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The Impact of Prenatal Vape Exposure on Weanling Liver Gene Expression

Isabella R. Fieger

University of Louisville, isabella.fieger@louisville.edu

Cristina Isabel Pauig

University of Louisville, ccpau01@louisville.edu

Mindy Yin

University of Louisville, wmyin001@louisville.edu

Anna Lipinski

University of Louisville, aclip01@louisville.edu

Barrett Blevins

University of Louisville, brblev03@louisville.edu

See next page for additional authors

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Cover Page Footnote

Thanks to CMRU husbandry staff for animal care Funded by the University of Louisville Bridges to Baccalaureate (ULBB) Program, NIH award R25GM133328 (Co-I Corbitt), NIH award R15ES028440 (PI Neal), CIEHS award P30ES030283 (PI States; subproject PI Neal, Co-I Corbitt) and the CHD Summer Bridge Program, Kentucky Council on Postsecondary Education (Co-PI Corbitt).

Authors

Isabella R. Fieger, Cristina Isabel Pauig, Mindy Yin, Anna Lipinski, Barrett Blevins, Tyler Plake, Lucas Georges, Katelyn Chism, Isaiah Burciaga, Selma Podbicanin, Cynthia Corbitt, and Rachel Neal

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Isabella R. Fieger¹, Cristina Isabel Pauig¹, Mindy Yin¹, Anna Lipinski¹, Barrett Blevins¹, Tyler Flake¹, Lucas Georges¹, Katelyn Chism¹, Isaiah Burciaga¹, Selma Podbicanin¹, Cynthia Corbitt¹, and Rachel Neal¹

¹The University of Louisville, Louisville, KY, USA, Biology Department

ABSTRACT

The use of E-cigarettes is a fairly recent phenomenon. Vaping is seen as the “healthier” alternative to smoking cigarettes, yet we know little about the developmental toxicity of commercially available vaping products. In the current study, C57Bl/6 mice were exposed to Vuse Alto Golden Tobacco pods (5% nicotine) 4 days before mating and throughout gestation (GD19) for 1 hour/day every day. Offspring birth outcomes were measured with liver tissue collected at weaning. Gross histology and gene expression in the SIRT1-FXR pathway were examined via qPCR analysis with male and female offspring analyzed separately. No differences in gross morphology or cell area were found between the Vape and Sham group offspring (neither male or female). Female Vape offspring exhibited reduced *Sirt1* gene expression when compared to Sham offspring, with no impact noted for males. Additional downstream genes (*PEPCK*, *HK*, *LXR*) were also analyzed with trends toward an impact of prenatal Vape exposure noted though the outcomes varied.

KEYWORDS: vape, gene expression, prenatal, weanling

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