

CENTER FOR HORMONFORSTYRENDE STOFFER

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Humane studier ved Afd. for Vækst og Reproduktion, Rigshospitalet

Søgning er udført på PubMed og dækker perioden 14. marts - 20. juni 2017

Følgende søgeprofil er benyttet:

Bisphenol A
Phthalat*
Paraben*
(perfluor* OR polyfluor*)
Triclocarban
Triclosan
(Flame retardant)
tributyltin
endocrine disrupters

kombineret med nedenstående tekst:

AND expos* AND (human OR men OR women OR child* OR adult* OR adolescen* OR infan*)

Limits: title/abstract, English language

I den listede bruttoliste er dobbeltgængere fjernet, ligesom hits der hører under kategorierne in vivo studier, in vitro studier eller wildlife er frasorteret. De kommenterede artikler er highlightet.

Der er denne gang udvalgt artikler med fokus på BPA. Første artikel er et kinesisk studie, der undersøger niveauet af BPA, UV-filtre mm i børnetøj, hvilket kunne være interessant at efterprøve i en dansk kontekst. Derudover er en artikel om prænatale BPA-niveau i relation til kognitiv funktion hos børn udvalgt. Fundene i studiet er ikke imponerende til trods for det store studiemateriale, men det giver anledning til at diskutere relevante eksponeringsvinduer. Slutteligt er en artikel om BPA-niveauet i graviditeten i relation til blodsukkerniveauet valgt til kommentering, da studiet inkluderer gentagne BPA-målinger og bidrager til diskussionen om timing af eksponering. Slutteligt vises abstractet på en fjerde artikel; der er tale om et case-control studie mellem gravide, der fødte for tidligt og gravide, der fødte til tiden, hvor det blev undersøgt om gentagne BPA-målinger var associeret til thyroidea-niveauet.

God læselyst

Udvalgte artikler

Bisphenols, Benzophenones, and Bisphenol A Diglycidyl Ethers in Textiles and Infant Clothing.

Xue J, Liu W, Kannan K.

Environ Sci Technol. 2017 May 2;51(9):5279-5286. doi: 10.1021/acs.est.7b00701. Epub 2017 Apr 13.

Abstract

Little is known with regard to the occurrence of potentially toxic chemicals in textiles and clothes. In this study, 77 textiles and infant clothing pieces were analyzed for the determination of bisphenols including bisphenol A (BPA) and bisphenol S (BPS), benzophenones, bisphenol A diglycidyl ethers (BADGEs), and novolac glycidyl ethers (NOGEs). BPA and BPS occurred in 82% and 53% of the textile samples, respectively, and at mean concentrations of 366 and 15 ng/g, respectively. Benzophenone-3 (BP3) occurred in 70% of the samples at a mean concentration of 11.3 ng/g. Among 11 BADGEs and NOGEs analyzed, BFDGE was the predominant compound, with a mean concentration of 13.6 ng/g. Concentrations of target chemicals were assessed by fabric type, color, and uses. Socks contained the highest concentrations of BPA (mean: 1810 ng/g) with concentrations as high as 13 300 ng/g in a 97% polyester fabric marketed for infants. Calculated dermal exposure dose to BPA by infants via textiles was as high as 7280 pg/kg BW/d. This is the first study to report the occurrence of, and exposure to, BPA, BPS, BADGEs, and NOGEs in textiles and clothing.

Associations of Prenatal Urinary Bisphenol A Concentrations with Child Behaviors and Cognitive Abilities

Joseph M. Braun, Gina Muckle, Tye Arbuckle, Maryse F. Bouchard, William D. Fraser, Emmanuel

Ouellet, Jean R. Séguin, Youssef Oulhote, Glenys M. Webster, and Bruce P. Lanphear

Environ Health Perspect; DOI:10.1289/EHP984

Abstract

BACKGROUND: Prenatal bisphenol A (BPA) exposure has been associated with adverse neurodevelopment in epidemiological studies. However, prior studies had limited statistical power to examine sex-specific effects, and few examined child cognition. **OBJECTIVES:** We estimated the association between prenatal BPA exposure and child neurobehavior at 3 y of age in a prospective cohort of 812 mothers and their children. **METHODS:** We measured BPA concentration in urine samples collected at ~12 wk gestation among women enrolled in a 10-city Canadian cohort study. At approximately 3 y of age, we assessed children's cognitive abilities with the Wechsler Primary and Preschool Scale of Intelligence–III (WPPSI-III) and two scales of the Behavior Rating Inventory of Executive Function–Preschool (BRIEF-P). Parents reported children's behavior using the Behavior Assessment System for Children–2 (BASC-2). We estimated covariate-adjusted differences in neurobehavioral outcomes with a doubling in BPA concentration and sex-specific associations. **RESULTS:** BPA was not associated with WPPSI-III scores; child sex did not modify these associations. The association between BPA and BRIEF-P scores was modified by child sex (BPA × sex p-values ≤ 0:03). For example, a doubling of BPA concentration was associated with 1-point (95% CI: 0.3, 1.7) poorer working memory in boys and 0.5-point (95% CI: –1:1, 0.1) better scores in girls. BPA was not associated with most BASC-2 scales; however, it was associated with more internalizing and somatizing behaviors in boys, but not in girls (BPA × sex p-values ≤ 0:08). A doubling of BPA concentration was associated with poorer SRS-2 scores [b= 0:3 (95% CI: 0, 0.7)]; this association was not modified by sex.

CONCLUSION: Prenatal urinary BPA concentration was associated with some aspects of child behavior in this cohort, and some associations were stronger among boys.

Trimester-Specific Urinary Bisphenol A Concentrations and Blood Glucose Levels Among Pregnant Women From a Fertility Clinic.

Chiu YH, Mínguez-Alarcón L, Ford JB, Keller M, Seely EW, Messerlian C, Petrozza J, Williams PL, Ye X, Calafat AM, Hauser R, James-Todd T; for EARTH Study Team.

J Clin Endocrinol Metab. 2017 Apr 1;102(4):1350-1357. doi: 10.1210/jc.2017-00022.

Abstract

CONTEXT: Women with a history of infertility are at increased risk of impaired glucose tolerance during pregnancy. Studies suggest higher urinary bisphenol A (BPA) concentrations are associated with diabetes in nonpregnant populations, but the association between BPA and glucose levels among pregnant women is unclear.

OBJECTIVE: To assess trimester-specific urinary BPA concentrations in relation to blood glucose levels among subfertile women.

DESIGN: Environment and Reproductive Health Study, an ongoing prospective cohort study.

SETTING: A fertility center in a teaching hospital.

PATIENTS: A total of 245 women contributed at least one urine sample during first and/or second trimesters, delivered a singleton or twin pregnancy, and had available blood glucose data (2005 to 2015).

MAIN OUTCOME MEASURE: Blood glucose levels after a nonfasting 50-g glucose challenge test at 24 to 28 weeks of gestation.

RESULTS: The specific gravity-adjusted geometric mean urinary BPA concentrations during first and second trimesters were 1.39 and 1.27 $\mu\text{g/L}$, respectively. Second-trimester BPA concentrations were positively associated with blood glucose (P , trend = 0.01). Specifically, the adjusted mean glucose levels (95% confidence interval) for women in the highest quartile of second-trimester BPA concentrations was 119 (112, 126) mg/dL compared with 106 (100, 112) mg/dL for women in the lowest quartile. No associations were observed between first-trimester BPA concentrations and glucose levels.

CONCLUSIONS: BPA exposure during the second trimester may have adverse effect on blood glucose levels among subfertile women. As the findings represent the first report suggesting a potential etiologically relevant window for BPA and glucose in humans, further studies are needed.

Thyroid hormone parameters during pregnancy in relation to urinary bisphenol A concentrations: A repeated measures study.

Aung MT, Johns LE, Ferguson KK, Mukherjee B, McElrath TF, Meeker JD.

Environ Int. 2017 Jul;104:33-40. doi: 10.1016/j.envint.2017.04.001. Epub 2017 Apr 13.

Abstract

BACKGROUND: Maternal supply of thyroid hormones during pregnancy serves a critical role in fetal development. Although animal and in vitro studies provide evidence for thyroid hormone disruption as a

result of bisphenol A (BPA) exposure, there is still a lack of evidence in human studies, particularly in the context of pregnancy.

OBJECTIVES: We aimed to explore the associations between urinary BPA concentrations and plasma thyroid hormone parameters during gestation in pregnant women, and also investigated potential windows of vulnerability during gestation.

METHODS: Our study population included 116 cases of preterm birth and 323 controls from a nested case-control study. We measured BPA in urine and thyroid hormone parameters in plasma samples collected at up to four study visits during pregnancy (median for each visit: 9.64, 17.9, 26.0, and 35.1 weeks gestation). We used linear mixed models for repeated measures analyses, and multivariate linear regression models stratified by study visit to explore potential windows of susceptibility.

RESULTS: In our repeated measures analysis, BPA and thyrotropin (TSH) were inversely associated. An interquartile range (IQR) increase in BPA was associated with an 8.21% decrease in TSH (95% confidence interval [CI]: -14.2, -1.83), and a 4.79% increase in free T4 (95% CI: 0.82, 8.92). BPA and TSH were also inversely associated in our cross-sectional analyses at visits 3 and 4.

CONCLUSIONS: Our results suggest that TSH is inversely associated with urinary BPA in a consistent manner across pregnancy. Disruption of TSH levels during pregnancy can potentially impact child development and interfere with normal birth outcomes.

Bruttoliste

1. Associations of Prenatal Urinary Bisphenol A Concentrations with Child Behaviors and Cognitive Abilities

Joseph M. Braun, Gina Muckle, Tye Arbuckle, Maryse F. Bouchard, William D. Fraser, Emmanuel Ouellet, Jean R. Séguin, Youssef Oulhote, Glenys M. Webster, and Bruce P. Lanphear
Environ Health Perspect; DOI:10.1289/EHP984

2. Urinary sexual steroids associated with bisphenol A (BPA) exposure in the early infant stage: Preliminary results from a Daishan birth cohort.

Wang H, Liu L, Wang J, Tong Z, Yan J, Zhang T, Qin Y, Jiang T, She J, Shen H.

Sci Total Environ. 2017 Jun 13;601-602:1733-1742. doi: 10.1016/j.scitotenv.2017.05.257. [Epub ahead of print]

3. Identification, characteristics and human exposure assessments of triclosan, bisphenol-A, and four commonly used organic UV filters in indoor dust collected from Shanghai, China.

Ao J, Yuan T, Ma Y, Gao L, Ni N, Li D.

Chemosphere. 2017 Jun 9;184:575-583. doi: 10.1016/j.chemosphere.2017.06.033. [Epub ahead of print]

4. Bisphenol A exposure assessment from olive oil consumption.

Abou Omar TF, Sukhn C, Fares SA, Abiad MG, Habib RR, Dhaini HR.

Environ Monit Assess. 2017 Jul;189(7):341. doi: 10.1007/s10661-017-6048-6. Epub 2017 Jun 16.

5. Is Bisphenol A an environmental obesogen?

Legeay S, Faure S.

Fundam Clin Pharmacol. 2017 Jun 16. doi: 10.1111/fcp.12300. [Epub ahead of print] Review.

6. Effect of bisphenol A on reproductive processes: A review of in vitro, in vivo and epidemiological studies.

Tomza-Marciniak A, Stępkowska P, Kuba J, Pilarczyk B.

J Appl Toxicol. 2017 Jun 13. doi: 10.1002/jat.3480. [Epub ahead of print] Review.

7. Endocrine disrupting chemicals in mixture and obesity, diabetes and related metabolic disorders.

Le Magueresse-Battistoni B, Labaronne E, Vidal H, Naville D.

World J Biol Chem. 2017 May 26;8(2):108-119. doi: 10.4331/wjbc.v8.i2.108. Review.

8. Genome-wide alteration in DNA hydroxymethylation in the sperm from bisphenol A-exposed men.

Zheng H, Zhou X, Li DK, Yang F, Pan H, Li T, Miao M, Li R, Yuan W.

PLoS One. 2017 Jun 5;12(6):e0178535. doi: 10.1371/journal.pone.0178535. eCollection 2017.

9. Handling of thermal paper: Implications for dermal exposure to bisphenol A and its alternatives.

Bernier MR, Vandenberg LN.

PLoS One. 2017 Jun 1;12(6):e0178449. doi: 10.1371/journal.pone.0178449. eCollection 2017.

10. Neurodevelopmental Disorders and Environmental Toxicants: Epigenetics as an Underlying Mechanism.

Tran NQV, Miyake K.

Int J Genomics. 2017;2017:7526592. doi: 10.1155/2017/7526592. Epub 2017 May 8. Review.

11. Female exposure to endocrine disrupting chemicals and fecundity: a review.

Mínguez-Alarcón L, Gaskins AJ.

Curr Opin Obstet Gynecol. 2017 May 26. doi: 10.1097/GCO.0000000000000373. [Epub ahead of print]

12. Bisphenol A and replacements in thermal paper: A review.
Björnsdotter MK, de Boer J, Ballesteros-Gómez A.
Chemosphere. 2017 Sep;182:691-706. doi: 10.1016/j.chemosphere.2017.05.070. Epub 2017 May 15. Review.
13. Exposures to Endocrine Disrupting Chemicals in Consumer Products-A Guide for Pediatricians.
Wong KH, Durrani TS.
Curr Probl Pediatr Adolesc Health Care. 2017 May 16. pii: S1538-5442(17)30082-2. doi: 10.1016/j.cppeds.2017.04.002.
14. Prenatal bisphenol a exposure and dysregulation of infant hypothalamic-pituitary-adrenal axis function: findings from the APron cohort study.
Giesbrecht GF, Ejaredar M, Liu J, Thomas J, Letourneau N, Campbell T, Martin JW, Dewey D; APron Study Team.
Environ Health. 2017 May 19;16(1):47. doi: 10.1186/s12940-017-0259-8.
15. Phenol concentrations during childhood and subsequent measures of adiposity among young girls.
Deierlein AL, Wolff MS, Pajak A, Pinney SM, Windham GC, Galvez MP, Rybak M, Calafat AM, Kushi LH, Biro FM, Teitelbaum SL; and the Breast Cancer and Environment Research Program.
Am J Epidemiol. 2017 May 19. doi: 10.1093/aje/kwx136. [Epub ahead of print]
16. Obesity aggravates toxic effect of BPA on spermatogenesis.
Hu W, Dong T, Wang L, Guan Q, Song L, Chen D, Zhou Z, Chen M, Xia Y, Wang X.
Environ Int. 2017 Aug;105:56-65. doi: 10.1016/j.envint.2017.04.014. Epub 2017 May 11.
17. Parental Concern about Environmental Chemical Exposures and Children's Urinary Concentrations of Phthalates and Phenols.
Pell T, Eliot M, Chen A, Lanphear BP, Yolton K, Sathyanarayana S, Braun JM.
J Pediatr. 2017 May 2. pii: S0022-3476(17)30481-X. doi: 10.1016/j.jpeds.2017.03.064. [Epub ahead of print]
18. Monitoring of bisphenol A and bisphenol S in thermal paper receipts from the Italian market and estimated transdermal human intake: A pilot study.
Russo G, Barbato F, Grumetto L.
Sci Total Environ. 2017 Dec 1;599-600:68-75. doi: 10.1016/j.scitotenv.2017.04.192. Epub 2017 Apr 29.
- 19. Thyroid hormone parameters during pregnancy in relation to urinary bisphenol A concentrations: A repeated measures study.**
Aung MT, Johns LE, Ferguson KK, Mukherjee B, McElrath TF, Meeker JD.
Environ Int. 2017 Jul;104:33-40. doi: 10.1016/j.envint.2017.04.001. Epub 2017 Apr 13.
20. Bisphenol A and phthalates in utero and in childhood: association with child BMI z-score and adiposity.
Yang TC, Peterson KE, Meeker JD, Sánchez BN, Zhang Z, Cantoral A, Solano M, Tellez-Rojo MM.
Environ Res. 2017 Jul;156:326-333. doi: 10.1016/j.envres.2017.03.038. Epub 2017 Apr 5.
21. Environmental pollutants, a possible etiology for premature ovarian insufficiency: a narrative review of animal and human data.
Vabre P, Gatimel N, Moreau J, Gayraud V, Picard-Hagen N, Parinaud J, Leandri RD.
Environ Health. 2017 Apr 7;16(1):37. doi: 10.1186/s12940-017-0242-4. Review.
- 22. Bisphenols, Benzophenones, and Bisphenol A Diglycidyl Ethers in Textiles and Infant Clothing.**

Xue J, Liu W, Kannan K.

Environ Sci Technol. 2017 May 2;51(9):5279-5286. doi: 10.1021/acs.est.7b00701. Epub 2017 Apr 13.

23. Exposure to endocrine disruptors during adulthood: consequences for female fertility.

Rattan S, Zhou C, Chiang C, Mahalingam S, Brehm E, Flaws JA.

J Endocrinol. 2017 Jun;233(3):R109-R129. doi: 10.1530/JOE-17-0023. Epub 2017 Mar 29. Review.

24. Human exposure to Bisphenol A and liver health status: Quantification of urinary and circulating levels by LC-MS/MS.

Nicolucci C, Errico S, Federico A, Dallio M, Loguercio C, Diano N.

J Pharm Biomed Anal. 2017 Jun 5;140:105-112. doi: 10.1016/j.jpba.2017.02.058. Epub 2017 Mar 10.

