

In This Issue

This issue contains invited works from presenters at our international DOHaD meeting in Singapore as well as within the theme of the role of epigenetics in mediating programming effects. In addition to the invited work, there are original articles studying the origins of preeclampsia, the impact of exercise on health in individuals that were small and the origins of adiposity.

Commentary

The role of DNA methylation: a challenge for the DOHaD paradigm in going beyond the historical debate. Ngo and Sheppard discuss how DOHaD research has shifted our understanding of the relationship between DNA methylation and gene silencing. They propose that a greater complexity in the relationship has been elucidated by DOHaD than parental imprinting and carcinogenesis research.

Review Articles

Themed issue: role of epigenetics in mediating programming effects. Sheppard and Saffery organised a symposium title “Epigenetics as the Mediator of the Gene/Environment Interactions in DOHaD” at the 2013 DOHaD meeting in Singapore. As a result of this symposium they acted as guest editors for themed papers in this area. In this issue, we include reviews based on this symposium with other original articles to appear in upcoming issues.

Brief Report

Does rat fetal DNA induce preeclampsia in pregnant rats? Konečná *et al.* show that fetal rat DNA injected into the mother does not cause symptoms of preeclampsia. This finding is in contrast to studies in mice that were injected with human DNA.

Original Articles

Measuring epigenetics as the mediator of gene/environment interactions in DOHaD. Ong *et al.* propose methodologies to

reduce the technical variation that occurs in -omics analysis of DNA methylation owing to the large number of comparisons and the lack of independence of methylation at neighbouring sites. This analytical approach will lead to allow the identification of whole genome or methylome changes and interdependencies.

A new, improved and generalizable approach for the analysis of biological data generated by -omic platforms. With the widespread use of -omics platforms to study the molecular basis of DOHaD concepts, the risk of error in interpretation of the data, owing to the large number of comparisons, prompted Pleasants *et al.* to propose a method to prevent this from occurring. The authors describe a probability density function that will improve the confidence of estimation and inference from such data.

Effects of an outdoor bicycle-based intervention in healthy rural Indian men with normal and low birth weight. Madsen *et al.* show that an exercise intervention in adulthood has the same metabolic benefit in healthy men that were born with normal or low birth weight.

Consumption of sucrose, but not high fructose corn syrup, leads to increased adiposity and dyslipidaemia in the pregnant and lactating rat. Toop *et al.* investigated the impact of the high sucrose *v.* high fructose feeding in rats on offspring adiposity. They found that high sucrose, but not fructose, feeding increases adiposity in the pregnant and lactating rat with no effect on pup weight at birth.

Thin-fat insulin-resistant phenotype also present in South Asian neonates born in the Netherlands. Karamali *et al.* provide evidence that South Asian neonates born in the Netherlands have higher plasma insulin concentrations compared with white Dutch neonates.

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