis, neurogenesis, neuronal apoptosis and inflammation) and the involved mechanisms. They are also understanding the mechanisms of control of PUFA metabolism in the brain, at the blood-brain barrier level and the possible impact of some tissues as demonstrated for the liver.

Moreover, many animal, clinical and epidemiological studies have been conducted to assess the implications of the intake of omega-3 PUFA (precursor or LCn-3) during pregnancy and lactation (maternal nutrition) on brain infant development, its impact on the metabolism during childhood, and in the management of cognition, well being and age related neural diseases including pathologies of the retina. For many years, this interest for omega-3 PUFA intake has been essentially focused on DHA intake; however it appears now that the whole cascade, from the precursor Alpha-Linolenic Acid (ALA, 18:3n3), could impact the levels and functions of DHA (newborns), could protect also against some diseases (stroke) as well as preformed DHA itself. The competition between the two cascades n6 and n3 could also be involved (depression). Other Long-Chains

¹ <http://www.revue-ocl.fr/archives/sommaire.phtml?cle_parution=2045>.

(LCn-3), like eicosapentaenoic acid (EPA, 20:5n3) could also demonstrate a good efficiency in the management of diseases (depression).

Professor Nicolas Bazan from the LSU Neuroscience Center of Excellence (New Orleans) received the Chevreul Medale for his research conducted on DHA and the Neuroprotectin D1 and its role in neuro-inflammation, cell survival in diseases like Alzheimer, Stroke and blinding retinal. He gave us a fantastic Chevreul Conference reported here (see our website www.sfel.asso.fr for biography and complementary informations).

For the first time, we called for posters and it has been a real success: more than 30 proposals from students and searchers from France, Europe and others countries. This was a source of interesting discussions, promising collaborations, and, one of the best responses to the objectives of

our SFEL association: Science diffusion!

Thanks again to the speakers, the participants, the organizing committee, and the sponsors: due to their large number it is not possible to mention everybody, so please have a look to the "abstract book" on our website www.sfel.asso.fr (whole program, all the abstracts from speakers, posters, and sponsors list).

We hope that you will enjoy OCL lectures and get a profit from these reports to extend your understanding on these fields and on the relationship between nutrition, PUFA, brain and health, from newborn to elderly. Please, for a global overview of the meeting, have a look on the excellent Philippe Guesnet conclusions on our website: www.sfel.asso.fr. The profusion of interesting data provided during these 3 days conducted the committee to publish most of the papers (28 from 34 talks) in two

parts in OCL-2011 (OCL4 and OCL5).

For different reasons, the organization of the OCL papers will not follow the meeting schedule but will be presented in the order of the following sessions :

OCL 4 – Opening Conference; PUFA and Depression; The Chevreul Medale Conference by Nicolas BAZAN; PUFA, Cholesterol and Alzheimer diseases; Thesis award.

OCL 5 – Signalling mechanisms and metabolism of omega-3 PUFA in the brain; PUFA and Neurodevelopment –from maternal pregnancy and lactation to infant development; PUFA and Neuroprotection; PUFA and ocular pathologies; Conclusions by Philippe Guesnet.

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