25. Endocrine Disrupting Chemicals and Endometrial Cancer: An Overview of Recent Laboratory Evidence and Epidemiological Studies.

Mallozzi M, Leone C, Manurita F, Bellati F, Caserta D.

Int J Environ Res Public Health. 2017 Mar 22;14(3). pii: E334. doi: 10.3390/ijerph14030334. Review.

26. Trimester-Specific Urinary Bisphenol A Concentrations and Blood Glucose Levels Among Pregnant Women From a Fertility Clinic.

Chiu YH, Mínguez-Alarcón L, Ford JB, Keller M, Seely EW, Messerlian C, Petrozza J, Williams PL, Ye X, Calafat AM, Hauser R, James-Todd T; for EARTH Study Team.

J Clin Endocrinol Metab. 2017 Apr 1;102(4):1350-1357. doi: 10.1210/jc.2017-00022.

27. Is it time to reassess current safety standards for glyphosate-based herbicides?

Vandenberg LN, Blumberg B, Antoniou MN, Benbrook CM, Carroll L, Colborn T, Everett LG, Hansen M, Landrigan PJ, Lanphear BP, Mesnage R, Vom Saal FS, Welshons WV, Myers JP.

J Epidemiol Community Health. 2017 Jun;71(6):613-618. doi: 10.1136/jech-2016-208463. Epub 2017 Mar 20. Review.

28. Phthalates, non-phthalate plasticizers and bisphenols in Swedish preschool dust in relation to children's exposure.

Larsson K, Lindh CH, Jönsson BA, Giovanoulis G, Bibi M, Bottai M, Bergström A, Berglund M.

Environ Int. 2017 May;102:114-124. doi: 10.1016/j.envint.2017.02.006. Epub 2017 Mar 6.

29. Legacy and alternative flame retardants in Norwegian and UK indoor environment: Implications of human exposure via dust ingestion.

Kademoglou K, Xu F, Padilla-Sanchez JA, Haug LS, Covaci A, Collins CD.

Environ Int. 2017 May;102:48-56. doi: 10.1016/j.envint.2016.12.012. Epub 2017 Feb 9.

30. Including non-dietary sources into an exposure assessment of the European Food Safety Authority: The challenge of multi-sector chemicals such as Bisphenol A.

von Goetz N, Pirow R, Hart A, Bradley E, Poças F, Arcella D, Lillegard IT, Simoneau C, van Engelen J, Husoy T, Theobald A, Leclercq C.

Regul Toxicol Pharmacol. 2017 Apr;85:70-78. doi: 10.1016/j.yrtph.2017.02.004. Epub 2017 Feb 7.

31. Associations between urinary phthalate metabolites and bisphenol A levels, and serum thyroid hormones among the Korean adult population - Korean National Environmental Health Survey (KoNEHS) 2012-2014.

Park C, Choi W, Hwang M, Lee Y, Kim S, Yu S, Lee I, Paek D, Choi K.

Sci Total Environ. 2017 Apr 15;584-585:950-957. doi: 10.1016/j.scitotenv.2017.01.144. Epub 2017 Jan 31.

32. Exposure to phthalates is associated with lipid profile in peripubertal Mexican youth.
Perng W, Watkins DJ, Cantoral A, Mercado-García A, Meeker JD, Téllez-Rojo MM, Peterson KE.
Environ Res. 2017 Apr;154:311-317. doi: 10.1016/j.envres.2017.01.033. Epub 2017 Jan 31.
33. Gender differences in the associations between urinary bisphenol A and body composition among American children: The National Health and Nutrition Examination Survey, 2003-2006.
Li J, Lai H, Chen S, Zhu H, Lai S.
J Epidemiol. 2017 May;27(5):228-234. doi: 10.1016/j.je.2016.12.001. Epub 2017 Jan 27.
34. Prenatal exposure to bisphenol A and risk of allergic diseases in early life.
Zhou A, Chang H, Huo W, Zhang B, Hu J, Xia W, Chen Z, Xiong C, Zhang Y, Wang Y, Xu S, Li Y.
Pediatr Res. 2017 Jun;81(6):851-856. doi: 10.1038/pr.2017.20. Epub 2017 Jan 31.
35. Exposure to bisphenols and phthalates and association with oxidant stress, insulin resistance, and endothelial dysfunction in children.
Kataria A, Levine D, Wertenteil S, Vento S, Xue J, Rajendiran K, Kannan K, Thurman JM, Morrison D, Brody R, Urbina E, Attina T, Trasande L, Trachtman H.
Pediatr Res. 2017 Jun;81(6):857-864. doi: 10.1038/pr.2017.16. Epub 2017 Jan 18.
36. Rapid and sensitive detection of bisphenol a from serum matrix.
Lin X, Cheng C, Terry P, Chen J, Cui H, Wu J.
Biosens Bioelectron. 2017 May 15;91:104-109. doi: 10.1016/j.bios.2016.12.024. Epub 2016 Dec 10.
37. Urinary bisphenol A is associated with insulin resistance and obesity in reproductive-aged women.
Hong SH, Sung YA, Hong YS, Ha E, Jeong K, Chung H, Lee H.
Clin Endocrinol (Oxf). 2017 Apr;86(4):506-512. doi: 10.1111/cen.13270. Epub 2016 Dec 2.
38. Effects of BPA on female reproductive function: The involvement of epigenetic mechanism.
Santangeli S, Maradonna F, Olivotto I, Piccinetti CC, Gioacchini G, Carnevali O.
Gen Comp Endocrinol. 2017 May 1;245:122-126. doi: 10.1016/j.ygcn.2016.08.010. Epub 2016 Aug 30.
39. Endocrine disruption by dietary phyto-oestrogens: impact on dimorphic sexual systems and behaviours.
Patisaul HB.
Proc Nutr Soc. 2017 May;76(2):130-144. doi: 10.1017/S0029665116000677. Epub 2016 Jul 8.
40. Personal care product use among adults in NHANES: associations between urinary phthalate metabolites and phenols and use of mouthwash and sunscreen.
Ferguson KK, Colacino JA, Lewis RC, Meeker JD.
J Expo Sci Environ Epidemiol. 2017 May;27(3):326-332. doi: 10.1038/jes.2016.27. Epub 2016 May 11.
41. Mycotoxins, trace elements and phthalates in marketed rice of different origin and exposure assessment.
Škrbić BD, Ji Y, Živančev JR, Jovanović GG, Jie Z.
Food Addit Contam Part B Surveill. 2017 Jun 15. doi: 10.1080/19393210.2017.1342701. [Epub ahead of print]
42. Associations of phthalates exposure with attention deficits hyperactivity disorder: A case-control study among Chinese children.

Hu D, Wang YX, Chen WJ, Zhang Y, Li HH, Xiong L, Zhu HP, Chen HY, Peng SX, Wan ZH, Zhang Y, Du YK.
Environ Pollut. 2017 Jun 11;229:375-385. doi: 10.1016/j.envpol.2017.05.089. [Epub ahead of print]

43. Sex Differences in the Association of Urinary Concentrations of Phthalates Metabolites with Self-Reported Diabetes and Cardiovascular Diseases in Shanghai Adults.

Dong R, Zhao S, Zhang H, Chen J, Zhang M, Wang M, Wu M, Li S, Chen B.

Int J Environ Res Public Health. 2017 Jun 5;14(6). pii: E598. doi: 10.3390/ijerph14060598.

44. Prenatal and childhood exposure to phthalate diesters and sex steroid hormones in 2-, 5-, 8-, and 11-year-old children: A pilot study of the Taiwan Maternal and Infant Cohort Study.

Wen HJ, Sie L, Su PH, Chuang CJ, Chen HY, Sun CW, Huang LH, Hsiung CA, Julie Wang SL.

J Epidemiol. 2017 May 30. pii: S0917-5040(17)30112-0. doi: 10.1016/j.je.2016.10.009. [Epub ahead of print]

45. Exposure Marker Discovery of Phthalates Using Mass Spectrometry.

Hsu JY, Shih CL, Liao PC.

Mass Spectrom (Tokyo). 2017;6(Spec Iss):S0062. doi: 10.5702/massspectrometry.S0062. Epub 2017 Mar 24.

46. Phthalate metabolites in Norwegian mothers and children: Levels, diurnal variation and use of personal care products.

Sakhi AK, Sabaredzovic A, Cequier E, Thomsen C.

Sci Total Environ. 2017 Dec 1;599-600:1984-1992. doi: 10.1016/j.scitotenv.2017.05.109. Epub 2017 May 23.

47. Prenatal phthalate exposure and altered patterns of DNA methylation in cord blood.

Solomon O, Yousefi P, Huen K, Gunier RB, Escudero-Fung M, Barcellos LF, Eskenazi B, Holland N.

Environ Mol Mutagen. 2017 May 28. doi: 10.1002/em.22095. [Epub ahead of print]

48. Phthalates and thyroid function in preschool age children: Sex specific associations.

Morgenstern R, Whyatt RM, Insel BJ, Calafat AM, Liu X, Rauh VA, Herbstman J, Bradwin G, Factor-Litvak P.

Environ Int. 2017 May 26;106:11-18. doi: 10.1016/j.envint.2017.05.007. [Epub ahead of print]

49. Urinary Cadmium and Cotinine Levels and Hair Mercury Levels in Czech Children and Their Mothers Within the Framework of the COPHES/DEMOCOPHES Projects.

Forysová K, Pinkr-Grafnetterová A, Malý M, Krsková A, Mráz J, Kašparová L, Čejchanová M, Sochorová L, Rödlová S, Černá M.

Arch Environ Contam Toxicol. 2017 May 19. doi: 10.1007/s00244-017-0412-y. [Epub ahead of print]

50. Exposure to phenols, parabens and UV filters: Associations with loss-of-function mutations in the filaggrin gene in men from the general population.

Joensen UN, Jørgensen N, Thyssen JP, Petersen JH, Szecsi PB, Stender S, Andersson AM, Skakkebaek NE, Frederiksen H.

Environ Int. 2017 Aug;105:105-111. doi: 10.1016/j.envint.2017.05.013. Epub 2017 May 17.

51. An integrated approach to study the risk from landfill soil of Delhi: Chemical analyses, in vitro assays and human risk assessment.

Swati, Ghosh P, Thakur IS.

Ecotoxicol Environ Saf. 2017 Sep;143:120-128. doi: 10.1016/j.ecoenv.2017.05.019. Epub 2017 May 16.

52. Diet and contaminants: driving the rise to obesity epidemics?

Di Ciaula A, Portincasa P.

Curr Med Chem. 2017 May 17. doi: 10.2174/0929867324666170518095736. [Epub ahead of print]

53. Safety evaluation of dermal exposure to phthalates: Metabolism-dependent percutaneous absorption.
Sugino M, Hatanaka T, Todo H, Mashimo Y, Suzuki T, Kobayashi M, Hosoya O, Jinno H, Juni K, Sugibayashi K.
Toxicol Appl Pharmacol. 2017 Aug 1;328:10-17. doi: 10.1016/j.taap.2017.05.009. Epub 2017 May 12.

54. The association of environmental toxicants and autism spectrum disorders in children.
Ye BS, Leung AOW, Wong MH.
Environ Pollut. 2017 Aug;227:234-242. doi: 10.1016/j.envpol.2017.04.039. Epub 2017 May 2. Review.

55. Exposure sources and their relative contributions to urinary phthalate metabolites among children in Taiwan.
Chen CC, Wang YH, Wang SL, Huang PC, Chuang SC, Chen MH, Chen BH, Sun CW, Fu HC, Lee CC, Wu MT, Chen ML, Hsiung CA.
Int J Hyg Environ Health. 2017 Jul;220(5):869-879. doi: 10.1016/j.ijheh.2017.04.002. Epub 2017 Apr 22.

56. Urinary levels of phthalate metabolites and associations with demographic characteristics in Korean adults.
Lee KM, Kho Y, Kim PG, Park SH, Lee JH.
Environ Sci Pollut Res Int. 2017 Jun;24(17):14669-14681. doi: 10.1007/s11356-017-9068-4. Epub 2017 Apr 28.

57. Phthalate exposure, even below US EPA reference doses, was associated with semen quality and reproductive hormones: Prospective MARHCS study in general population.
Chen Q, Yang H, Zhou N, Sun L, Bao H, Tan L, Chen H, Ling X, Zhang G, Huang L, Li L, Ma M, Yang H, Wang X, Zou P, Peng K, Liu T, Shi X, Feng D, Zhou Z, Ao L, Cui Z, Cao J.
Environ Int. 2017 Jul;104:58-68. doi: 10.1016/j.envint.2017.04.005. Epub 2017 Apr 25.

58. The effects of maternal and children phthalate exposure on the neurocognitive function of 6-year-old children.
Kim JI, Hong YC, Shin CH, Lee YA, Lim YH, Kim BN.
Environ Res. 2017 Jul;156:519-525. doi: 10.1016/j.envres.2017.04.003. Epub 2017 Apr 26.

59. Association of prenatal urinary phthalate metabolite concentrations and childhood BMI and obesity.
Harley KG, Berger K, Rauch S, Kogut K, Claus Henn B, Calafat AM, Huen K, Eskenazi B, Holland N.
Pediatr Res. 2017 May 31. doi: 10.1038/pr.2017.112. [Epub ahead of print]

60. Phthalate exposure and reproductive hormones and sex-hormone binding globulin before puberty - Phthalate contaminated-foodstuff episode in Taiwan.
Wen HJ, Chen CC, Wu MT, Chen ML, Sun CW, Wu WC, Huang IW, Huang PC, Yu TY, Hsiung CA, Wang SL; RAPIT group.
PLoS One. 2017 Apr 14;12(4):e0175536. doi: 10.1371/journal.pone.0175536. eCollection 2017.

61. Exposure to the plasticizer di(2-ethylhexyl) terephthalate (DEHP) in Portuguese children - Urinary metabolite levels and estimated daily intakes.
Lessmann F, Correia-Sá L, Calhau C, Domingues VF, Weiss T, Brüning T, Koch HM.
Environ Int. 2017 Jul;104:25-32. doi: 10.1016/j.envint.2017.03.028. Epub 2017 Apr 11.

62. A Critique of Risk Disclosure as the Solution for Minimizing Toxic Exposures in Pregnancy.
Ford AR, Scott DN.
New Solut. 2017 May;27(1):51-67. doi: 10.1177/1048291117697108. Epub 2017 Mar 6.

63. Toxicanthropology: Phthalate exposure in relation to market access in a remote forager-horticulturalist population.
Sobolewski M, Weiss B, Martin M, Gurven M, Barrett E.
Int J Hyg Environ Health. 2017 Jul;220(5):799-809. doi: 10.1016/j.ijheh.2017.03.009. Epub 2017 Mar 27.
64. Maternal phthalate exposure promotes allergic airway inflammation over 2 generations through epigenetic modifications.
Jahreis S, Trump S, Bauer M, Bauer T, Thürmann L, Feltens R, Wang Q, Gu L, Grützmann K, Röder S, Averbeck M, Weichenhan D, Plass C, Sack U, Borte M, Dubourg V, Schüürmann G, Simon JC, von Bergen M, Hackermüller J, Eils R, Lehmann I, Polte T.
J Allergy Clin Immunol. 2017 Apr 6. pii: S0091-6749(17)30570-5. doi: 10.1016/j.jaci.2017.03.017. [Epub ahead of print]
65. Season-dependent concentrations of urinary phthalate metabolites among Chinese pregnant women: Repeated measures analysis.
Gao H, Zhu YD, Xu YY, Zhang YW, Yao HY, Sheng J, Jin ZX, Ren LL, Huang K, Hao JH, Tao FB.
Environ Int. 2017 Jul;104:110-117. doi: 10.1016/j.envint.2017.03.021. Epub 2017 Apr 4.
66. Dioxins/furans and PCBs in Canadian human milk: 2008-2011.
Rawn DFK, Sadler AR, Casey VA, Breton F, Sun WF, Arbuckle TE, Fraser WD.
Sci Total Environ. 2017 Oct 1;595:269-278. doi: 10.1016/j.scitotenv.2017.03.157. Epub 2017 Apr 4.
67. Maternal urinary phthalates and sex-specific placental mRNA levels in an urban birth cohort.
Adibi JJ, Buckley JP, Lee MK, Williams PL, Just AC, Zhao Y, Bhat HK, Whyatt RM.
Environ Health. 2017 Apr 5;16(1):35. doi: 10.1186/s12940-017-0241-5.
68. Mono-2-ethylhexyl phthalate associated with insulin resistance and lower testosterone levels in a young population.
Chen SY, Hwang JS, Sung FC, Lin CY, Hsieh CJ, Chen PC, Su TC.
Environ Pollut. 2017 Jun;225:112-117. doi: 10.1016/j.envpol.2017.03.037. Epub 2017 Mar 27.
69. Atopic Eczema: Genetic Associations and Potential Links to Developmental Exposures.
Bauer SM.
Int J Toxicol. 2017 May/Jun;36(3):187-198. doi: 10.1177/1091581817701075. Epub 2017 Mar 30.
70. Removal of Diethylhexyl Phthalate from Hands by Handwashing: Evidence from Experimental N-of-1 and Crossover Designs.
Lin PD, Wu CF, Kou HS, Huang TY, Shiea J, Wu MT.
Sci Rep. 2017 Mar 28;7(1):454. doi: 10.1038/s41598-017-00581-2.
71. Intellectual evaluation of children exposed to phthalate-tainted products after the 2011 Taiwan phthalate episode.
Huang PC, Tsai CH, Chen CC, Wu MT, Chen ML, Wang SL, Chen BH, Lee CC, Jaakkola JJK, Wu WC, Chen MK, Hsiung CA, Group R.
Environ Res. 2017 Jul;156:158-166. doi: 10.1016/j.envres.2017.03.016. Epub 2017 Mar 27.
72. Assessment of dietary exposure to organohalogen contaminants, legacy and emerging flame retardants in a Norwegian cohort.

