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Research summary

Effects of estrogenic endocrine disrupting chemicals on fetal development

Research description

Research in my laboratory concerns the effects on fetal development of endogenous sex hormones, naturally occurring estrogenic chemicals in food, (such as phytoestrogens in soy), and estrogenic manmade chemicals in consumer products (such as bisphenol A in plastic). We collect fetal mouse reproductive tissues and use primary mouse and human cell culture to investigate cellular mechanisms that mediate responses to hormones and other chemicals. We have confirmed observations from in vivo experiments using mice. An important aspect of this research is that we use a physiologically based approach to determine the doses of chemicals that we examine. This approach has led to findings that fetal tissues are extremely sensitive to much lower doses of endogenous estradiol and manmade estrogenic chemicals than had previously been appreciated.

Selected honors and awards

Environmental Health Hero Award, CleanMed Association 2010

University of Missouri Alumni Association Faculty Award 2010

Heinz Foundation Award in Environmental Science 2010

Mystical Seven Honor Society 2008

Curators' Professor-University of Missouri 2007

Upstream Award - Jennifer Altman Foundation 2006

Millennium Award - Indian Institute for Sustainable Future 2001

Elected Fellow - AAAS 1999

Elected Honorary Member - Italian Academy of Science 1990

Research

Select Publications

Select Publications

Vom Saal, F.S. Flaws in design, execution and interpretation limit CLARITY-BPA's value for risk assessments of bisphenol A (2019) *Basic and Clinical Pharmacology and Toxicology*, .DOI: 10.1111/bcpt.13195

Cleary, J.A., Tillitt, D.E., vom Saal, F.S., Nicks, D.K., Claunch, R.A., Bhandari, R.K. Atrazine induced transgenerational reproductive effects in medaka (*Oryzias latipes*) (2019) *Environmental Pollution*, 251, pp. 639-650. DOI: 10.1016/j.envpol.2019.05.013

Taylor, J.A., Shioda, K., Mitsunaga, S., Yawata, S., Angle, B.M., Nagel, S.C., vom Saal, F.S., Shioda, T. Prenatal exposure to bisphenol a disrupts naturally occurring bimodal DNA methylation at proximal promoter of fggy, an obesity-relevant gene encoding a carbohydrate kinase, in gonadal white adipose tissues of CD-1 Mice (2018) *Endocrinology*, 159 (2), pp. 779-794. DOI: 10.1210/en.2017-00711

Nicholson, T.M., Nguyen, J.L., Levenson, G.E., Taylor, J.A., Vom Saal, F.S., Wood, R.W., Ricke, W.A. Endocrine disruptor bisphenol A is implicated in urinary voiding dysfunction in male mice (2018) *American Journal of Physiology - Renal Physiology*, 315 (5), pp. F1208-F1216. DOI: 10.1152/ajprenal.00582.2017

Taylor, J.A., Sommerfeld-Sager, J.M., Meng, C.-X., Nagel, S.C., Shioda, T., Vom Saal, F.S. Reduced body weight at weaning followed by increased post-weaning growth rate interacts with part-per-trillion fetal serum concentrations of bisphenol A (BPA) to impair glucose tolerance in male mice (2018) PLoS ONE, 13 (12), art. no. e0208846, .DOI: 10.1371/journal.pone.0208846

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Vandenberg, L.N., Blumberg, B., Antoniou, M.N., Benbrook, C.M., Carroll, L., Colborn, T., Everett, L.G., Hansen, M., Landrigan, P.J., Lanphear, B.P., Mesnage, R., vom Saal, F.S., Welshons, W.V., Myers, J.P. Is it time to reassess current safety standards for glyphosate-based herbicides? (2017) Journal of Epidemiology and Community Health, 71 (6), pp. 613-618.

Jandegian, C.M., Deem, S.L., Bhandari, R.K., Holliday, C.M., Nicks, D., Rosenfeld, C.S., Selcer, K.W., Tillitt, D.E., vom Saal, F.S., Vélez-Rivera, V., Yang, Y., Holliday, D.K. Corrigendum to “Developmental exposure to bisphenol A (BPA) alters sexual differentiation in painted turtles (*Chrysemys picta*)” [Gen. Comp. Endocr. 216 (2015) 77–85] (S0016648015000933) (10.1016/j.ygcen.2015.04.003) (2017) General and Comparative Endocrinology, 247, p. 223.

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News

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