Title: Evaluation of the effects of α-cypermethrin on fetal rat testicular steroidogenesis

Authors: Anne-Marie Saillenfait, Jean-Philippe Sabaté, Flavien Denis, Guillaume Antoine, Alain Robert, Alain-Claude Roudot, Dieynaba Ndiaye, Ethel Eljarrat

PII: S0890-6238(17)30048-5
DOI: http://dx.doi.org/doi:10.1016/j.reprotox.2017.06.133
Reference: RTX 7526

To appear in: *Reproductive Toxicology*

Received date: 25-1-2017
Revised date: 15-5-2017
Accepted date: 21-6-2017

Please cite this article as: Saillenfait Anne-Marie, Sabaté Jean-Philippe, Denis Flavien, Antoine Guillaume, Robert Alain, Roudot Alain-Claude, Ndiaye Dieynaba, Eljarrat Ethel.Evaluation of the effects of α-cypermethrin on fetal rat testicular steroidogenesis.*Reproductive Toxicology* http://dx.doi.org/10.1016/j.reprotox.2017.06.133

Evaluation of the effects of α-cypermethrin on fetal rat testicular steroidogenesis

Anne-Marie Saillenfait [a*], Jean-Philippe Sabaté [a], Flavien Denis [a], Guillaume Antoine [a], Alain Robert [a], Alain-Claude Roudot [b], Dieynaba Ndiaye [a], Ethel Eljarrat [c]

[a] *Institut National de Recherche et de Sécurité, 1 rue du Morvan CS 60027, 54519 Vandoeuvre Cedex, France*

[b] *Université de Bretagne Occidentale, UFRdes Sciences et Techniques, 6 avenue Victor Le Gorgeau, CS 93837, 29238 Brest Cedex 3, France*

[c]*Water and Soil Quality Research Group, Department of Environmental Chemistry, IDAEA-CSIC, Jordi Girona 18-26, 08034 Barcelona, Spain*

[*] Correspondence to: AM Saillenfait, Institut National de Recherche et de Sécurité, Rue du Morvan, CS, 60027, 54519 Vandoeuvre Cedex, France. E-mail address: anne-marie.saillenfait@inrs.fr

Highlights

- α-Cypermethrin had limited effects on the fetal rat testis up to maternal toxic doses.
- Testicular genes involved in steroid synthesis and transport were not disrupted.
- Ex vivo fetal testicular testosterone production was reduced at high doses.

ABSTRACT

Pregnant Sprague-Dawley rats were administered the insecticide α-cypermethrin at doses of 0.1, 1, 5, or 10 mg/kg/day, or di-isobutyl phthalate (DIBP) at 250 mg/kg/day, by gavage, from gestation day (GD) 13 to 19. Testicular testosterone production and the expression of several key genes related to cholesterol and androgen synthesis and transport were assessed in GD 19 male fetuses. Dams treated with 10 mg/kg/day of α-cypermethrin showed clinical signs of neurotoxicity and reduced body weight gain. α-Cypermethrin had no significant effect on post-implantation loss, fetal weight, incidence of male fetuses per litter, or anogenital distance of the male fetuses. In the fetal testes, mRNA expressions of *HMG-CoA synthase* and *reductase, SRB1, StAR, P450scc, 3βHSD, P450 17A1,* and *17βHSD* were not affected by exposure to α-cypermethrin**.** Testosterone production by the fetal testis was significantly reduced at 5 and 10 mg/kg/day of α-cypermethrin, although to a much smaller extent than in DIBP-exposed fetuses.