Xu F, Tay JH, Covaci A, Padilla-Sánchez JA, Papadopoulou E, Haug LS, Neels H, Sellström U, de Wit CA. *Environ Int.* 2017 May;102:236-243. doi: 10.1016/j.envint.2017.03.009. Epub 2017 Mar 20.

73. Estimated Daily Intake and Cumulative Risk Assessment of Phthalates in the General Taiwanese after the 2011 DEHP Food Scandal.

Chang JW, Lee CC, Pan WH, Chou WC, Huang HB, Chiang HC, Huang PC. *Sci Rep.* 2017 Mar 22;7:45009. doi: 10.1038/srep45009.

74. Early Prenatal Phthalate Exposure, Sex Steroid Hormones, and Birth Outcomes.

Sathyanarayana S, Butts S, Wang C, Barrett E, Nguyen R, Schwartz SM, Haaland W, Swan SH; TIDES Team. *J Clin Endocrinol Metab.* 2017 Jun 1;102(6):1870-1878. doi: 10.1210/jc.2016-3837.

75. The evolution of pollution profile and health risk assessment for three groups SVOCs pollutants along with Beijiang River, China.

Tang J, An T, Xiong J, Li G.

Environ Geochem Health. 2017 Mar 17. doi: 10.1007/s10653-017-9936-3. [Epub ahead of print]

76. Exposure to di-2-ethylhexyl terephthalate in a convenience sample of U.S. adults from 2000 to 2016.

Silva MJ, Wong LY, Samandar E, Preau JL, Calafat AM, Ye X.

Arch Toxicol. 2017 Mar 17. doi: 10.1007/s00204-017-1956-3. [Epub ahead of print] Erratum in: *Arch Toxicol.* 2017 May 15

77. Biomonitoring of Danish school children and mothers including biomarkers of PBDE and glyphosate.

Knudsen LE, Hansen PW, Mizrak S, Hansen HK, Mørck TA, Nielsen F, Siersma V, Mathiesen L.

Rev Environ Health. 2017 Mar 17. pii: /j/reveh.ahead-of-print/reveh-2016-0067/reveh-2016-0067.xml. doi: 10.1515/reveh-2016-0067. [Epub ahead of print]

78. Case Study on Screening Emerging Pollutants in Urine and Nails.

Alves A, Giovanoulis G, Nilsson U, Erratico C, Lucattini L, Haug LS, Jacobs G, de Wit CA, Leonards PE, Covaci A, Magner J, Voorspoels S.

Environ Sci Technol. 2017 Apr 4;51(7):4046-4053. doi: 10.1021/acs.est.6b05661. Epub 2017 Mar 22.

79. Human biomonitoring pilot study DEMOCOPHES in Germany: Contribution to a harmonized European approach.

Schwedler G, Seiwert M, Fiddicke U, Ißleb S, Hölzer J, Nendza J, Wilhelm M, Wittsiepe J, Koch HM, Schindler BK, Göen T, Hildebrand J, Joas R, Joas A, Casteleyn L, Angerer J, Castano A, Esteban M, Schoeters G, Den Hond E, Sepai O, Exley K, Bloemen L, Knudsen LE, Kolossa-Gehring M.

Int J Hyg Environ Health. 2017 Jun;220(4):686-696. doi: 10.1016/j.ijheh.2017.01.012. Epub 2017 Feb 6.

80. Dermal absorption of semivolatile organic compounds from the gas phase: Sensitivity of exposure assessment by steady state modeling to key parameters.

Pelletier M, Bonvallot N, Ramalho O, Blanchard O, Mercier F, Mandin C, Le Bot B, Glorennec P.

Environ Int. 2017 May;102:106-113. doi: 10.1016/j.envint.2017.02.005. Epub 2017 Feb 27.

81. Direct and Air-Mediated Transfer of Labeled SVOCs from Indoor Sources to Dust.

Sukiene V, von Goetz N, Gerecke AC, Bakker MI, Delmaar CJ, Hungerbühler K.

Environ Sci Technol. 2017 Mar 21;51(6):3269-3277. doi: 10.1021/acs.est.6b06051. Epub 2017 Mar 9.

82. Wastewater-Based Epidemiology as a New Tool for Estimating Population Exposure to Phthalate Plasticizers.
González-Mariño I, Rodil R, Barrio I, Cela R, Quintana JB.
Environ Sci Technol. 2017 Apr 4;51(7):3902-3910. doi: 10.1021/acs.est.6b05612. Epub 2017 Mar 14.
83. Indoor air pollutants, ventilation rate determinants and potential control strategies in Chinese dwellings: A literature review.
Ye W, Zhang X, Gao J, Cao G, Zhou X, Su X.
Sci Total Environ. 2017 May 15;586:696-729. doi: 10.1016/j.scitotenv.2017.02.047. Epub 2017 Feb 20.
84. Exposure of Portuguese children to the novel non-phthalate plasticizer di-(iso-nonyl)-cyclohexane-1,2-dicarboxylate (DINCH).
Correia-Sá L, Schütze A, Norberto S, Calhau C, Domingues VF, Koch HM.
Environ Int. 2017 May;102:79-86. doi: 10.1016/j.envint.2017.02.001. Epub 2017 Feb 7.
85. Urinary concentrations of 25 phthalate metabolites in Brazilian children and their association with oxidative DNA damage.
Rocha BA, Asimakopoulos AG, Barbosa F Jr, Kannan K.
Sci Total Environ. 2017 May 15;586:152-162. doi: 10.1016/j.scitotenv.2017.01.193. Epub 2017 Feb 4.
86. Phthalate-induced oxidative stress and association with asthma-related airway inflammation in adolescents.
Franken C, Lambrechts N, Govarts E, Koppen G, Den Hond E, Ooms D, Voorspoels S, Bruckers L, Loots I, Nelen V, Sioen I, Nawrot TS, Baeyens W, Van Larebeke N, Schoeters G.
Int J Hyg Environ Health. 2017 Apr;220(2 Pt B):468-477. doi: 10.1016/j.ijheh.2017.01.006. Epub 2017 Jan 30.
87. Maternal prenatal urinary phthalate metabolite concentrations and visual recognition memory among infants at 27 weeks.
Ipapo KN, Factor-Litvak P, Whyatt RM, Calafat AM, Diaz D, Perera F, Rauh V, Herbstman JB.
Environ Res. 2017 May;155:7-14. doi: 10.1016/j.envres.2017.01.019. Epub 2017 Feb 4.
88. Leaching of plasticizers from polyvinylchloride perfusion lines by different lipid emulsions for premature infants under clinical conditions.
Faessler D, McCombie G, Biedermann M, Felder F, Subotic U.
Int J Pharm. 2017 Mar 30;520(1-2):119-125. doi: 10.1016/j.ijpharm.2017.01.046. Epub 2017 Jan 23.
89. Food consumption survey of Shanghai adults in 2012 and its associations with phthalate metabolites in urine.
Dong R, Zhou T, Zhao S, Zhang H, Zhang M, Chen J, Wang M, Wu M, Li S, Chen B.
Environ Int. 2017 Apr;101:80-88. doi: 10.1016/j.envint.2017.01.008. Epub 2017 Jan 20.
90. Emerging exposures of developmental toxicants.
Wolff MS, Buckley JP, Engel SM, McConnell RS, Barr DB.
Curr Opin Pediatr. 2017 Apr;29(2):218-224. doi: 10.1097/MOP.0000000000000455.
91. Exposure to multiple chemicals in a cohort of reproductive-aged Danish women.
Rosofsky A, Janulewicz P, Thayer KA, McClean M, Wise LA, Calafat AM, Mikkelsen EM, Taylor KW, Hatch EE.
Environ Res. 2017 Apr;154:73-85. doi: 10.1016/j.envres.2016.12.011. Epub 2016 Dec 29.

92. Prenatal phthalate exposure and 8-isoprostane among Mexican-American children with high prevalence of obesity.
Tran V, Tindula G, Huen K, Bradman A, Harley K, Kogut K, Calafat AM, Nguyen B, Parra K, Ye X, Eskenazi B, Holland N.
J Dev Orig Health Dis. 2017 Apr;8(2):196-205. doi: 10.1017/S2040174416000763. Epub 2016 Dec 29.
93. Dermal uptake of phthalates from clothing: Comparison of model to human participant results.
Morrison GC, Weschler CJ, Bekö G.
Indoor Air. 2017 May;27(3):642-649. doi: 10.1111/ina.12354. Epub 2016 Dec 9.
94. Prenatal phthalate exposure associates with low regulatory T-cell numbers and atopic dermatitis in early childhood: Results from the LINA mother-child study.
Herberth G, Pierzchalski A, Feltens R, Bauer M, Röder S, Olek S, Hinz D, Borte M, von Bergen M, Lehmann I; LINA Study Group.
J Allergy Clin Immunol. 2017 Apr;139(4):1376-1379.e8. doi: 10.1016/j.jaci.2016.09.034. Epub 2016 Nov 5. No abstract available.
95. Environmental exposure to parabens and sperm chromosome disomy.
Jurewicz J, Radwan M, Wielgomas B, Klimowska A, Kałużny P, Radwan P, Jakubowski L, Hanke W.
Int J Environ Health Res. 2017 Jun 13:1-12. doi: 10.1080/09603123.2017.1339784. [Epub ahead of print]
96. Determination of parabens in human urine by optimal ultrasound-assisted emulsification microextraction and on-line acetylation gas chromatography-mass spectrometry.
Hui-Ting Z, Ding EMC, Ding WH.
J Chromatogr B Analyt Technol Biomed Life Sci. 2017 Jul 15;1058:14-18. doi: 10.1016/j.jchromb.2017.05.009. Epub 2017 May 10.
97. Paraben Concentrations in Maternal Urine and Breast Milk and Its Association with Personal Care Product Use.
Fisher M, MacPherson S, Braun JM, Hauser R, Walker M, Feeley M, Mallick R, Bérubé R, Arbuckle TE.
Environ Sci Technol. 2017 Apr 4;51(7):4009-4017. doi: 10.1021/acs.est.6b04302. Epub 2017 Mar 20.
98. Maternal urinary paraben levels and offspring size at birth from a Chinese birth cohort.
Wu C, Huo W, Li Y, Zhang B, Wan Y, Zheng T, Zhou A, Chen Z, Qian M, Zhu Y, Jiang Y, Liu H, Hu J, Chen X, Xu B, Xia W, Xu S.
Chemosphere. 2017 Apr;172:29-36. doi: 10.1016/j.chemosphere.2016.12.131. Epub 2016 Dec 27.
99. Time trends of contact allergy to the European baseline series in Lithuania.
Linauskienė K, Malinauskienė L, Blažienė A.
Contact Dermatitis. 2017 Jun;76(6):350-356. doi: 10.1111/cod.12726. Epub 2016 Dec 4.
100. Urinary Concentrations of Parabens and Other Antimicrobial Chemicals and Their Association with Couples' Fecundity.
Smarr MM, Sundaram R, Honda M, Kannan K, Louis GM.
Environ Health Perspect. 2017 Apr;125(4):730-736. doi: 10.1289/EHP189. Epub 2016 Jun 10.
101. Serum levels of environmental pollutants is a risk factor for breast cancer in Inuit: a case control study.
Wielsøe M, Kern P, Bonefeld-Jørgensen EC.
Environ Health. 2017 Jun 13;16(1):56. doi: 10.1186/s12940-017-0269-6.

102. Serum metabolome biomarkers associate low-level environmental perfluorinated compound exposure with oxidative /nitrosative stress in humans.
Wang X, Liu L, Zhang W, Zhang J, Du X, Huang Q, Tian M, Shen H.
Environ Pollut. 2017 Jun 6;229:168-176. doi: 10.1016/j.envpol.2017.04.086. [Epub ahead of print]
103. Occurrence and incidence of 18 per- and polyfluoroalkyl compounds in edible oils commonly consumed in Guiyang, China.
Yang H, Li G, Rao Z, Guo F, Li Z, Xie F, Tan H.
Food Addit Contam Part A Chem Anal Control Expo Risk Assess. 2017 Jun 6. doi: 10.1080/19440049.2017.1339330.
104. Crop bioaccumulation and human exposure of perfluoroalkyl acids through multi-media transport from a mega fluorochemical industrial park, China.
Liu Z, Lu Y, Shi Y, Wang P, Jones K, Sweetman AJ, Johnson AC, Zhang M, Zhou Y, Lu X, Su C, Sarvajayakesavaluc S, Khan K.
Environ Int. 2017 May 27;106:37-47. doi: 10.1016/j.envint.2017.05.014. [Epub ahead of print]
105. Airborne Precursors Predict Maternal Serum Perfluoroalkyl Acid Concentrations.
Makey CM, Webster TF, Martin JW, Shoeib M, Harner T, Dix-Cooper L, Webster GM.
Environ Sci Technol. 2017 Jun 13. doi: 10.1021/acs.est.7b00615. [Epub ahead of print]
106. Per- and polyfluoroalkyl substances (PFAS) in American Red Cross adult blood donors, 2000-2015.
Olsen GW, Mair DC, Lange CC, Harrington LM, Church TR, Goldberg CL, Herron RM, Hanna H, Nobiletti JB, Rios JA, Reagen WK, Ley CA.
Environ Res. 2017 Aug;157:87-95. doi: 10.1016/j.envres.2017.05.013. Epub 2017 May 18.
107. Polyfluoroalkyl substance exposure in the Mid-Ohio River Valley, 1991-2012.
Herrick RL, Buckholz J, Biro FM, Calafat AM, Ye X, Xie C, Pinney SM.
Environ Pollut. 2017 Sep;228:50-60. doi: 10.1016/j.envpol.2017.04.092. Epub 2017 May 13.
108. Chlorinated Polyfluoroalkyl Ether Sulfonic Acids in Matched Maternal, Cord, and Placenta Samples: A Study of Transplacental Transfer.
Chen F, Yin S, Kelly BC, Liu W.
Environ Sci Technol. 2017 Jun 6;51(11):6387-6394. doi: 10.1021/acs.est.6b06049. Epub 2017 May 12.
109. Perfluoroalkyl substances exposure and thyroid hormones in humans: epidemiological observations and implications.
Lee JE, Choi K.
Ann Pediatr Endocrinol Metab. 2017 Mar;22(1):6-14. doi: 10.6065/apem.2017.22.1.6. Epub 2017 Mar 31. Review.
110. Fate and redistribution of perfluoroalkyl acids through AFFF-impacted groundwater.
Bräunig J, Baduel C, Heffernan A, Rotander A, Donaldson E, Mueller JF.
Sci Total Environ. 2017 Oct 15;596-597:360-368. doi: 10.1016/j.scitotenv.2017.04.095. Epub 2017 Apr 22.
111. Isomer-Specific Transplacental Transfer of Perfluoroalkyl Acids: Results from a Survey of Paired Maternal, Cord Sera, and Placentas.
Chen F, Yin S, Kelly BC, Liu W.
Environ Sci Technol. 2017 May 16;51(10):5756-5763. doi: 10.1021/acs.est.7b00268. Epub 2017 May 1.

