Predictive value of cell assays for developmental toxicity and embryotoxicity of conazole fungicides.

This paper evaluates in vivo predictability of a battery of in vitro tests covering developmental toxicity and embryotoxicity of five widely used conazole fungicides. The conazoles were investigated in the embryonic stem cell test, and data were compared to in vivo embryotoxicity data. The same conazoles were evaluated on the basis of data from a battery of cell assays for endocrine activity, including assays for AR, ER, AhR, and sex hormone synthesis, and data were compared to in vivo developmental toxicity data. Overall, the ranking of the five conazole fungicides based on in vitro data were in reasonably good agreement with available in vivo effects. Ketoconazole and epoxiconazole are the most potent embryotoxic compounds, whereas prochloraz belongs to the most potent developmental toxicants. In conclusion, a rough prediction of the ranking of these conazole fungicides for in vivo toxicity data was possible by a holistic evaluation of data from a panel of cell-based assays.

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