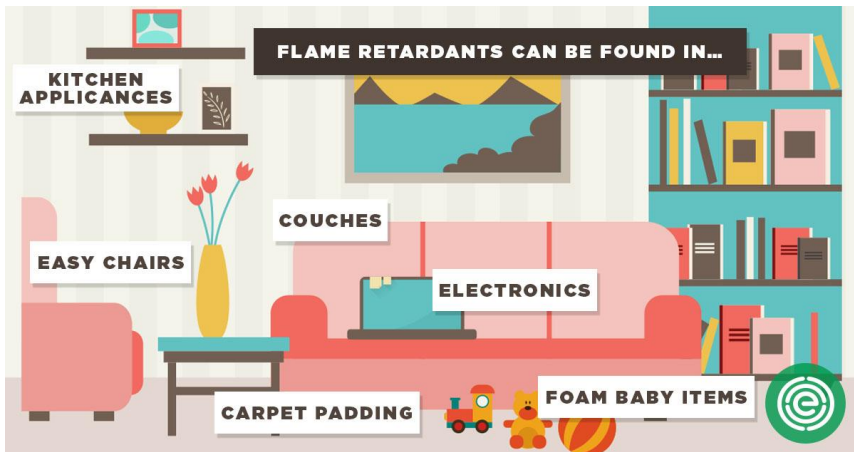
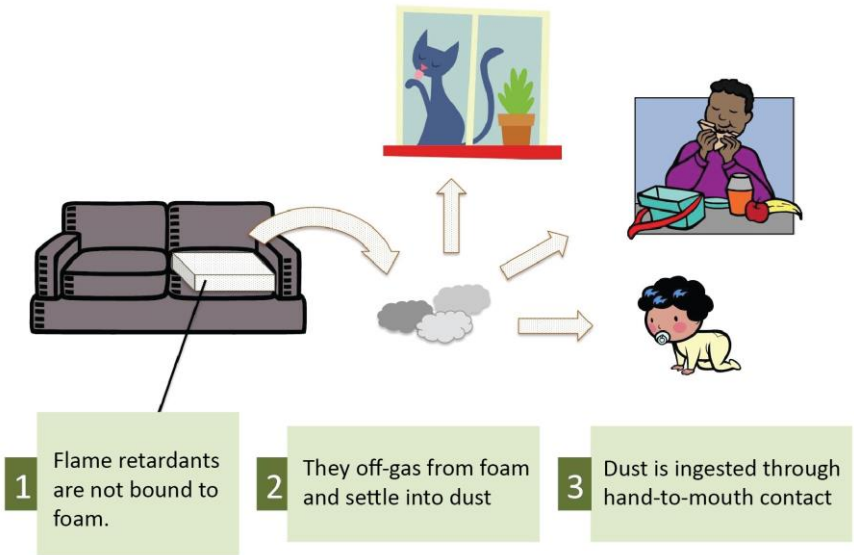




Investigating whether epigenetic
changes in murine
fetal livers occur following gestational
exposure to triphenyl phosphate

S.W.
MES Candidate
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Studies



Background

- Flame retardants found in industrial and consumer products
- Exposure via ingestion and inhalation
- Children and industrial workers are more susceptible populations
- Ban on PBDE's increased use of TPP