112. Concentration of perfluorinated compounds and cotinine in human foetal organs, placenta, and maternal plasma. Mamsen LS, Jönsson BAG, Lindh CH, Olesen RH, Larsen A, Ernst E, Kelsey TW, Andersen CY. *Sci Total Environ.* 2017 Oct 15;596-597:97-105. doi: 10.1016/j.scitotenv.2017.04.058. Epub 2017 Apr 18.
113. Interaction effects of polyfluoroalkyl substances and sex steroid hormones on asthma among children. Zhou Y, Hu LW, Qian ZM, Geiger SD, Parrish KL, Dharmage SC, Campbell B, Roponen M, Jalava P, Hirvonen MR, Heinrich J, Zeng XW, Yang BY, Qin XD, Lee YL, Dong GH. *Sci Rep.* 2017 Apr 18;7(1):899. doi: 10.1038/s41598-017-01140-5.
114. Prenatal concentrations of Perfluoroalkyl substances and early communication development in British girls. Jeddy Z, Hartman TJ, Taylor EV, Poteete C, Kordas K. *Early Hum Dev.* 2017 Jun;109:15-20. doi: 10.1016/j.earlhumdev.2017.04.004. Epub 2017 Apr 12.
115. Prenatal exposure to perfluoroalkyl acids and prevalence of infectious diseases up to 4years of age. Goudarzi H, Miyashita C, Okada E, Kashino I, Chen CJ, Ito S, Araki A, Kobayashi S, Matsuura H, Kishi R. *Environ Int.* 2017 Jul;104:132-138. doi: 10.1016/j.envint.2017.01.024. Epub 2017 Apr 7.
116. Perfluoroalkyl substances with isomer analysis in umbilical cord serum in China. Zhang YZ, Zeng XW, Qian ZM, Vaughn MG, Geiger SD, Hu LW, Lu L, Fu C, Dong GH. *Environ Sci Pollut Res Int.* 2017 May;24(15):13626-13637. doi: 10.1007/s11356-017-8954-0. Epub 2017 Apr 9.
117. Geographical Differences in Dietary Exposure to Perfluoroalkyl Acids between Manufacturing and Application Regions in China. Zhang H, Vestergren R, Wang T, Yu J, Jiang G, Herzke D. *Environ Sci Technol.* 2017 May 16;51(10):5747-5755. doi: 10.1021/acs.est.7b00246. Epub 2017 Apr 25.
118. Association of prenatal exposure to perfluoroalkyl substances with cord blood adipokines and birth size: The Hokkaido Study on environment and children's health. Minatoya M, Itoh S, Miyashita C, Araki A, Sasaki S, Miura R, Goudarzi H, Iwasaki Y, Kishi R. *Environ Res.* 2017 Jul;156:175-182. doi: 10.1016/j.envres.2017.03.033. Epub 2017 Mar 27.
119. An ultra-sensitive method for the analysis of perfluorinated alkyl acids in drinking water using a column switching high-performance liquid chromatography tandem mass spectrometry. Dasu K, Nakayama SF, Yoshikane M, Mills MA, Wright JM, Ehrlich S. *J Chromatogr A.* 2017 Apr 21;1494:46-54. doi: 10.1016/j.chroma.2017.03.006. Epub 2017 Mar 6.
120. Predictors of Per- and Polyfluoroalkyl Substance (PFAS) Plasma Concentrations in 6-10 Year Old American Children. Harris MH, Rifas-Shiman SL, Calafat AM, Ye X, Mora AM, Webster TF, Oken E, Sagiv SK. *Environ Sci Technol.* 2017 May 2;51(9):5193-5204. doi: 10.1021/acs.est.6b05811. Epub 2017 Apr 11.
121. Perfluoroalkyl substances and endometriosis-related infertility in Chinese women. Wang B, Zhang R, Jin F, Lou H, Mao Y, Zhu W, Zhou W, Zhang P, Zhang J. *Environ Int.* 2017 May;102:207-212. doi: 10.1016/j.envint.2017.03.003. Epub 2017 Mar 7.
122. Human exposure to perfluoroalkyl substances near a fluorochemical industrial park in China.

Bao J, Liu L, Wang X, Jin YH, Dong GH.

Environ Sci Pollut Res Int. 2017 Apr;24(10):9194-9201. doi: 10.1007/s11356-017-8620-6. Epub 2017 Feb 20.

123. Association of perfluoroalkyl substances exposure with impaired lung function in children.

Qin XD, Qian ZM, Dharmage SC, Perret J, Geiger SD, Rigdon SE, Howard S, Zeng XW, Hu LW, Yang BY, Zhou Y, Li M, Xu SL, Bao WW, Zhang YZ, Yuan P, Wang J, Zhang C, Tian YP, Nian M, Xiao X, Chen W, Lee YL, Dong GH.

Environ Res. 2017 May;155:15-21. doi: 10.1016/j.envres.2017.01.025. Epub 2017 Feb 4.

124. Polymorphism in xenobiotic and estrogen metabolizing genes, exposure to perfluorinated compounds and subsequent breast cancer risk: A nested case-control study in the Danish National Birth Cohort.

Ghisari M, Long M, Røge DM, Olsen J, Bonefeld-Jørgensen EC.

Environ Res. 2017 Apr;154:325-333. doi: 10.1016/j.envres.2017.01.020. Epub 2017 Feb 2.

125. Home produced eggs: An important pathway of human exposure to perfluorobutanoic acid (PFBA) and perfluorooctanoic acid (PFOA) around a fluorochemical industrial park in China.

Su H, Shi Y, Lu Y, Wang P, Zhang M, Sweetman A, Jones K, Johnson A.

Environ Int. 2017 Apr;101:1-6. doi: 10.1016/j.envint.2017.01.016. Epub 2017 Jan 27.

126. Prenatal Exposure to Perfluoroalkyl Substances and Body Fatness in Girls.

Hartman TJ, Calafat AM, Holmes AK, Marcus M, Northstone K, Flanders WD, Kato K, Taylor EV.

Child Obes. 2017 Jun;13(3):222-230. doi: 10.1089/chi.2016.0126. Epub 2017 Jan 27.

127. Concentrations and patterns of perfluoroalkyl and polyfluoroalkyl substances in a river and three drinking water treatment plants near and far from a major production source.

Boiteux V, Dauchy X, Bach C, Colin A, Hemard J, Sagres V, Rosin C, Munoz JF.

Sci Total Environ. 2017 Apr 1;583:393-400. doi: 10.1016/j.scitotenv.2017.01.079. Epub 2017 Jan 20.

128. Effects of perfluorinated chemicals on thyroid function, markers of ovarian reserve, and natural fertility.

Crawford NM, Fenton SE, Strynar M, Hines EP, Pritchard DA, Steiner AZ.

Reprod Toxicol. 2017 Apr;69:53-59. doi: 10.1016/j.reprotox.2017.01.006. Epub 2017 Jan 19.

129. Serum perfluoroalkyl substances in children exposed to the world trade center disaster.

Trasande L, Koshy TT, Gilbert J, Burdine LK, Attina TM, Ghassabian A, Honda M, Marmor M, Chu DB, Han X, Shao Y, Kannan K.

Environ Res. 2017 Apr;154:212-221. doi: 10.1016/j.envres.2017.01.008. Epub 2017 Jan 16.

130. ADONA and perfluoroalkylated substances in plasma samples of German blood donors living in South Germany.

Fromme H, Wöckner M, Roscher E, Völkel W.

Int J Hyg Environ Health. 2017 Apr;220(2 Pt B):455-460. doi: 10.1016/j.ijheh.2016.12.014. Epub 2017 Jan 4.

131. Perfluoroalkyl substances and fish consumption.

Christensen KY, Raymond M, Blackowicz M, Liu Y, Thompson BA, Anderson HA, Turyk M.

Environ Res. 2017 Apr;154:145-151. doi: 10.1016/j.envres.2016.12.032. Epub 2017 Jan 7.

132. Effects of prenatal perfluoroalkyl acid exposure on cord blood IGF2/H19 methylation and ponderal index: The Hokkaido Study.

Kobayashi S, Azumi K, Goudarzi H, Araki A, Miyashita C, Kobayashi S, Itoh S, Sasaki S, Ishizuka M, Nakazawa H, Ikeno T, Kishi R.

J Expo Sci Environ Epidemiol. 2017 May;27(3):251-259. doi: 10.1038/jes.2016.50. Epub 2016 Aug 24.

133. Barrier cream based on CeO₂ nanoparticles grafted polymer as an active compound against the penetration of organophosphates.

Bignon C, Amigoni S, Devers T, Guittard F.

Chem Biol Interact. 2017 Apr 1;267:17-24. doi: 10.1016/j.cbi.2016.03.002. Epub 2016 Mar 4.

134. Triclocarban: UV photolysis, wastewater disinfection, and ecotoxicity assessment using molecular biomarkers.

Satyro S, Saggiaro EM, Veríssimo F, Buss DF, de Paiva Magalhães D, Oliveira A.

Environ Sci Pollut Res Int. 2017 May 23. doi: 10.1007/s11356-017-9165-4. [Epub ahead of print]

135. Comparison of methods for calculating the health costs of endocrine disruptors: a case study on triclosan.

Prichystalova R, Fini JB, Trasande L, Bellanger M, Demeneix B, Maxim L.

Environ Health. 2017 Jun 9;16(1):55. doi: 10.1186/s12940-017-0265-x.

136. Risk assessment of triclosan in the global environment using a probabilistic approach.

Guo J, Iwata H.

Ecotoxicol Environ Saf. 2017 Sep;143:111-119. doi: 10.1016/j.ecoenv.2017.05.020. Epub 2017 May 16.

137. Patterns, Variability, and Predictors of Urinary Triclosan Concentrations during Pregnancy and Childhood.

Stacy SL, Eliot M, Etzel T, Papandonatos G, Calafat AM, Chen A, Hauser R, Lanphear BP, Sathyanarayana S, Ye X, Yolton K, Braun JM.

Environ Sci Technol. 2017 Jun 6;51(11):6404-6413. doi: 10.1021/acs.est.7b00325. Epub 2017 May 25.

138. Evaluation of triclosan in Minnesota lakes and rivers: Part II - human health risk assessment.

Yost LJ, Barber TR, Gentry PR, Bock MJ, Lyndall JL, Capdevielle MC, Slezak BP.

Ecotoxicol Environ Saf. 2017 Aug;142:588-596. doi: 10.1016/j.ecoenv.2017.04.048. Epub 2017 May 5.

139. Urinary triclosan concentrations during pregnancy and birth outcomes.

Etzel TM, Calafat AM, Ye X, Chen A, Lanphear BP, Savitz DA, Yolton K, Braun JM.

Environ Res. 2017 Jul;156:505-511. doi: 10.1016/j.envres.2017.04.015. Epub 2017 Apr 26.

140. Hypothesis-driven weight-of-evidence analysis of endocrine disruption potential: a case study with triclosan.

Mihaich E, Capdevielle M, Urbach-Ross D, Slezak B.

Crit Rev Toxicol. 2017 Apr;47(4):263-285. doi: 10.1080/10408444.2016.1269722. Epub 2017 Jan 27.

141. Organophosphate esters flame retardants in the indoor environment.

Vykoukalová M, Venier M, Vojta Š, Melymuk L, Bečanová J, Romanak K, Prokeš R, Okeme JO, Saini A, Diamond ML, Klánová J.

Environ Int. 2017 Jun 15;106:97-104. doi: 10.1016/j.envint.2017.05.020. [Epub ahead of print]

142. Potential Role of Pet Cats As a Sentinel Species for Human Exposure to Flame Retardants.

Henríquez-Hernández LA, Carretón E, Camacho M, Montoya-Alonso JA, Boada LD, Bernal Martín V, Falcón Córdón Y, Falcón Córdón S, Zumbado M, Luzardo OP.

Front Vet Sci. 2017 May 31;4:79. doi: 10.3389/fvets.2017.00079. eCollection 2017.

143. Polybrominated Diphenyl Ethers (PBDEs) in U.S. Meat and Poultry: 2012-2013 Levels, Trends, and Estimated Consumer Exposures.
Lupton SJ, Hakk H.
Food Addit Contam Part A Chem Anal Control Expo Risk Assess. 2017 Jun 12. doi: 10.1080/19440049.2017.1340675. [Epub ahead of print]
144. Polybrominated diphenyl ethers (flame retardants) in mother-infant pairs in the Southeastern U.S.
Terry P, Towers CV, Liu LY, Peverly AA, Chen J, Salamova A.
Int J Environ Health Res. 2017 Jun 9:1-10. doi: 10.1080/09603123.2017.1332344. [Epub ahead of print]
145. Brominated and phosphate flame retardants (FRs) in indoor dust from different microenvironments: Implications for human exposure via dust ingestion and dermal contact.
Zheng X, Qiao L, Covaci A, Sun R, Guo H, Zheng J, Luo X, Xie Q, Mai B.
Chemosphere. 2017 Jun 2;184:185-191. doi: 10.1016/j.chemosphere.2017.05.167. [Epub ahead of print]
146. Organophosphate Flame Retardants in House Dust from South China and Related Human Exposure Risks.
Tan H, Peng C, Guo Y, Wang X, Wu Y, Chen D.
Bull Environ Contam Toxicol. 2017 Jun 1. doi: 10.1007/s00128-017-2120-8. [Epub ahead of print]
147. Bromine in plastic consumer products - Evidence for the widespread recycling of electronic waste.
Turner A, Filella M.
Sci Total Environ. 2017 May 29;601-602:374-379. doi: 10.1016/j.scitotenv.2017.05.173. [Epub ahead of print]
148. A Case-Control Study of Maternal Polybrominated Diphenyl Ether (PBDE) Exposure and Cryptorchidism in Canadian Populations.
Goodyer CG, Poon S, Aleksa K, Hou L, Atehortua V, Carnevale A, Jednak R, Emil S, Bagli D, Dave S, Hales BF, Chevrier J.
Environ Health Perspect. 2017 May 26;125(5):057004. doi: 10.1289/EHP522.
149. Occurrence and human exposure assessment of organophosphate flame retardants (OPFRs) in indoor dust from various microenvironments of the Rhine/Main region, Germany.
Zhou L, Hiltcher M, Püttmann W.
Indoor Air. 2017 May 29. doi: 10.1111/ina.12397. [Epub ahead of print]
150. Human cost burden of exposure to endocrine disrupting chemicals. A critical review.
Bond GG, Dietrich DR.
Arch Toxicol. 2017 May 20. doi: 10.1007/s00204-017-1985-y. [Epub ahead of print] Review.
151. Emerging and legacy flame retardants in UK human milk and food suggest slow response to restrictions on use of PBDEs and HBCDD.
Tao F, Abou-Elwafa Abdallah M, Ashworth DC, Douglas P, Toledano MB, Harrad S.
Environ Int. 2017 Aug;105:95-104. doi: 10.1016/j.envint.2017.05.010. Epub 2017 May 17.
152. Organophosphorus Flame Retardants in Pregnant Women and Their Transfer to Chorionic Villi.
Zhao F, Chen M, Gao F, Shen H, Hu J.
Environ Sci Technol. 2017 Jun 6;51(11):6489-6497. doi: 10.1021/acs.est.7b01122. Epub 2017 May 26.

153. Human Indoor Exposure to Airborne Halogenated Flame Retardants: Influence of Airborne Particle Size. La Guardia MJ, Schreder ED, Uding N, Hale RC. *Int J Environ Res Public Health*. 2017 May 9;14(5). pii: E507. doi: 10.3390/ijerph14050507.
154. A national survey of tetrabromobisphenol-A, hexabromocyclododecane and decabrominated diphenyl ether in human milk from China: Occurrence and exposure assessment. Shi Z, Zhang L, Zhao Y, Sun Z, Zhou X, Li J, Wu Y. *Sci Total Environ*. 2017 Dec 1;599-600:237-245. doi: 10.1016/j.scitotenv.2017.04.237. Epub 2017 May 4.
155. Influence of storage vial material on measurement of organophosphate flame retardant metabolites in urine. Carignan CC, Butt CM, Stapleton HM, Meeker JD, Minguez-Alarcón L, Williams PL, Hauser R. *Chemosphere*. 2017 Aug;181:440-446. doi: 10.1016/j.chemosphere.2017.04.083. Epub 2017 Apr 19.
156. Polyhalogenated compounds (chlorinated paraffins, novel and classic flame retardants, POPs) in dishcloths after their regular use in households. Gallistl C, Lok B, Schlienz A, Vetter W. *Sci Total Environ*. 2017 Oct 1;595:303-314. doi: 10.1016/j.scitotenv.2017.03.217. Epub 2017 Apr 4.
157. Brominated flame retardant: environmental and exposed individuals' health impact. Dufour P, Charlier C. *Ann Biol Clin (Paris)*. 2017 Apr 1;75(2):146-157. doi: 10.1684/abc.2017.1221.
158. Early-life chemical exposures and risk of metabolic syndrome. De Long NE, Holloway AC. *Diabetes Metab Syndr Obes*. 2017 Mar 21;10:101-109. doi: 10.2147/DMSO.S95296. eCollection 2017. Review.
159. Flame retardants and their metabolites in the homes and urine of pregnant women residing in California (the CHAMACOS cohort). Castorina R, Butt C, Stapleton HM, Avery D, Harley KG, Holland N, Eskenazi B, Bradman A. *Chemosphere*. 2017 Jul;179:159-166. doi: 10.1016/j.chemosphere.2017.03.076. Epub 2017 Mar 22.
160. Human exposure to HBCD and TBBPA via indoor dust in Korea: Estimation of external exposure and body burden. Barghi M, Shin ES, Kim JC, Choi SD, Chang YS. *Sci Total Environ*. 2017 Sep 1;593-594:779-786. doi: 10.1016/j.scitotenv.2017.03.200. Epub 2017 Mar 30.
161. Antimony and sleep-related disorders: NHANES 2005-2008. Scinicariello F, Buser MC, Feroe AG, Attanasio R. *Environ Res*. 2017 Jul;156:247-252. doi: 10.1016/j.envres.2017.03.036. Epub 2017 Mar 28.
162. Vehicles as outdoor BFR sources: Evidence from an investigation of BFR occurrence in road dust. Cao Z, Zhao L, Kuang J, Chen Q, Zhu G, Zhang K, Wang S, Wu P, Zhang X, Wang X, Harrad S, Sun J. *Chemosphere*. 2017 Jul;179:29-36. doi: 10.1016/j.chemosphere.2017.03.095. Epub 2017 Mar 25.
163. A rapid analytical method to quantify complex organohalogen contaminant mixtures in large samples of high lipid mammalian tissues. Desforges JP, Eulaers I, Periard L, Sonne C, Dietz R, Letcher RJ. *Chemosphere*. 2017 Jun;176:243-248. doi: 10.1016/j.chemosphere.2017.02.098. Epub 2017 Feb 24.

