**Physiology and behavior**

Ref.: Submission PHB-D-15-00420

Alterations in Levels and Ratios of n-3 and n-6 Polyunsaturated Fatty Acids in the Temporal Cortex and Liver of Vervet Monkeys from Birth to Early Adulthood

Reviewer: Isabelle E. Bauer

The authors focused on the changes in N3 levels occurring in the brain in childhood and adolescence using postmortem data from vervet monkeys fed a uniform diet from birth through young adulthood. The authors found a decrease in n-6 to n-3 ratio resulting from a 3-fold accumulation of DHA levels, while concentrations of ARA were maintained. The authors conclude that adolescence may be critical for DHA accretion in the cortex of vervet monkeys and that these mechanims may have an impact on brain development/mental health.

Overall I commend the authors for addressing this topic as it is of clinical relevance and supports the development of non-pharmaceutical strategies to prevent mental health disorders. I would like to recommend few revisions that should be easily addressed by the authors.

I would encourage the authors to add references to both animal and human studies in their introduction, e.g. non-human brain development and need for N3 in non-human primates. It is otherwise a bit surprising to read their introduction in relation to human health and then discover they want to focus on primates.

I would suggest that the authors to link better primate and non-human N3 findings in the brain both in the introduction and conclusions to help readers understand how the current findings apply to humans/human mental health.

Some literature on possible implications of higher N3 levels in the brain would be of relevance, e.g. glucose levels, cardiovascular health (both associated to better mood), better cognition etc.

Why vervet monkeys?

How does the non-human brain morphology differ from that of human brains? Please address this in the introduction/conclusions.