CRU webinar on 9th of June 2020

Professor Patrick Babin described the zebrafish obesogenic test (ZOT), which was developed by his group for the purpose of studying white adipose tissue (WAT) dynamics *in vivo*. The ZOT assay is an intermediate step *in vitro* and *in vivo* obesity research and can be used to reveal effects of contaminants or drugs on lipid storage within adipocytes. In the assay, the fluorescent lipid stain Nile Red (NR) is utilized to visualize WAT. WAT stained with NR is photographed in zebrafish larvae before and after exposure to chemicals and the difference in size of the tissue is evaluated by image analysis. It was found that larvae exposed to the environmental pollutant tributyltin chloride (TBT), exhibited an increase in adipose tissue size both under starvation and after being fed a high fat diet. The assay was also used to unravel the mechanism of action of TBT for this effect.

References: Tingaud-Sequeira et al. 2011. doi: 10.1194/jlr.D017012. Ouadah-Boussouf and Babin 2016. doi: 10.1016/j.taap.2016.01.014

On 10th of June 2020 Anna Mentor defended her PhD thesis entitled: *Developmental exposure to mixtures of environmental pollutants: Studies on metabolism, developmental processes, and reproductive organs in zebrafish and chicken embryos*. The thesis deals with effects of two chemical mixtures designed based on their component's negative associations with birth weight (mixture G) or anogenital distance (mixture S) in Swedish children. Mixture G consists of five phthalate monoesters, three perfluoroalkyl acids, and triclosan (TCS) while mixture S consists of four phthalate monoesters. Three papers were prepared with mixture G using developing zebrafish as a model. The results indicate that this mixture interferes with apoptosis and Wnt/β-catenin signaling in embryos and with lipid metabolism and adipose tissue development in larvae. Mixture S and a suggested bisphenol A metabolite (4-Methyl-2,4-bis(4-hydroxyphenyl)pent-1-ene; MBP) were assessed for disruption of reproductive organ development in chicken embryos. No effects were observed by mixture S, while MBP caused malformations of both male and female reproductive organs.

http://uu.diva-portal.org/smash/record.jsf?pid=diva2%3A1424600&dswid=6974