164. New sampling device for on-site measurement of SVOC gas-phase concentration at the emitting material surface. Ghislain M, Beigbeder J, Plaisance H, Desauziers V. *Anal Bioanal Chem.* 2017 May;409(12):3199-3210. doi: 10.1007/s00216-017-0259-0. Epub 2017 Mar 7.
165. Current halogenated flame retardant concentrations in serum from residents of Shandong Province, China, and temporal changes in the concentrations. Ma Y, Li P, Jin J, Wang Y, Wang Q. *Environ Res.* 2017 May;155:116-122. doi: 10.1016/j.envres.2017.02.010. Epub 2017 Mar 10.
166. Associations between urinary diphenyl phosphate and thyroid function. Preston EV, McClean MD, Claus Henn B, Stapleton HM, Braverman LE, Pearce EN, Makey CM, Webster TF. *Environ Int.* 2017 Apr;101:158-164. doi: 10.1016/j.envint.2017.01.020. Epub 2017 Feb 3.
167. Chemical alternatives assessment of different flame retardants - A case study including multi-walled carbon nanotubes as synergist. Aschberger K, Campia I, Pesudo LQ, Radovnikovic A, Reina V. *Environ Int.* 2017 Apr;101:27-45. doi: 10.1016/j.envint.2016.12.017. Epub 2017 Feb 1. Review.
168. Human exposure to brominated flame retardants through the consumption of fish and shellfish in Tarragona County (Catalonia, Spain). Trabalón L, Vilavert L, Domingo JL, Pocurull E, Borrull F, Nadal M. *Food Chem Toxicol.* 2017 Jun;104:48-56. doi: 10.1016/j.fct.2016.11.022. Epub 2016 Nov 23.
169. In utero and childhood DDT, DDE, PBDE and PCBs exposure and sex hormones in adolescent boys: The CHAMACOS study. Eskenazi B, Rauch SA, Tenerelli R, Huen K, Holland NT, Lustig RH, Kogut K, Bradman A, Sjödin A, Harley KG. *Int J Hyg Environ Health.* 2017 Apr;220(2 Pt B):364-372. doi: 10.1016/j.ijheh.2016.11.001. Epub 2016 Nov 14.
170. Effect of endocrine disruptors on male reproduction in humans: why the evidence is still lacking? Bliatka D, Lymperi S, Mastorakos G, Goulis DG. *Andrology.* 2017 May;5(3):404-407. doi: 10.1111/andr.12339. Epub 2017 Mar 10. Review.

In vitro studier ved DTU Fødevareinstituttet

Søgt i Pubmed med følgende kriterier:

"Endocrine disrupt* AND in vitro*" samt "Endocrine disrupt* AND expose* AND in vitro*",

"Paraben* AND in vitro*,"perfluor* OR polyfluor* AND in vitro*" og "Phthalat* AND in vitro*".

Publiceret i perioden april - medio juni.

Efter at have fjernet genganger fra forrige litteraturopdateringslister, samt artikler der ikke hørte til under kategorien "*in vitro*" gav litteratursøgningen, med de angivne søgekriterier, tilsammen en liste med i alt 28 artikler.

To artikler er vist med abstract fordi de beskriver henholdsvis metoder og resultater, der bidrager til yderligere viden vedrørende testning, samt effekter af hormonforstyrrende stoffer.

Den første artikel omhandler udvikling af en protokol, der kan bruges til at skelne mellem cytotoxiske effekter og reelle (AR)-antagonistiske effekter i forbindelse med *in vitro* testning og anvendelsen af reporter-gen assays.

Den anden artikel omhandler *in vitro* studier af 15 phthalater og 19 phthalat metabolitter med det formål at undersøge deres hormonforstyrrende effekter på endpoints relaterede til henholdsvis ER α , ER β og AR aktivitet.

Udvalgte publikationer

Differentiating true androgen receptor inhibition from cytotoxicity-mediated reduction of reporter-gene transactivation *in-vitro*.

Marin-Kuan M, Fussell KC, Riederer N, Latado H, Serrant P, Mollergues J, Coulet M, Schilter B. *Toxicol In Vitro*. 2017 Apr 1. pii: S0887-2333(17)30085-1. doi: 10.1016/j.tiv.2017.03.014.

Abstract

In vitro effect-based reporter assays are applied as biodetection tools designed to address nuclear receptor mediated-modulation. While such assays detect receptor modulating potential, cell viability needs to be addressed, preferably in the same well. Some assays circumvent this by co-transfecting a second constitutively-expressed marker gene or by multiplexing a cytotoxicity assay. Some assays, such as the CALUX[®], lack this feature. The cytotoxic effects of unknown substances can confound in vitro assays, making the interpretation of results difficult and uncertain, particularly when assessing antagonistic activity. It's necessary to determine whether the cause of the reporter signal decrease is an antagonistic effect or a non-specific cytotoxic effect. To remedy this, we assessed the suitability of multiplexing a cell viability assay within the CALUX[®] transcriptional activation test for anti-androgenicity. Tests of both well-characterized anti-androgens and cytotoxic compounds demonstrated the suitability of this approach for discerning between the molecular mechanisms of action without altering the nuclear receptor assay; though some compounds were both cytotoxic and anti-androgenic. The optimized multiplexed assay was then applied to an uncharacterized set of polycyclic aromatic compounds. These results better characterized the mode of action and the classification of effects. Overall, the multiplexed protocol added value to CALUX test performance.

Agonistic and antagonistic effects of phthalates and their urinary metabolites on the steroid hormone receptors ER α , ER β , and AR.

Engel A, Buhrke T, Imber F, Jessel S, Seidel A, Völkel W, Lampen A. *Toxicol Lett*. 2017 May 29;277:54-63. doi: 10.1016/j.toxlet.2017.05.028.

Abstract

Phthalate plasticizers have been reported to exert adverse effects via activation of the estrogen receptors ER α and ER β and inhibition of the androgen receptor AR as molecular initiating events. After oral uptake, phthalates are metabolized to their corresponding monoesters and subsequently to oxidized phthalate monoester derivatives, which are in turn conjugated to glucuronic acid and finally excreted with the urine. In contrast to the parent phthalates, toxicological data regarding their primary and secondary metabolites are rare. The present study aimed at the characterization of potential endocrine effects of 15 phthalates and 19 phthalate metabolites by using reporter gene assays to monitor human ER α , ER β , and AR activity. In these in vitro assays, the phthalates either stimulated or inhibited ER α and ER β activity and inhibited AR activity, whereas the phthalate metabolites had no impact on the activity

of these human hormone receptors. In contrast, the metabolites of di-(2-ethylhexyl) phthalate (DEHP) stimulated transactivation of the human peroxisome proliferator-activated receptors PPAR α and PPAR γ in analogous reporter gene assays, although DEHP itself did not activate these nuclear receptors. Therefore, primary and secondary phthalate metabolites appear to exert different effects at the molecular level compared to the parent compounds.

Bruttoliste

1. An Integrated Chemical Environment to Support 21st-Century Toxicology.
Bell SM, Phillips J, Sedykh A, Tandon A, Sprankle C, Morefield SQ, Shapiro A, Allen D, Shah R, Maull EA, Casey WM, Kleinstreuer NC.
Environ Health Perspect. 2017 May 24;125(5):054501. doi: 10.1289/EHP1759.
2. The impact of pesticides on oxidative stress level in human organism and their activity as an endocrine disruptor.
Jabłońska-Trypuć A, Wołejko E, Wydro U, Butarewicz A.
J Environ Sci Health B. 2017 May 25;1-12. doi: 10.1080/03601234.2017.1303322.
3. Discovery of a widespread metabolic pathway within and among phenolic xenobiotics.
Ashrap P, Zheng G, Wan Y, Li T, Hu W, Li W, Zhang H, Zhang Z, Hu J.
Proc Natl Acad Sci U S A. 2017 Jun 6;114(23):6062-6067. doi: 10.1073/pnas.1700558114. Epub 2017 May 23.
4. Risk assessment of the endocrine-disrupting effects of nine chiral pesticides.
Song Q, Zhang Y, Yan L, Wang J, Lu C, Zhang Q, Zhao M.
J Hazard Mater. 2017 May 11;338:57-65. doi: 10.1016/j.jhazmat.2017.05.015.
5. Characterization of estrogenic and androgenic activity of phthalates by the XenoScreen YES/YAS in vitro assay.
Czernych R, Chraniuk M, Zagożdżon P, Wolska L.
Environ Toxicol Pharmacol. 2017 May 12;53:95-104. doi: 10.1016/j.etap.2017.05.010.
6. Methylparaben and butylparaben alter multipotent mesenchymal stem cell fates towards adipocyte lineage.
Hu P, Overby H, Heal E, Wang S, Chen J, Shen CL, Zhao L.
Toxicol Appl Pharmacol. 2017 May 17;329:48-57. doi: 10.1016/j.taap.2017.05.019.
7. Effects of in vitro exposure to dibutyl phthalate, mono-butyl phthalate, and acetyl tributyl citrate on ovarian antral follicle growth and viability.
Rasmussen LM, Sen N, Vera JC, Liu X, Craig ZR.
Biol Reprod. 2017 May 8. doi: 10.1095/biolreprod.116.144691.
8. Use of bioassays to assess hazard of food contact material extracts: State of the art.
Severin I, Souton E, Dahbi L, Chagnon MC.
Food Chem Toxicol. 2017 Jul;105:429-447. doi: 10.1016/j.fct.2017.04.046. Epub 2017 May 3. Review.
9. Binding of Bisphenol-F, a bisphenol analogue, to calf thymus DNA by multi-spectroscopic and molecular docking studies.
Usman A, Ahmad M.
Chemosphere. 2017 Aug;181:536-543. doi: 10.1016/j.chemosphere.2017.04.115. Epub 2017 Apr 29.
- 10. Differentiating true androgen receptor inhibition from cytotoxicity-mediated reduction of reporter-gene transactivation in-vitro.**
Marin-Kuan M, Fussell KC, Riederer N, Latado H, Serrant P, Mollergues J, Coulet M, Schilter B.
Toxicol In Vitro. 2017 Apr 1. pii: S0887-2333(17)30085-1. doi: 10.1016/j.tiv.2017.03.014.
11. Bisphenol A interferes with swine vascular endothelial cell functions.

Basini G, Bussolati S, Grolli S, Ramoni R, Grasselli F.

Can J Physiol Pharmacol. 2017 Apr;95(4):365-371. doi: 10.1139/cjpp-2016-0180. Epub 2016 Oct 20.

12. Development and Validation of a Computational Model for Androgen Receptor Activity.

Kleinstreuer NC, Ceger P, Watt ED, Martin M, Houck K, Browne P, Thomas RS, Casey WM, Dix DJ, Allen D, Sakamuru S, Xia M, Huang R, Judson R.

Chem Res Toxicol. 2017 Apr 17;30(4):946-964. doi: 10.1021/acs.chemrestox.6b00347. Epub 2016 Dec 9.

13. Combination of Metabolomics with Cellular Assays Reveals New Biomarkers and Mechanistic Insights on Xenoestrogenic Exposures in MCF-7 Cells.

Potratz S, Tarnow P, Jungnickel H, Baumann S, von Bergen M, Tralau T, Luch A.

Chem Res Toxicol. 2017 Apr 17;30(4):883-892. doi: 10.1021/acs.chemrestox.6b00106. Epub 2016 Aug 29.

14. Side Chains of Parabens Modulate Antiandrogenic Activity: In Vitro and Molecular Docking Studies.

Ding K, Kong X, Wang J, Lu L, Zhou W, Zhan T, Zhang C, Zhuang S.

Environ Sci Technol. 2017 Jun 6;51(11):6452-6460. doi: 10.1021/acs.est.7b00951. Epub 2017 May 9.

15. Genotoxic risk of ethyl-paraben could be related to telomere shortening.

Finot F, Kaddour A, Morat L, Mouche I, Zaguia N, Cuceu C, Souverville D, Négrault S, Cariou O, Essahli A, Prigent N, Saul J, Paillard F, Heidingsfelder L, Lafouge P, Al Jawhari M, Hempel WM, El May M, Colicchio B, Dieterlen A, Jeandidier E, Sabatier L, Clements J, M'Kacher R.

J Appl Toxicol. 2017 Jun;37(6):758-771. doi: 10.1002/jat.3425. Epub 2016 Dec 20.

16. Ultrasonic nanotherapy of breast cancer using novel ultrasound-responsive alginate-shelled perfluorohexane nanodroplets: In vitro and in vivo evaluation.

Baghbani F, Chegeni M, Moztaazadeh F, Mohandesi JA, Mokhtari-Dizaji M.

Mater Sci Eng C Mater Biol Appl. 2017 Aug 1;77:698-707. doi: 10.1016/j.msec.2017.02.017. Epub 2017 Feb 7.

17. Synthesis, characterization, and biological verification of anti-HER2 indocyanine green-doxorubicin-loaded polyethyleneimine-coated perfluorocarbon double nanoemulsions for targeted photochemotherapy of breast cancer cells.

Lee YH, Ma YT.

J Nanobiotechnology. 2017 May 18;15(1):41. doi: 10.1186/s12951-017-0274-5.

18. Overcome the limitation of hypoxia against photodynamic therapy to treat cancer cells by using perfluorocarbon nanodroplet for photosensitizer delivery.

Tang X, Cheng Y, Huang S, Zhi F, Yuan A, Hu Y, Wu J.

Biochem Biophys Res Commun. 2017 Jun 3;487(3):483-487. doi: 10.1016/j.bbrc.2017.03.142. Epub 2017 Mar 27.

19. Characterization of perfluorocarbon relaxation times and their influence on the optimization of fluorine-19 MRI at 3 tesla.

Colotti R, Bastiaansen JAM, Wilson A, Flögel U, Gonzales C, Schwitter J, Stuber M, van Heeswijk RB.

Magn Reson Med. 2017 Jun;77(6):2263-2271. doi: 10.1002/mrm.26317. Epub 2016 Jul 6.

20. Barrier cream based on CeO₂ nanoparticles grafted polymer as an active compound against the penetration of organophosphates.

Bignon C, Amigoni S, Devers T, Guittard F.

Chem Biol Interact. 2017 Apr 1;267:17-24. doi: 10.1016/j.cbi.2016.03.002. Epub 2016 Mar 4.

21. Role of PI3K/AKT/mTOR signaling pathway in DBP-induced apoptosis of testicular sertoli cells_in vitro.

Wang H, Wang J, Zhang J, Jin S, Li H.

Environ Toxicol Pharmacol. 2017 May 31;53:145-150. doi: 10.1016/j.etap.2017.05.013.

22. An effect-directed strategy for characterizing emerging chemicals in food contact materials made from paper and board.

Rosenmai AK, Bengtström L, Taxvig C, Trier X, Petersen JH, Svingen T, Binderup ML, Barbara Medea Alice VV, Dybdahl M, Granby K, Vinggaard AM.

Food Chem Toxicol. 2017 May 29;106(Pt A):250-259. doi: 10.1016/j.fct.2017.05.061.

23. Agonistic and antagonistic effects of phthalates and their urinary metabolites on the steroid hormone receptors ER α , ER β , and AR.

Engel A, Buhrke T, Imber F, Jessel S, Seidel A, Völkel W, Lampen A.

Toxicol Lett. 2017 May 29;277:54-63. doi: 10.1016/j.toxlet.2017.05.028.

24. An integrated approach to study the risk from landfill soil of Delhi: Chemical analyses, in vitro assays and human risk assessment.

Swati, Ghosh P, Thakur IS.

Ecotoxicol Environ Saf. 2017 May 16;143:120-128. doi: 10.1016/j.ecoenv.2017.05.019.

25. Alternative plasticizer, 4-cyclohexene-1,2-dicarboxylic acid dinonyl ester, for blood containers with protective effects on red blood cells and improved cold resistance.

Morishita Y, Nomura Y, Fukui C, Fujisawa A, Watanabe K, Fujimaki H, Kumada H, Inoue K, Morikawa T, Takahashi M, Kawakami T, Sakoda H, Mukai T, Yuba T, Inamura KI, Tanoue A, Miyazaki KI, Chung UI, Ogawa K, Yoshida M, Haishima Y.

J Biomed Mater Res B Appl Biomater. 2017 May 13. doi: 10.1002/jbm.b.33916.

26. Embryotoxicity estimation of commonly used compounds with embryonic stem cell test.

Liu H, Ren C, Liu W, Jiang X, Wang L, Zhu B, Jia W, Lin J, Tan J, Liu X.

Mol Med Rep. 2017 May 9. doi: 10.3892/mmr.2017.6552.

27. Promotion of Wilms' tumor cells migration and invasion by mono-2-ethylhexyl phthalate (MEHP) via activation of NF- κ B signals.

Wang Z, Shao M, Liu Y.

Chem Biol Interact. 2017 May 25;270:1-8. doi: 10.1016/j.cbi.2017.04.004. Epub 2017 Apr 6.

28. Di-(2-ethylhexyl) Phthalate-Induced Hippocampus-Derived Neural Stem Cells Proliferation.

Abdanipour A, Noori-Zadeh A, Mesbah-Namin SA, Bakhtiyari S, Nejatbakhsh R, Anarkooli IJ.

Cell J. 2017 Apr-Jun;19(1):166-172. Epub 2016 Dec 21.

***In vivo* studier ved DTU Fødevareinstituttet**

Søgning er udført på PubMed og dækker perioden April - ultimo Juni 2017

Følgende søgeprofil er benyttet i PubMed: ((endocrine disrupt*) AND (rat OR mice OR mammal*)) OR ((endocrine disrupt*) AND (in vivo*))((endocrine disrupt*) AND (Paraben*)) OR ((endocrine disrupt*) AND (Phthalat*)) OR ((PFAS* OR Perfluor*) AND (endocrine disrupt*) OR ((Endocrine disrupt* AND (antiandrogen)) OR ((endocrine disrupt*) AND (behaviour OR behavior*)) OR ((Endocrine disrupt*) AND (Bisphenol A or BPA) OR ((Endocrine disrupt*) AND risk assessment

Efter at have fjernet gengangere fra dem vi havde med på den forrige litteraturopdateringsliste samt *in vitro*, human eller SDU relevante artikler, gav litteratursøgningen en liste med i alt 34 artikler (Bruttolisten).