Developmental origins of health and disease



Epigenetics known to alter gene expression profiles



Other OPFRs can induce epigenetic modifications



Previous work showing change in gene profile

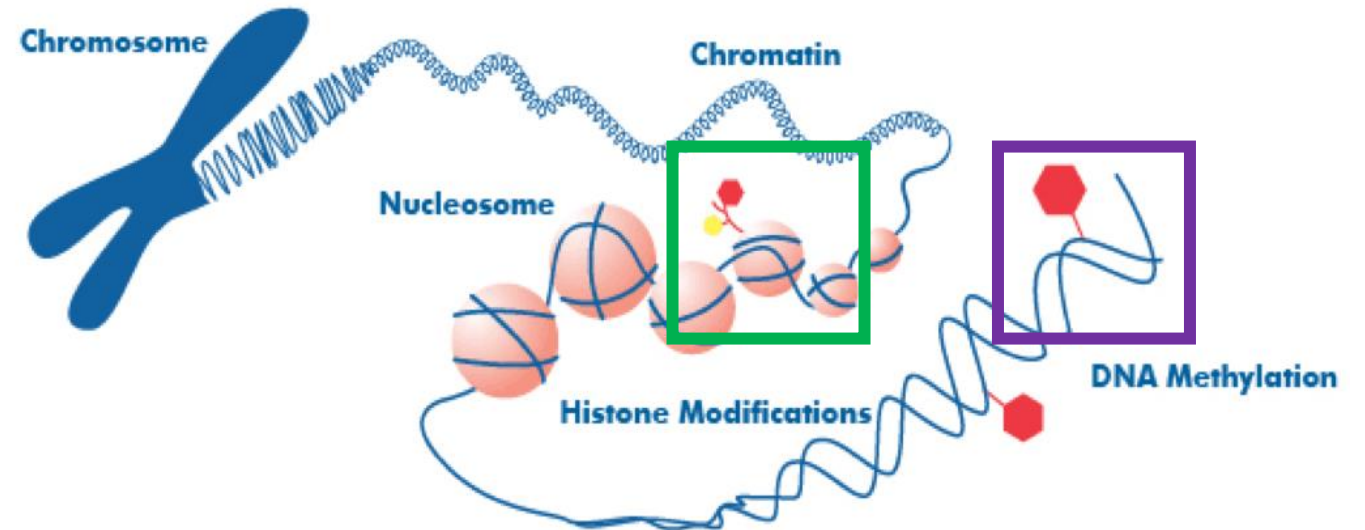
STUDY RATIONALE

Epigenetics

Changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself

Hallmarks of Epigenetics

- Histone modification
 - Addition of acetyl or methyl group to histone to alter conformation and induce transcription
- DNA methylation
 - Addition of methyl group to DNA to interfere with transcription and induce gene silencing

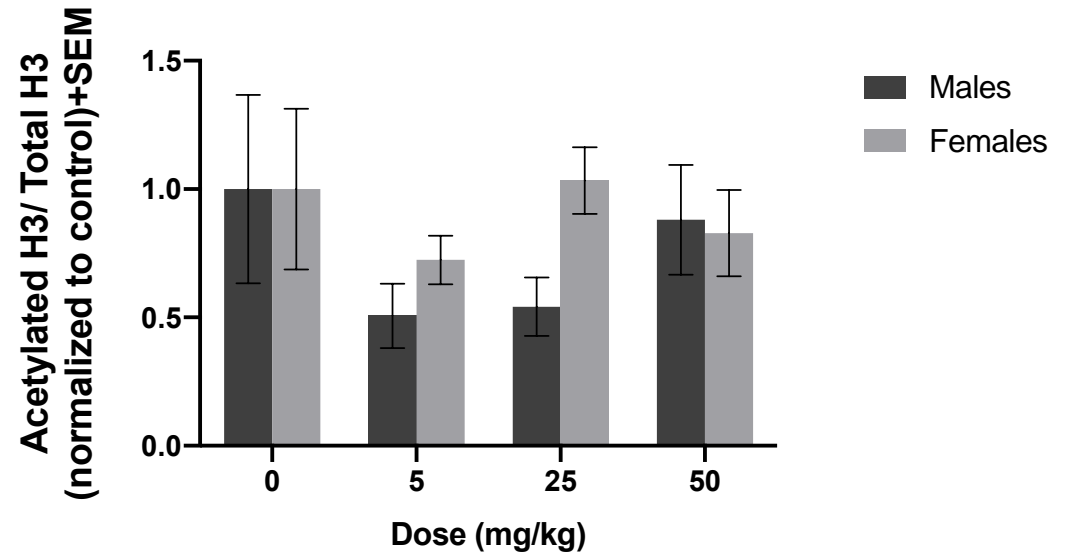
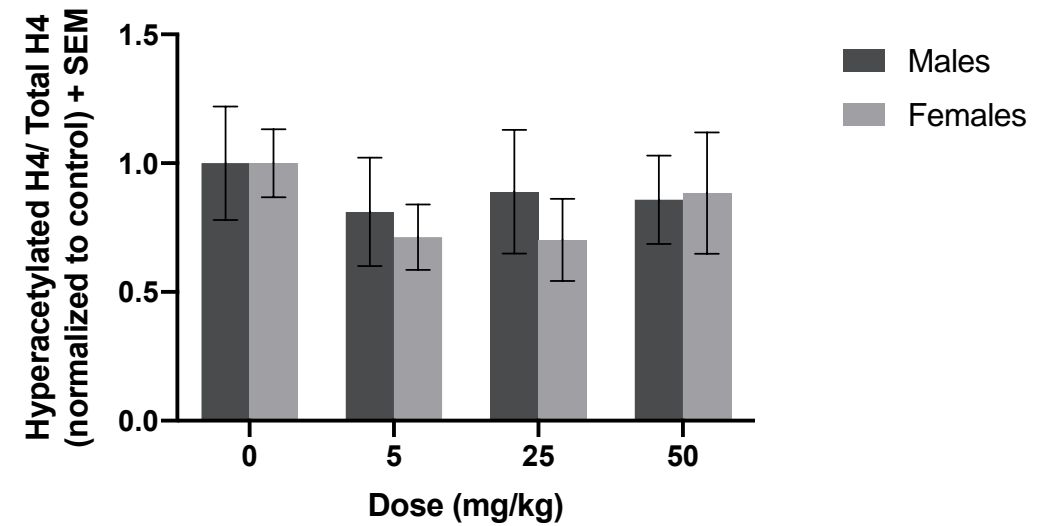


Research Questions

- How does gestational exposure to triphenyl phosphate affect DNA methylation and histone modifications in murine fetal livers?
 - How will difference in dose alter DNA methylation and histone modifications?
 - Will DNA methylation and histone modifications alterations differ based on sex?

