Transgenerational effects of environmental toxicants significantly amplify the impact and health hazards of these compounds. One of the most sensitive periods to exposure is during embryonic gonadal sex determination when the germ line is undergoing epigenetic programming and DNA re-methylation. Previous studies have shown that endocrine disruptors can cause an increase in adult onset disease such as infertility, prostate, ovary and kidney disease, cancers and obesity. Interestingly, this effect is transgenerational (F1, F2, F3 and F4 generations) and hypothesized to be due to a permanent (imprinted) altered DNA methylation of the germ-line. The transgenerational epigenetic mechanism appears to involve the actions of an environmental compound at the time of sex determination to permanently alter the epigenetic (i.e. DNA methylation) programming of the germ line that then alters the transcriptomes of developing organs to induce disease development transgenerationally. Recently a variety of different environmental compounds have been shown to induce this epigenetic transgenerational inheritance of disease, including: fungicide vinclozolin, plastic components BPA and phthalates, pesticides, DDT, dioxin and hydrocarbons. The suggestion that environmental factors can reprogram the germ line to induce epigenetic transgenerational inheritance of disease and phenotypic variation is a new paradigm in disease etiology that is also relevant to other areas of biology, such as evolution.

Following the keynote address, doctoral students and summer undergraduate researchers in the MBES program will present posters of their research at the White House.

Appetizers, beverages and picturesque sunset will be provided

Directions Available Online at www.musc.edu/mbes
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