Fire artikler er udvalgt med abstract, fordi vi mener de bidrager til ny viden om hormonforstyrrende stoffer og her er der særligt fokus på et nyt alternativ til BPA (Soto et al. 2017) samt en ny artikel fra CLARITY-BPA studiet (Patel et al. 2017). De 2 sidste artikler hvor der er medtaget abstracts er to artikler fra DTU Fødevareinstituttet:

En der beskriver at en kombination af lave doser af pesticider forårsager nedsat fødselsvægt hos rotter (Hass et al. 2017) og en gennemgang af vores nuværende viden om miljøkemikalier og lægemidler og deres potentielle bidrag til udviklingen af "ovarie dysgenese syndrom" (ODS) (Johansson et al. 2017).

Rigtig god sommer & læselyst.

Ud fra bruttolisten (se længere nede i dokumentet) er udvalgt følgende 4 artikler til engelsk abstrakt.

Udvalgte publikationer

Evidence of Absence: Estrogenicity Assessment of a New Food-Contact Coating and the Bisphenol Used in Its Synthesis.

Soto AM, Schaeberle C, Maier MS, Sonnenschein C, Maffini MV.

Environ Sci Technol. 2017 Feb 7;51(3):1718-1726. doi: 10.1021/acs.est.6b04704. Epub 2017 Jan 18.

Abstract

Consumer concerns about exposure to substances found in food contact materials with estrogenic activity (EA) have created substantial demand for alternatives. We assessed the potential EA of both a new bisphenol monomer used to synthesize polymeric coatings for metal food-contact applications and the nonintentionally added substances (NIAS) that may migrate into food. We evaluated tetramethyl bisphenol F (TMBPF) using *in vitro* and *in vivo* assays. We extracted the polymeric coating using food simulants ethanol (50% v/v) and acetic acid (3% w/v) and measured migration using tandem liquid chromatography (LC)/mass spectrometry (MS) and LC time-of-flight MS for TMBPF and NIAS, respectively. We also tested migrants for EA using the E-SCREEN assay. TMBPF did not show estrogenic activity in the uterotrophic assay and did not alter puberty in male and female rats or mammary gland development in female rats. Neither TMBPF nor the migrants from the final polymeric coating increased proliferation of estrogen-sensitive MCF7 cells. TMBPF did not show estrogen-agonist or antagonist activity in the estrogen receptor-transactivation assay. TMBPF migration was below the 0.2 parts per billion detection limit. Our findings provide compelling evidence for the absence of EA by TMBPF and the polymeric coating derived from it and that human exposure to TMBPF would be negligible.

Bisphenol A Exposure, Ovarian Follicle Numbers, and Female Sex Steroid Hormone Levels: Results From a CLARITY-BPA Study.

Patel S, Brehm E, Gao L, Rattan S, Ziv-Gal A, Flaws JA.

Endocrinology. 2017 Jun 1;158(6):1727-1738. doi: 10.1210/en.2016-1887

Abstract

Bisphenol A (BPA) is an industrial chemical found in thermal receipts and food and beverage containers. Previous studies have shown that BPA can affect the numbers and health of ovarian follicles and the production of sex steroid hormones, but they often did not include a wide range of doses of BPA, used a small sample size, focused on relatively short-term exposures to BPA, and/or did not examine the consequences of chronic BPA exposure on the ovaries or steroid levels. Thus, this study was designed to examine the effects of a wide range of doses of BPA on ovarian morphology and sex steroid hormone production. Specifically, this study tested the hypothesis that prenatal and continuous BPA exposure reduces ovarian follicle numbers and sex steroid hormone levels. To test this hypothesis, rats were dosed with vehicle, ethinyl estradiol (0.05 and 0.5 µg/kg body weight/d), or BPA (2.5, 25, 250, 2500, and 25,000 µg/kg body weight/d) from gestation day 6 until 1 year as part of the Consortium Linking Academic and Regulatory Insights on BPA Toxicity (CLARITY-BPA). Ovaries and sera were collected on postnatal days 1, 21, and 90, and at 6 months and 1 year. The ovaries were subjected to histological evaluation of follicle

numbers and the sera were subjected to measurements of estradiol and progesterone. Collectively, these data indicate that BPA exposure at some doses and time points affects ovarian follicle numbers and sex steroid levels, but these effects are different than those observed with ethinyl estradiol exposure and some previous studies on BPA.

Combined exposure to low doses of pesticides causes decreased birth weights in rats.

Hass U, Christiansen S, Axelstad M, Scholze M, Boberg J.

Reprod Toxicol. 2017 May 17. pii: S0890-6238(17)30128-4. doi: 10.1016/j.reprotox.2017.05.004. [Epub ahead of print]

Abstract

Decreased birth weight is a common effect of many pesticides in reproductive toxicity studies, but there are no empirical data on how pesticides act in combination on this endpoint. We hypothesized that a mixture of six pesticides (cyromazine, MCPB, pirimicarb, quinclamine, thiram, and ziram) would decrease birth weight, and that these mixture effects could be predicted by the Dose Addition model. Data for the predictions were obtained from the Draft Assessment Reports of the individual pesticides. A mixture of equi-effective doses of these pesticides was tested in two studies in Wistar rats, showing mixture effects in good agreement with the additivity predictions. Significantly lower birth weights were observed when compounds were present at individual doses below their no-observed adverse effect levels (NOAELs). These results emphasize the need for cumulative risk assessment of pesticides to avoid potentially serious impact of mixed exposure on prenatal development and pregnancy in humans.

Environmental influences on ovarian dysgenesis - developmental windows sensitive to chemical exposures.

Johansson HKL, Svingen T, Fowler PA, Vinggaard AM, Boberg J.

Nat Rev Endocrinol. 2017 Jul;13(7):400-414. doi: 10.1038/nrendo.2017.36. Epub 2017 Apr 28. Review.

Abstract

A woman's reproductive health and ability to have children directly affect numerous aspects of her life, from personal well-being and socioeconomic standing, to morbidity and lifespan. In turn, reproductive health depends on the development of correctly functioning ovaries, a process that starts early during fetal life. Early disruption to ovarian programming can have long-lasting consequences, potentially manifesting as disease much later in adulthood. A growing body of evidence suggests that exposure to chemicals early in life, including endocrine-disrupting chemicals, can cause a range of disorders later in life, such as those described in the ovarian dysgenesis syndrome hypothesis. In this Review, we discuss four specific time windows during which the ovary is particularly sensitive to disruption by exogenous insults: gonadal sex determination, meiotic division, follicle assembly and the first wave of follicle recruitment. To date, most evidence points towards the germ cell lineage being the most vulnerable to chemical exposure, particularly meiotic division and follicle assembly. Environmental chemicals and pharmaceuticals, such as bisphenols or mild analgesics (including paracetamol), can also affect the somatic cell lineages. This Review summarizes our current knowledge pertaining to environmental chemicals and pharmaceuticals, and their potential

contributions to the development of ovarian dysgenesis syndrome. We also highlight knowledge gaps that need addressing to safeguard female reproductive health.

Bruttoliste

1. Combined exposure to low doses of pesticides causes decreased birth weights in rats.

Hass U, Christiansen S, Axelstad M, Scholze M, Boberg J.

Reprod Toxicol. 2017 May 17. pii: S0890-6238(17)30128-4. doi: 10.1016/j.reprotox.2017.05.004. [Epub ahead of print](abstract).

2. Environmental influences on ovarian dysgenesis - developmental windows sensitive to chemical exposures.

Johansson HKL, Svingen T, Fowler PA, Vinggaard AM, Boberg J.

Nat Rev Endocrinol. 2017 Jul;13(7):400-414. doi: 10.1038/nrendo.2017.36. Epub 2017 Apr 28. Review (abstract).

3. Endocrine disrupting chemicals in mixture and obesity, diabetes and related metabolic disorders.

Le Magueresse-Battistoni B, Labaronne E, Vidal H, Naville D.

World J Biol Chem. 2017 May 26;8(2):108-119. doi: 10.4331/wjbc.v8.i2.108. Review.

4. Evidence of Absence: Estrogenicity Assessment of a New Food-Contact Coating and the Bisphenol Used in Its Synthesis.

Soto AM, Schaeberle C, Maier MS, Sonnenschein C, Maffini MV.

Environ Sci Technol. 2017 Feb 7;51(3):1718-1726. doi: 10.1021/acs.est.6b04704. Epub 2017 Jan 18 (valgt).

5. Effect of bisphenol A on reproductive processes: A review of in vitro, in vivo and epidemiological studies.

Tomza-Marciniak A, Stępkowska P, Kuba J, Pilarczyk B.

J Appl Toxicol. 2017 Jun 13. doi: 10.1002/jat.3480. [Epub ahead of print] Review.

6. Comparison of methods for calculating the health costs of endocrine disrupters: a case study on triclosan.

Prichystalova R, Fini JB, Trasande L, Bellanger M, Demeneix B, Maxim L.

Environ Health. 2017 Jun 9;16(1):55. doi: 10.1186/s12940-017-0265-x.

7. Effects of in vitro exposure to dibutyl phthalate, mono-butyl phthalate, and acetyl tributyl citrate on ovarian antral follicle growth and viability.

Rasmussen LM, Sen N, Vera JC, Liu X, Craig ZR.

Biol Reprod. 2017 May 8. doi: 10.1095/biolreprod.116.144691. [Epub ahead of print]

8. The era of 3Rs implementation in developmental and reproductive toxicity (DART) testing: Current overview and future perspectives.

Beekhuijzen M.

Reprod Toxicol. 2017 May 25. pii: S0890-6238(17)30170-3. doi: 10.1016/j.reprotox.2017.05.006. [Epub ahead of print] Review.

9. Effects of low doses of carbendazim or iprodione either separately or in mixture on the pubertal rat seminiferous epithelium: An ex vivo study.

Durand P, Martin G, Blondet A, Gilleron J, Carette D, Janczarski S, Christin E, Pointis G, Perrard MH.

Toxicol In Vitro. 2017 May 30. pii: S0887-2333(17)30147-9. doi: 10.1016/j.tiv.2017.05.022. [Epub ahead of print]

10. Risk assessment of the endocrine-disrupting effects of nine chiral pesticides.

Song Q, Zhang Y, Yan L, Wang J, Lu C, Zhang Q, Zhao M.

J Hazard Mater. 2017 May 11;338:57-65. doi: 10.1016/j.jhazmat.2017.05.015. [Epub ahead of print]

11. Anti-androgenic effects of bisphenol-A on spatial memory and synaptic plasticity of the hippocampus in mice.
Fang Z, Zhu Q, Gu T, Shen X, Yang Y, Liang Y, Zhang Z, Xu X.
Horm Behav. 2017 Jun 8;93:151-158. doi: 10.1016/j.yhbeh.2017.05.014. [Epub ahead of print]
12. Effects of chronic exposure to triclosan on reproductive and thyroid endpoints in the adult Wistar female rat.
Louis GW, Hallinger DR, Braxton MJ, Kamel A, Stoker TE.
J Toxicol Environ Health A. 2017 Jun 1:1-14. doi: 10.1080/15287394.2017.1287029. [Epub ahead of print]
13. High dose tetrabromobisphenol A impairs hippocampal neurogenesis and memory retention.
Kim AH, Chun HJ, Lee S, Kim HS, Lee J.
Food Chem Toxicol. 2017 May 28;106(Pt A):223-231. doi: 10.1016/j.fct.2017.05.053. [Epub ahead of print]
14. Uterine ER α epigenetic modifications are induced by the endocrine disruptor endosulfan in female rats with impaired fertility.
Milesi MM, Varayoud J, Ramos JG, Luque EH.
Mol Cell Endocrinol. 2017 May 27. pii: S0303-7207(17)30297-6. doi: 10.1016/j.mce.2017.05.028. [Epub ahead of print]
15. An Integrated Chemical Environment to Support 21st-Century Toxicology.
Bell SM, Phillips J, Sedykh A, Tandon A, Sprankle C, Morefield SQ, Shapiro A, Allen D, Shah R, Maull EA, Casey WM, Kleinstreuer NC.
Environ Health Perspect. 2017 May 24;125(5):054501. doi: 10.1289/EHP1759.
16. Diethylhexyl phthalate magnifies deposition of 14 C-bisphenol A in reproductive tissues of mice.
Borman ED, Vecchi N, Pollock T, deCatanzaro D.
J Appl Toxicol. 2017 May 29. doi: 10.1002/jat.3484. [Epub ahead of print]
17. Exposure to Cadmium Impairs Sperm Functions by Reducing CatSper in Mice.
Wang HF, Chang M, Peng TT, Yang Y, Li N, Luo T, Cheng YM, Zhou MZ, Zeng XH, Zheng LP.
Cell Physiol Biochem. 2017 May 10;42(1):44-54. doi: 10.1159/000477113. [Epub ahead of print]
18. Endocrine disruption by dietary phyto-oestrogens: impact on dimorphic sexual systems and behaviours.
Patisaul HB.
Proc Nutr Soc. 2017 May;76(2):130-144. doi: 10.1017/S0029665116000677. Epub 2016 Jul 8.
19. Neonatal exposure to 17 α -ethynyl estradiol (EE) disrupts follicle development and reproductive hormone profiles in female rats.
Zhang H, Taya K, Nagaoka K, Yoshida M, Watanabe G.
Toxicol Lett. 2017 Jul 5;276:92-99. doi: 10.1016/j.toxlet.2017.05.014. Epub 2017 May 15.
20. Inhalation Toxicity of Bisphenol A and Its Effect on Estrous Cycle, Spatial Learning, and Memory in Rats upon Whole-Body Exposure.
Chung YH, Han JH, Lee SB, Lee YH. *Toxicol Res.* 2017 Apr;33(2):165-171. doi: 10.5487/TR.2017.33.2.165. Epub 2017 Apr 15.
21. Obesity aggravates toxic effect of BPA on spermatogenesis.
Hu W, Dong T, Wang L, Guan Q, Song L, Chen D, Zhou Z, Chen M, Xia Y, Wang X.

Environ Int. 2017 May 11;105:56-65. doi: 10.1016/j.envint.2017.04.014. [Epub ahead of print]

22. Mixture effects of azole fungicides on the adrenal gland in a broad dose range.

Rieke S, Heise T, Schmidt F, Haider W, Bednarz H, Niehaus K, Mentz A, Kalinowski J, Hirsch-Ernst KI, Steinberg P, Niemann L, Marx-Stoelting P.

Toxicology. 2017 Jun 15;385:28-37. doi: 10.1016/j.tox.2017.04.012. Epub 2017 Apr 25.

23. Metabolomics Approach to Investigate Estrogen Receptor-Dependent and Independent Effects of o,p'-DDT in the Uterus and Brain of Immature Mice.

Wang D, Zhu W, Wang Y, Yan J, Teng M, Miao J, Zhou Z.

J Agric Food Chem. 2017 May 10;65(18):3609-3616. doi: 10.1021/acs.jafc.7b00292. Epub 2017 May 2.

24. How does sex matter? Behavior, stress and animal models of neurobehavioral disorders.

Palanza P, Parmigiani S.

Neurosci Biobehav Rev. 2017 May;76(Pt A):134-143. doi: 10.1016/j.neubiorev.2017.01.037. Review.

25. Low-dose pollutant mixture triggers metabolic disturbances in female mice leading to common and specific features as compared to a high-fat diet.

Labaronne E, Pinteur C, Vega N, Pesenti S, Julien B, Meugnier-Fouilloux E, Vidal H, Naville D, Le Magueresse-Battistoni B.

J Nutr Biochem. 2017 Jul;45:83-93. doi: 10.1016/j.jnutbio.2017.04.001. Epub 2017 Apr 8.

26. Impacts of Bisphenol A and Ethinyl Estradiol on Male and Female CD-1 Mouse Spleen.

Gear RB, Belcher SM.

Sci Rep. 2017 Apr 12;7(1):856. doi: 10.1038/s41598-017-00961-8.

27. Butyl paraben and propyl paraben modulate bisphenol A and estradiol concentrations in female and male mice.

Pollock T, Weaver RE, Ghasemi R, deCatanzaro D.

Toxicol Appl Pharmacol. 2017 Jun 15;325:18-24. doi: 10.1016/j.taap.2017.04.001. Epub 2017 Apr 5.

28. Perfluorododecanoic Acid Induces Cognitive Deficit in Adult Rats.

Kawabata K, Matsuzaki H, Nukui S, Okazaki M, Sakai A, Kawashima Y, Kudo N.

Toxicol Sci. 2017 Jun 1;157(2):421-428. doi: 10.1093/toxsci/kfx058.

29. Environmental pollutants, a possible etiology for premature ovarian insufficiency: a narrative review of animal and human data.

Vabre P, Gatimel N, Moreau J, Gayrard V, Picard-Hagen N, Parinaud J, Leandri RD.

Environ Health. 2017 Apr 7;16(1):37. doi: 10.1186/s12940-017-0242-4. Review.

30. Low doses of bisphenol A can impair postnatal testicular development directly, without affecting hormonal or oxidative stress levels.

