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LETTER TO THE EDITOR

Alternative Testing Methods - Reproductive Toxicity

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Reproductive toxicity refers to the adverse effects of a substance on any aspect of the reproductive cycle. There are different conventional animal tests for assessing reproductive toxicity like the prenatal developmental toxicity study, the 1-generation study, the 2-generation study, and the repeat-dose toxicity study. Now a days there has been a considerable increase in the number of in vivo screening tests to detect so-called endocrine disruptors, which could replace reproductive toxicity testing procedures using animals and would substantially reduce the number of animals used for biomedical testing. There are many other alternative methods for reproductive toxicity testing, including the micromass (MM) assay, the whole embryo culture (WEC) assay, the embryonic stem cell test (EST), and the frog embryo teratogenesis assay–Xenopus (FETAX) assay.

Brown (1) has already stated that "It is important that these new strategies (embryonic approaches) are not bedevilled by naive expectations, particularly in the early stages of their use. The V word (validation) should be locked away, in favor of 'profiling', in which we ask 'Can this chemical affect this particular pathway'?" Moreover, he predicts that "Once answers are available for many chemicals and pathways, patterns of response will be assembled, and these may allow the prediction of some types of developmental toxicity."

It is also not possible to model the whole of the reproductive cycle in vitro with one approach. The parts of the system need to be studied individually and then integrated into a testing strategy. It will take time to develop and validate a battery of alternative tests that can cover the various aspects of the reproductive cycle, and so animal tests will continue to be required for the foreseeable future, at least for certain aspects of reproductive toxicity testing.

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