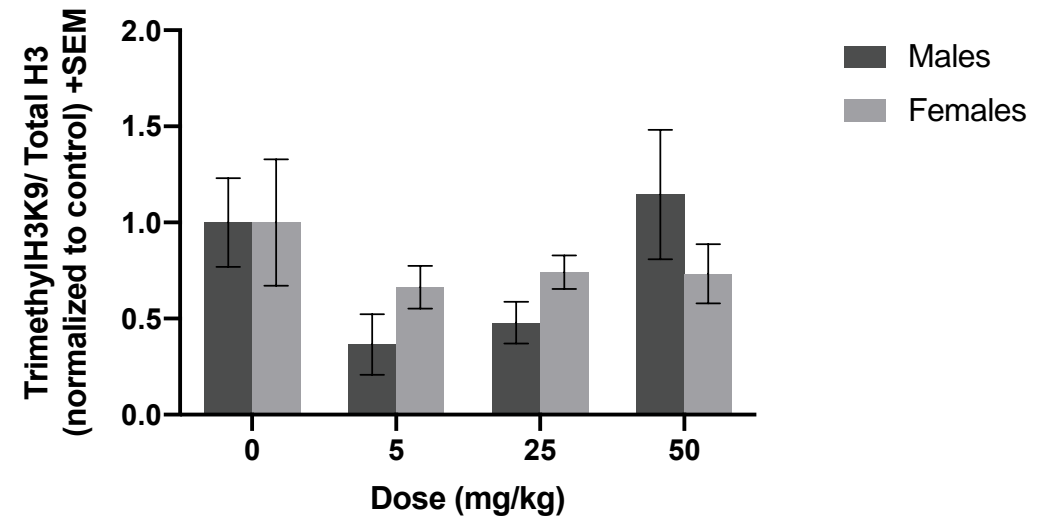
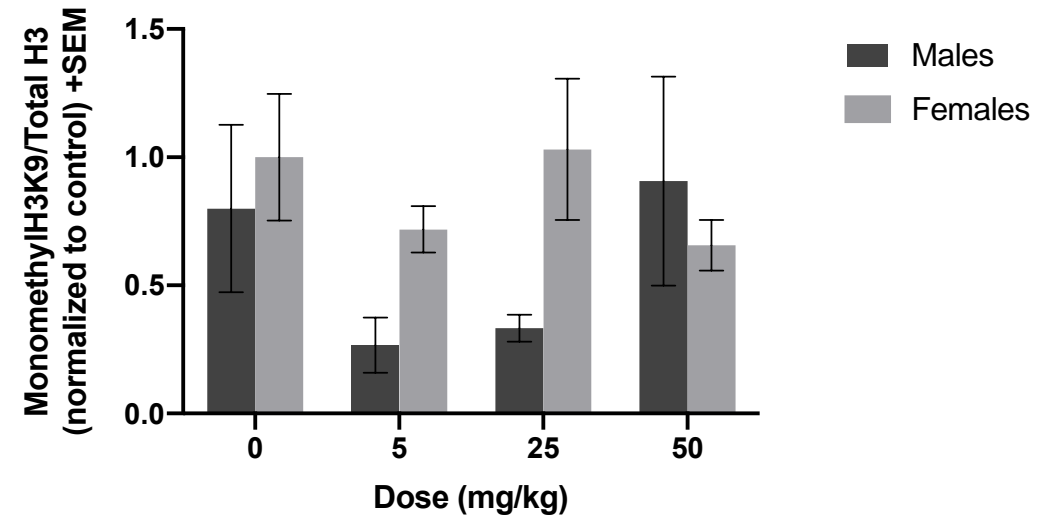
Results

- Acetylation of H3 and H4
 - No significance found
- Used two-way ANOVA to contrast differences in dose and sex



Results

- Trimethylation and monomethylation of H3K9
 - No significance found
- Used two-way ANOVA to contrast differences in dose and sex



Discussion and Next Steps

Limitations

- Sample size and sample availability
- Dosing regimen

Next Steps

- Examine DNA methylation on same set of samples

Significance

- Safety of TPP
- Sustainability implications



Thank you for
listening!



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