Ogo FM, Siervo GE, Gonçalves GD, Cecchini R, Guarnier FA, Anselmo-Franci JA, Fernandes GS.

Reprod Fertil Dev. 2017 Apr 7. doi: 10.1071/RD16432. [Epub ahead of print]

31. Exposure to an Environmentally Relevant Phthalate Mixture Causes Transgenerational Effects on Female Reproduction in Mice.

Zhou C, Gao L, Flaws JA.

Endocrinology. 2017 Jun 1;158(6):1739-1754. doi: 10.1210/en.2017-00100.

32. Bisphenol A Exposure, Ovarian Follicle Numbers, and Female Sex Steroid Hormone Levels: Results From a CLARITY-BPA Study.

Patel S, Brehm E, Gao L, Rattan S, Ziv-Gal A, Flaws JA.

Endocrinology. 2017 Jun 1;158(6):1727-1738. doi: 10.1210/en.2016-1887 (valgt).

33. Maternal exposure to di(2-ethylhexyl)phthalate (DEHP) promotes the transgenerational inheritance of adult-onset reproductive dysfunctions through the female germline in mice.

Pocar P, Fiandanese N, Berrini A, Secchi C, Borromeo V. *Toxicol Appl Pharmacol.* 2017 May 1;322:113-121. doi: 10.1016/j.taap.2017.03.008. Epub 2017 Mar 9.

34. From the Cover: Teratogenic Effects of in Utero Exposure to Di-(2-Ethylhexyl)-Phthalate (DEHP) in B6:129S4 Mice.

Ungewitter E, Rotgers E, Bantukul T, Kawakami Y, Kissling GE, Yao HH.

Toxicol Sci. 2017 May 1;157(1):8-19. doi: 10.1093/toxsci/kfx019.

Wildlife studier ved Biologisk Institut, Syddansk Universitet (SDU)

Søgningen er udført på Web of Science (all databases) og dækker perioden 31/3 - 19/6 2017.

Søgeprofilen kombinerer: "endocrine disrupt*" and

- fish*
- amphibia*
- bird* OR avia*
- invertebrat*
- mollus*
- gastropod*
- insect*
- crustacea*
- echinoderm*
- ursus
- reptil* OR alligator
- whal* OR seal* OR dolphin*

Fra bruttolisten (længere nede i dokumentet) er udvalgt tre artikler til inklusion af abstract. Kriterierne for udvælgelsen af publikationer er, at de bidrager til ny viden omkring effekter af og virkningsmekanismer for hormonforstyrrende stoffer i 'wildlife' og/eller, at de repræsenterer vigtig viden, som vurderes at have særlig interesse for Miljøstyrelsen bl.a. i forbindelse med styrelsens fokus på udvikling af testmetoder. Desuden udvælges artikler, der omhandler 'nye' stoffer, der har vist sig hormonforstyrrende; specielt hvis disse har relevans for danske forhold.

Udvalgte publikationer

Impaired Swim Bladder Inflation in Early-Life Stage Fathead Minnows Exposed to A Deiodinase Inhibitor, Iopanoic Acid.

Cavallin JE, Ankley GT, Blackwell BR, Blanksma CA, Fay KA, Jensen KM, Kahl MD, Knapen D, Kosian PA, Poole S, Randolph EC, Schroeder AL, Vergauwen L, Villeneuve DL.

Environmental toxicology and chemistry. Accepted preprint. 2017.

Abstract:

Inflation of the posterior and/or anterior swim bladder are processes previously demonstrated to be thyroid-hormone regulated. We investigated whether inhibition of deiodinases, which convert thyroxine (T4) to the more biologically-active form, 3,5,3'-triiodothyronine (T3), would impact swim bladder inflation. Two experiments were conducted using a model deiodinase inhibitor, iopanoic acid (IOP). First, fathead minnow embryos were exposed to 0.6, 1.9, or 6.0 mg/L or control water until 6 days post-fertilization (dpf) at which time posterior swim bladder inflation was assessed. To examine anterior swim bladder inflation, a second study was conducted with 6 dpf larvae exposed to the same IOP concentrations until 21 dpf. Fish from both studies were sampled for T4/T3 measurements and gene transcription analyses. Incidence and length of inflated posterior swim bladders were significantly reduced in the 6.0 mg/L treatment at 6 dpf. Incidence of inflation and length of anterior swim bladder were significantly reduced in all IOP treatments at 14 dpf, but inflation recovered by 18 dpf. Throughout the larval study, whole body T4 concentrations increased and T3 concentrations decreased in all IOP treatments. Consistent with hypothesized compensatory responses, deiodinase-2 mRNA was up-regulated in the larval study, and thyroperoxidase mRNA was down-regulated in all IOP treatments in both studies. These results support the hypothesized adverse outcome pathways linking inhibition of deiodinase activity to impaired swim bladder inflation.

Re-evaluation of thyroid hormone signaling antagonism of tetrabromobisphenol A for validating the T3-induced Xenopus metamorphosis assay.

Wang Y, Li Y, Qin Z, Wei W.

Journal of Environmental Sciences. 52: 325-332. 2017.

Abstract:

We developed the T3-induced Xenopus metamorphosis assay, which is supposed to be able to sensitively detect thyroid hormone (TH) signaling disruption of chemicals. The present study aimed to validate the T3-induced Xenopus metamorphosis assay by re-evaluating the TH signaling antagonism of tetrabromobisphenol A (TBBPA), a known TH signaling disruptor. According to the assay we developed, Xenopus tadpoles at stage 52 were exposed to 10–500 nmol/L TBBPA in the presence of 1 nmol/L T3. After 96 hr of exposure, TBBPA in the range of 10–500 nmol/L was found to significantly inhibit T3-induced morphological changes of Xenopus tadpoles in a concentration-dependent manner in term of body weight and four morphological endpoints including head area (HA), mouth width (MW), unilateral brain width/brain length (ULBW/BL), and hind-limb length/snout-vent length (HLL/SVL). The results show that these endpoints we developed are sensitive for characterizing the antagonistic effects of TBBPA on T3-

induced metamorphosis. Following a 24-hr exposure, we found that TBBPA antagonized expression of T3-induced TH-response genes in the tail, which is consistent with previous findings in the intestine. We propose that the tail can be used as an alternative tissue to the intestine for examining molecular endpoints for evaluating TH signaling disruption. In conclusion, our results demonstrate that the T3-induced *Xenopus* metamorphosis assay we developed is an ideal *in vivo* assay for detecting TH signaling disruption.

Development and validation of an OECD reproductive toxicity test guideline with the mudsnail *Potamopyrgus antipodarum* (Mollusca, Gastropoda).

Ruppert K, Geiss C, Askem C, Benstead R, Brown R, Coke M, Ducrot V, Egeler P, Holbech H, Hutchinson TH, Kinnberg KL, Lagadic L, Le Page G, Macken A, Matthiessen P, Ostermann S, Schimera A, Schmitt C, Seeland-Fremer A, Smith AJ, Weltje L, Oehlmann J.

Chemosphere. 181: 589-599. 2017.

Abstract:

Mollusks are known to be uniquely sensitive to a number of reproductive toxicants including some vertebrate endocrine disrupting chemicals. However, they have widely been ignored in environmental risk assessment procedures for chemicals. This study describes the validation of the *Potamopyrgus antipodarum* reproduction test within the OECD Conceptual Framework for Endocrine Disruptors Testing and Assessment. The number of embryos in the brood pouch and adult mortality serve as main endpoints. The experiments are conducted as static systems in beakers filled with artificial medium, which is aerated through glass pipettes. The test chemical is dispersed into the medium, and adult snails are subsequently introduced into the beakers. After 28 days the reproductive success is determined by opening the brood pouch and embryo counting. This study presents the results of two validation studies of the reproduction test with eleven laboratories and the chemicals tributyltin (TBT) with nominal concentrations ranging from 10 to 1000 ng TBT-Sn/L and cadmium with concentrations from 1.56 to 25 µg/L.

The test design could be implemented by all laboratories resulting in comparable effect concentrations for the endpoint number of embryos in the brood pouch. After TBT exposure mean EC10, EC50, NOEC and LOEC were 35.6, 127, 39.2 and 75.7 ng Sn/L, respectively. Mean effect concentrations in cadmium exposed snails were, respectively, 6.53, 14.2, 6.45 and 12.6 µg/L.

The effect concentrations are in good accordance with already published data. Both validation studies show that the reproduction test with *P. antipodarum* is a well-suited tool to assess reproductive effects of chemicals.

Bruttoliste

1. Agricultural expansion as risk to endangered wildlife: Pesticide exposure in wild chimpanzees and baboons displaying facial dysplasia.

Krief S, Berny P, Gumisiriza F, Gross R, Demeneix B, Fini JB, Chapman CA, Chapman LJ, Seguya A, Wasswa J. *The Science of the total environment*. 598: 647-656. 2017.

2. Occurrence of personal care products as emerging chemicals of concern in water resources: A review.

Montes-Grajales D, Fennix-Agudelo M, Miranda-Castro W. *Science of the Total Environment*. 595: 601-614. 2017.

3. Different effects of bisphenol a and its halogenated derivatives on the reproduction and development of *Oryzias melastigma* under environmentally relevant doses.

Huang Q, Chen Y, Lin L, Liu Y, Chi Y, Lin Y, Ye G, Zhu H, Dong S. *Science of the Total Environment*. 595: 752-758. 2017.

4. Evaluation of the influence of surfactants in the bioaccumulation kinetics of sulfamethoxazole and oxazepam in benthic invertebrates.

Jesus Garcia-Galan M, Sordet M, Bulete A, Garric J, Vulliet E. *Science of the Total Environment*. 592: 554-564. 2017.

5. Reproductive effects of oestrogenic endocrine disrupting chemicals in *Astyanax rivularis* inhabiting headwaters of the Velhas River, Brazil.

Weber AA, Moreira DP, Costa Melo RM, Cruz Vieira AB, Prado PS, Neres da Silva MA, Bazzoli N, Rizzo E. *Science of the Total Environment*. 592: 693-703. 2017.

6. Intersexuality in aquatic invertebrates: Prevalence and causes.

Grilo TF, Rosa R. *Science of the Total Environment*. 592: 714-728. 2017.

7. Development and validation of an OECD reproductive toxicity test guideline with the mudsnail *Potamopyrgus antipodarum* (Mollusca, Gastropoda).

Ruppert K, Geiss C, Askem C, Benstead R, Brown R, Coke M, Ducrot V, Egeler P, Holbech H, Hutchinson TH, Kinnberg KL, Lagadic L, Le Page G, Macken A, Matthiessen P, Ostermann S, Schimera A, Schmitt C, Seeland-Fremer A, Smith AJ, Weltje L, Oehlmann J.

***Chemosphere*. 181: 589-599. 2017.**

8. Endocrine disruption by environmental gestagens in amphibians - A short review supported by new invitro data using gonads of *Xenopus laevis*.

Zikova A, Lorenz C, Hoffmann F, Kleiner W, Lutz I, Stock M, Kloas W. *Chemosphere*. 181: 74-82. 2017.

9. The relative risk and its distribution of endocrine disrupting chemicals, pharmaceuticals and personal care products to freshwater organisms in the Bohai Rim, China.

Zhang M, Shi Y, Lu Y, Johnson AC, Sarvajayakesavalu S, Liu Z, Su C, Zhang Y, Juergens MD, Jin X. *Science of the Total Environment*. 590: 633-642. 2017.

10. Histological changes, lipid metabolism and oxidative stress in the liver of *Bufo gargarizans* exposed to cadmium concentrations.
Wu C, Zhang Y, Chai L, Wang H.
Chemosphere. 179: 337-346. 2017.
11. Effects of 4-MBC and triclosan in embryos of the frog *Pelophylax perezi*.
Martins D, Monteiro MS, Soares AM, V, Quintaneiro C.
Chemosphere. 178: 325-332. 2017.
12. Responses of gonadal transcriptome and physiological analysis following exposure to 17 alpha-ethynylestradiol in adult rare minnow *Gobiocypris rarus*.
Gao J, Zhang Y, Zhang T, Yang Y, Yuan C, Jia J, Wang Z.
Ecotoxicology and Environmental Safety. 141: 209-215. 2017.
13. Proteomic response of *Macrobrachium rosenbergii* hepatopancreas exposed to chlordecone: Identification of endocrine disruption biomarkers?
Lafontaine A, Baiwir D, Joaquim-Justo C, De Pauw E, Lemoine S, Boulange-Lecomte C, Forget-Leray J, Thome JP, Gismondi E.
Ecotoxicology and Environmental Safety. 141: 306-314. 2017.
14. Evaluation of the toxic effect of endocrine disruptor Bisphenol A (BPA) in the acute and chronic toxicity tests with *Pomacea lineata* gastropod.
de Andrade ALC, Soares PRL, da Silva SCBL, da Silva MCG, Santos TP, Cadena MRS, Soares PC, Cadena PG.
Comparative biochemistry and physiology Toxicology & pharmacology : CBP. 197: 1-7. 2017.
15. Accumulation of endocrine disrupting chemicals in the liver of *Diplodus sargus sargus* in Torre Guaceto Natural Reserve.
Rizzo D, Pennetta A, De Benedetto GE.
Marine pollution bulletin. 119(2): 219-222. 2017.
16. Assessing PAHs pollution in Shandong coastal area (China) by combination of chemical analysis and responses of reproductive toxicity in crab *Portunus trituberculatus*.
Pan L, Xu R, Wen J, Guo R.
Environmental Science and Pollution Research. 24(16): 14291-14303. 2017.
17. Detection of endocrine disrupting chemicals and evidence of their effects on the HPG axis of the European anchovy *Engraulis encrasicolus*.
Miccoli A, Maradonna F, De Felice A, Barucchi VC, Estonba A, Genangeli M, Vittori S, Leonori I, Carnevali O.
Marine Environmental Research. 127: 137-147. 2017.
18. Biomarker response and hypothalamus-pituitary-interrenal axis functioning in Arctic charr from Bjornoya (74 degrees 30 ' N), Norway, with high levels of organohalogenated compounds.
Jorgensen EH, Maule AG, Evenset A, Christensen G, Bytningsvik J, Frantzen M, Nikiforov V, Faught E, Vijayan MM.
Aquatic Toxicology. 187: 64-71. 2017.
19. Nine co-localized cytochrome P450 genes of the CYP2N, CYP2AD, and CYP2P gene families in the mangrove killifish *Kryptolebias marmoratus* genome: Identification and expression in response to B[alpha]P, BPA, OP, and NP.

- Puthumana J, Kim BM, Jeong CB, Kim DH, Kang HM, Jung JH, Kim IC, Hwang UK, Lee JS.
Aquatic Toxicology. 187: 132-140. 2017.
20. Primary hepatocytes from Arctic char (*Salvelinus alpinus*) as a relevant Arctic in vitro model for screening contaminants and environmental extracts.
Petersen K, Hultman MT, Tollefsen KE.
Aquatic Toxicology. 187: 141-152. 2017.
21. Modulation of the stress response in wild fish is associated with variation in dissolved nitrate and nitrite.
Pottinger TG.
Environmental Pollution. 225: 550-558. 2017.
22. The Effects of Sertraline on Fathead Minnow (*Pimephales promelas*) Growth and Steroidogenesis.
Carty D, Hala D, Huggett D.
Bulletin of Environmental Contamination and Toxicology. 98(6): 753-757. 2017.
23. Adverse effects of BDE-47 on in vivo developmental parameters, thyroid hormones, and expression of hypothalamus-pituitary-thyroid (HPT) axis genes in larvae of the self-fertilizing fish *Kryptolebias marmoratus*.
Kang HM, Lee YH, Kim BM, Kim IC, Jeong CB, Lee JS.
Chemosphere. 176: 39-46. 2017.
24. Differential effects of bisphenol A toxicity on oyster (*Crassostrea angulata*) gonads as revealed by label-free quantitative proteomics.
Luo L, Zhang Q, Kong X, Huang H, Ke C.
Chemosphere. 176: 305-314. 2017.
25. Removal of pharmaceuticals and unspecified contaminants in sewage treatment effluents by activated carbon filtration and ozonation: Evaluation using biomarker responses and chemical analysis.
Beijer K, BJORLONIUS B, SHAIK S, LINDBERG RH, BRUNSTROM B, BRANDT I.
Chemosphere. 176: 342-351. 2017.
26. Effects of chronic waterborne cadmium and zinc interactions on tissue-specific metal accumulation and reproduction in fathead minnow (*Pimephales promelas*).
Driessnack MK, Jamwal A, Niyogi S.
Ecotoxicology and Environmental Safety. 140: 65-75. 2017.
27. Prozac impacts lateralization of aggression in male Siamese fighting fish.
HedayatiRad M, Nematollahi MA, Forsatkar MN, Brown C.
Ecotoxicology and Environmental Safety. 140: 84-88. 2017.
28. Semicarbazide-induced thyroid disruption in Japanese flounder (*Paralichthys olivaceus*) and its potential mechanisms.
Yue Z, Yu M, Zhang X, Dong Y, Tian H, Wang W, Ru S.
Ecotoxicology and Environmental Safety. 140: 131-140. 2017.
29. Endocrine-related genes are altered by antibacterial agent triclosan in *Chironomus riparius* aquatic larvae.
Martinez-Paz P, Morales M, Urien J, Morcillo G, Luis Martinez-Guitarte J.

