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PII: S0890-6238(18)30432-5
DOI: https://doi.org/10.1016/j.reprotox.2018.08.015
Reference: RTX 7730

To appear in: *Reproductive Toxicology*

Received date: 24-7-2018
Revised date: 17-8-2018
Accepted date: 23-8-2018

Please cite this article as: Mao B-ping, Li L, Yan M, Lian Q, Ge R, Cheng CY, Environmental toxicants and cell polarity in the testis, *Reproductive Toxicology* (2018), https://doi.org/10.1016/j.reprotox.2018.08.015

Revised MS: RTX-2018-252-R1

Environmental toxicants and cell polarity in the testis

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Conflicts of Interest: Nothing to declare.

This work was supported in part by a grant from the National Institutes of Health (NICHD HD056034 to C.Y.C.; U54 HD029990 Project 5 to C.Y.C.).

Highlights

- Sertoli cell and spermatid polarity are conferred by cell polarity and planar cell polarity (PCP) proteins.
- Apico-basal cell polarity in the testis is modulated by the Par-, the Crb3- and the Scribble-based polarity protein complexes.
- PCP in the testis is conferred by the Vangl2/Prickle and Frizzed/Disheveled PCP protein complexes.
- Studies have shown that environmental toxicants perturb cell polarity and PCP in the testis prior to germ cell exfoliation from the testis.
- Mechanistic insights regarding the role of actin- and microtubule-based cytoskeletons in mediating toxicant-induced defects in cell polarity and PCP in the testis are discussed.

Abstract

During spermatogenesis, head-tail polarity, apico-basal cell polarity and planar cell polarity (PCP) are remarkably noted in the seminiferous epithelium in which the heads of developing haploid