Ecotoxicology and Environmental Safety. 140: 185-190. 2017.

30. Environmental estrogens inhibit mRNA and functional expression of growth hormone receptors as well as growth hormone signaling pathways in vitro in rainbow trout (*Oncorhynchus mykiss*).

Hanson AM, Ickstadt AT, Marquart DJ, Kittilson JD, Sheridan MA.

General and Comparative Endocrinology. 246: 120-128. 2017.

31. Differential sensitivity to estrogen-induced opsin expression in two poeciliid freshwater fish species.

Friesen CN, Ramsey ME, Cummings ME.

General and Comparative Endocrinology. 246: 200-210. 2017.

32. Endocrine and physiological effects of linuron and S-metolachlor in zebrafish developing embryos.

Quintaneiro C, Patricio D, Novais S, Soares A, Monteiro M.

Science of the Total Environment. 586: 390-400. 2017.

33. Impaired Swim Bladder Inflation in Early-Life Stage Fathead Minnows Exposed to A Deiodinase Inhibitor, Iopanoic Acid.

Cavallin JE, Ankley GT, Blackwell BR, Blanksma CA, Fay KA, Jensen KM, Kahl MD, Knapen D, Kosian PA, Poole S, Randolph EC, Schroeder AL, Vergauwen L, Villeneuve DL.

Environmental toxicology and chemistry. Accepted preprint. 2017.

34. Windows of Susceptibility and Consequences of Early Life Exposures to 17 beta-estradiol on Medaka (*Oryzias latipes*) Reproductive Success.

Pow CS, Tilahun K, Creech K, Mac Law J, Cope W, Kwak TJ, Rice JK, Aday D, Kullman SW.

Environmental Science & Technology. 51(9): 5296-5305. 2017.

35. An Evaluation of the Endocrine Disruptive Potential of Crude Oil Water Accommodated Fractions and Crude Oil Contaminated Surface Water to Freshwater Organisms Using in Vitro and in Vivo Approaches.

Truter J, van Wyk JH, Oberholster PJ, Botha AM, Mokwena LM.

Environmental toxicology and chemistry. 36(5): 1330-1342. 2017.

36. Characterisation of the transcriptome of male and female wild-type guppy brains with RNA-Seq and consequences of exposure to the pharmaceutical pollutant, 17 alpha-ethinyl estradiol.

Saaristo M, Wong BB, Mincarelli L, Craig A, Johnstone CP, Allinson M, Lindstrom K, Craft JA.

Aquatic Toxicology. 186: 28-39. 2017.

37. Effects of food-borne exposure of juvenile rainbow trout (*Oncorhynchus mykiss*) to emerging brominated flame retardants 1,2-bis(2,4,6-tribromophenoxy)ethane and 2-ethylhexyl-2,3,4,5-tetrabromobenzoate.

Giraud M, Douville M, Letcher RJ, Houde M.

Aquatic Toxicology. 186: 40-49. 2017.

38. The effects of fipronil and the photodegradation product fipronil desulfinyl on growth and gene expression in juvenile blue crabs, *Callinectes sapidus*, at different salinities.

Goff AD, Saranjampour P, Ryana LM, Hladik ML, Covi JA, Armbrust KL, Brander SM.

Aquatic Toxicology. 186: 96-104. 2017.

39. Histopathological Liver and Testis Alterations in Male Half Smooth Tongue Sole (*Cynoglossus semilaevis*) Exposed to Endocrine Disruptors.
Li F, Yao L, Sun W, Jiang Y, Li Z, Zhai Y.
Journal of Coastal Research. 33(3): 678-683. 2017.
40. Characteristics and Bioaccumulation of Progestogens, Androgens, Estrogens, and Phenols in Erhai Lake Catchment, Yunnan, China.
Huang B, Xiong D, He H, Li X, Sun W, Pan X.
Environmental Engineering Science. 34(5): 321-332. 2017.
41. Temporal patterns of induction and recovery of biomarker transcriptional responses to 4-Nonylphenol and 17-estradiol in the estuarine arrow goby, *Clevelandia ios*.
Johnson KM, Lema SC.
Environmental Toxicology. 32(5): 1513-1529. 2017.
42. Determination of 4-n-octylphenol, 4-n-nonylphenol and bisphenol A in fish samples from lake and rivers within Hunan Province, China.
Luo L, Yang Y, Wang Q, Li HP, Luo ZF, Qu ZP, Yang ZG.
Microchemical Journal. 132: 100-106. 2017.
43. Effects on Circulating Steroid Hormones and Gene Expression along the Hypothalamus-Pituitary-Gonadal Axis in Adult Japanese Quail Exposed to 17beta-Trenbolone across Multiple Generations.
Karouna-Renier NK, Chen Y, Henry PFP, Maddox CM, Sprague DT.
Toxicological sciences : an official journal of the Society of Toxicology. 157(1): 62-73. 2017.
44. Acute Exposure to 17 alpha-Ethinylestradiol Alters Aggressive Behavior of Mosquitofish (*Gambusia affinis*) Toward Japanese Medaka (*Oryzias latipes*).
Dang HM, Inagaki Y, Yamauchi Y, Kurihara T, Vo CH, Sakakibara Y.
Bulletin of Environmental Contamination and Toxicology. 98(5): 643-648. 2017.
45. Recovery of gonadal development in tiger puffer *Takifugu rubripes* after exposure to 17 beta-estradiol during early life stages.
Hu P, Liu B, Meng Z, Liu X, Jia Y, Yang Z, Lei J.
Chinese Journal of Oceanology and Limnology. 35(3): 613-623. 2017.
46. Alteration in molecular markers of oocyte development and intersex condition in mullets impacted by wastewater treatment plant effluents.
Valencia A, Rojo-Bartolome I, Bizarro C, Cancio I, Ortiz-Zarragoitia M.
General and Comparative Endocrinology. 245: 10-18. 2017.
47. Toxic and endocrine disrupting effects of wastewater treatment plant influents and effluents on a freshwater isopod *Asellus aquaticus* (Isopoda, Crustacea).
Plahuta M, Tisler T, Toman MJ, Pintar A.
Chemosphere. 174: 342-353. 2017.
48. Endocrine disrupting pesticides impair the neuroendocrine regulation of reproductive behaviors and secondary sexual characters of red munia (*Amandava amandava*).

Pandey SP, Tsutsui K, Mohanty B.
Physiology & Behavior. 173: 15-22. 2017.

49. Multi-residue analysis of 36 priority and emerging pollutants in marine echinoderms (*Holothuria tubulosa*) and marine sediments by solid-liquid extraction followed by dispersive solid phase extraction and liquid chromatography tandem mass spectrometry analysis.

Martin J, Zafra-Gomez A, Hidalgo F, Ibanez-Yuste A, Alonso E, Vilchez J.
Talanta. 166: 336-348. 2017.

50. Disruption of the hypothalamic-pituitary-thyroid axis on co-exposures to dithiocarbamate and neonicotinoid pesticides: Study in a wildlife bird, *Amandava amandava*.

Pandey SP, Mohanty B.
Neurotoxicology. 60: 16-22. 2017.

51. Effect of triclosan on anuran development and growth in a larval amphibian growth and development assay.

Fort DJ, Mathis MB, Pawlowski S, Wolf JC, Peter R, Champ S.
Journal of applied toxicology : JAT. 2017.

52. Persistent Effects of Developmental Exposure to 17 alpha-Ethinylestradiol on the Zebrafish (*Danio rerio*) Brain Transcriptome and Behavior.

Porseryd T, Volkova K, Caspillo NR, Kallman T, Dinnetz P, Hallstrom IP.
Frontiers in Behavioral Neuroscience. 11: 2017.

53. Cloning retinoid and peroxisome proliferator-activated nuclear receptors of the Pacific oyster and in silico binding to environmental chemicals.

Vogeler S, Galloway TS, Isupov M, Bean TP.
Plos One. 12(4): 2017.

54. Ecdysone Receptor Agonism Leading to Lethal Molting Disruption in Arthropods: Review and Adverse Outcome Pathway Development.

Song Y, Villeneuve DL, Toyota K, Iguchi T, Tollefsen KE.
Environmental Science & Technology. 51(8): 4142-4157. 2017.

55. Exposure to Persistent Organic Pollutants Reduces Testosterone Concentrations and Affects Sperm Viability and Morphology during the Mating Peak Period in a Controlled Experiment on Farmed Arctic Foxes (*Vulpes lagopus*).

Sonne C, Torjesen PA, Fuglei E, Muir DC, Jenssen BM, Jorgensen EH, Dietz R, Ahlstrom O.
Environmental Science & Technology. 51(8): 4673-4680. 2017.

56. Inhalation - Route of EDC exposure in seabirds (*Larus argentatus*) from the Southern Baltic.

Falkowska L, Grajewska A, Staniszewska M, Nehring I, Szumilo-Pilarska E, Saniewska D.
Marine pollution bulletin. 117(1-2): 111-117. 2017.

57. Phenolic endocrine-disrupting compounds in the Pearl River Estuary: Occurrence, bioaccumulation and risk assessment.

Diao P, Chen Q, Wang R, Sun D, Cai Z, Wu H, Duan S.
Science of the Total Environment. 584: 1100-1107. 2017.

58. Influence of blooms of phytoplankton on concentrations of hydrophobic organic chemicals in sediments and snails in a hyper-eutrophic, freshwater lake.
Shi W, Yu N, Jiang X, Han Z, Wang S, Zhang X, Wei S, Giesy JP, Yu H.
Water Research. 113: 22-31. 2017.
59. Tributyltin bioaccumulation and toxic effects in freshwater gastropods *Pomacea canaliculata* after a chronic exposure: field and laboratory studies.
Martinez ML, Piol MN, Sbarbati Nudelman N, Verrengia Guerrero NR.
Ecotoxicology (London, England). 2017.
60. Muscarinic receptors mediate the endocrine-disrupting effects of an organophosphorus insecticide in zebrafish.
Santos da Rosa JG, Alcantara Barcellos HHd, Fagundes M, Variani C, Rossini M, Kalichak F, Koakoski G, Acosta Oliveira T, Idalencio R, Frandoloso R, Piato AL, Jose Gil Barcellos L.
Environmental Toxicology. 2017.
61. Effects of octylphenol on the expression of StAR, CYP17 and CYP19 in testis of *Rana chensinensis*.
Bai Y, Li XY, Liu ZJ, Zhang YH.
Environmental Toxicology and Pharmacology. 51: 9-15. 2017.
62. Transcriptomic alterations in the brain of painted turtles (*Chrysemys picta*) developmentally exposed to bisphenol A or ethinyl estradiol.
Manshack LK, Conard CM, Bryan SJ, Deem SL, Holliday DK, Bivens NJ, Givan SA, Rosenfeld CS.
Physiological Genomics. 49(4): 201-215. 2017.
63. Disrupting effects of azocyclotin to the hypothalamo-pituitary-gonadal axis and reproduction of *Xenopus laevis*.
Li S, Li M, Gui W, Wang Q, Zhu G.
Aquatic Toxicology. 185: 121-128. 2017.
64. Biological responses to phenylurea herbicides in fish and amphibians: New directions for characterizing mechanisms of toxicity.
Marlatt VL, Martyniuk CJ.
Comparative Biochemistry and Physiology C-Toxicology & Pharmacology. 194: 9-21. 2017.
65. Behavioral response and gene expression changes in fipronil-administered male Japanese quail (*Coturnix japonica*).
Khalil SR, Awad A, Mohammed HH.
Environmental Pollution. 223: 51-61. 2017.
66. Concentrations of vitamin A, E, thyroid and testosterone hormones in blood plasma and tissues from emaciated adult male Arctic foxes (*Vulpes lagopus*) dietary exposed to persistent organic pollutants (POPs).
Rogstad TW, Sonne C, Villanger GD, Ahlstrom O, Fuglei E, Muir DC, Jorgensen E, Jenssen BM.
Environmental Research. 154: 284-290. 2017.
67. Disruption of thyroxine and sex hormones by 1,2-dibromo-4-(1,2-dibromoethyl)cyclohexane (DBE-DBCH) in American kestrels (*Falco sparverius*) and associations with reproductive and behavioral changes.
Marteinson SC, Palace V, Letcher RJ, Ferni KJ.
Environmental Research. 154: 389-397. 2017.

68. Birds and flame retardants: A review of the toxic effects on birds of historical and novel flame retardants.
Guigueno MF, Fernie KJ.
Environmental Research. 154: 398-424. 2017.

69. Diclofenac can exhibit estrogenic modes of action in male *Xenopus laevis*, and affects the hypothalamus-pituitary-gonad axis and mating vocalizations.
Efosa NJ, Kleiner W, Kloas W, Hoffmann F.
Chemosphere. 173: 69-77. 2017.

70. Integrated environmental risk assessment of chemical pollution in a Mediterranean floodplain by combining chemical and biological methods.
Rivetti C, Lopez-Perea JJ, Laguna C, Pina B, Mateo R, Eljarrat E, Barcelo D, Barata C.
Science of the Total Environment. 583: 248-256. 2017.

71. Toxicity effects of di-(2-ethylhexyl) phthalate to *Eisenia fetida* at enzyme, cellular and genetic levels.
Ma T, Zhou W, Chen L, Wu L, Christie P, Zhang H, Luo Y.
Plos One. 12(3): 2017.

72. Evaluating the Credibility of Histopathology Data in Environmental Endocrine Toxicity Studies.
Wolf JC, Maack G.
Environmental toxicology and chemistry. 36(3): 601-611. 2017.

73. Reproductive effects of endocrine disrupting chemicals, bisphenol-A and 17-oestradiol, on *Cerastoderma edule* from south-west England: field study and laboratory exposure.
Lusher AL, Pope N, Handy RD.
Journal of the Marine Biological Association of the United Kingdom. 97(2): 347-357. 2017.

74. Comparative ovarian microarray analysis of juvenile hormone-responsive genes in water flea *Daphnia magna*: potential targets for toxicity.
Toyota K, Williams TD, Sato T, Tatarazako N, Iguchi T.
Journal of Applied Toxicology. 37(3): 374-381. 2017.

75. Transcriptomic, cellular and life-history responses of *Daphnia magna* chronically exposed to benzotriazoles: Endocrine-disrupting potential and molting effects.
Giraud M, Douville M, Cottin G, Houde M.
Plos One. 12(2): 2017.

76. Green microalgae in removal and biotransformation of estradiol and ethinylestradiol.
Wang P, Wong YS, Tam NF-Y.
Journal of Applied Phycology. 29(1): 263-273. 2017.

77. Use of a suite of biomarkers to assess the effects of carbamazepine, bisphenol A, atrazine, and their mixtures on green mussels, *Perna viridis*.
Juhel G, Bayen S, Goh C, Lee WK, Kelly BC.
Environmental toxicology and chemistry. 36(2): 429-441. 2017.

78. Optimization of the T3-induced *Xenopus* metamorphosis assay for detecting thyroid hormone signaling disruption of chemicals.

Yao X, Chen X, Zhang Y, Li Y, Wang Y, Zheng Z, Qin Z, Zhang Q.

Journal of Environmental Sciences. 52: 314-324. 2017.

79. Re-evaluation of thyroid hormone signaling antagonism of tetrabromobisphenol A for validating the T3-induced *Xenopus* metamorphosis assay.

Wang Y, Li Y, Qin Z, Wei W.

Journal of Environmental Sciences. 52: 325-332. 2017.

80. Long-term 2007-2013 monitoring of reproductive disturbance in the dun sentinel *Assiminea grayana* with regard to polymeric materials pollution at the coast of Lower Saxony, North Sea, Germany.

Watermann B, Loeder M, Herlyn M, Daehne B, Thomsen A, Gall K.

Environmental Science and Pollution Research. 24(4): 3352-3362. 2017.

81. Ascidiars : An Emerging Marine Model for Drug Discovery and Screening.

Dumollard R, Gazo I, Gomes IDL, Besnardeau L, McDougall A.

Current topics in medicinal chemistry. 2017.

82. Implication of thyroid hormone signaling in neural crest cells migration: Evidence from thyroid hormone receptor beta knockdown and NH₃ antagonist studies.

Bronchain OJ, Chesneau A, Monsoro-Burq AH, Jolivet P, Paillard E, Scanlan TS, Demeneix BA, Sachs LM, Pollet N.

Molecular and Cellular Endocrinology. 439(C): 233-246. 2017.

83. A Comparative Study of Standard Methods for Assessing Ecotoxicity of Endocrine Disrupting Chemicals.

Kwak JI, Cui R, Moon J, Kim D, An YJ.

Journal of Korean Society of Environmental Engineers. 39(3): 132-139. 2017.

84. Bioassays with freshwater snails *Biomphalaria* sp.: from control of hosts in public health to alternative tools in ecotoxicology.

Oliveira-Filho EC, Nakano E, Tallarico LdF.

Invertebrate Reproduction & Development. 61(1): 49-57. 2017.

85. Neuroendocrine and behavioural responses of Japanese quails to dietary *Aspilia africana* leaf meal and extracts.

Oko O, Asuquo O, Agiang E, Osim E.

Journal of Livestock Science. 8: 43-51. 2017.

86. Nutrients, emerging pollutants and pesticides in a tropical urban reservoir: Spatial distributions and risk assessment.

Lopez-Doval JC, Montagner CC, de Albuquerque AF, Moschini-Carlos V, Umbuzeiro G, Pompeo M.

Science of the Total Environment. 575: 1307-1324. 2017.