Highlight report: False positives in genotoxicity testing

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Genotoxicity testing represents a central topic in toxicology (Oka et al. 2018; Barcham et al. 2018; Ireno et al. 2014; Zrnzevic et al. 2017). One current challenge is the relatively high number of false positive results. A second problem is that in vivo mutagenicity tests, such as the mouse micronucleus assay, are no longer allowed for testing of cosmetics. To improve the situation, Gamze Ates and colleagues from Brussels University have established a novel assay based on gene expression in Hepa RG cells (Ates et al. 2018). The authors tested a set of 84 genes by qRT-PCR and successfully differentiated five known positive and five negative test compounds.

Currently, much effort is invested to improve in vitro (Leist et al. 2017; Cipriano et al. 2017; Deharde et al. 2016; Luckert et al. 2017; Reif et al. 2015) and in silico (Hoehme et al. 2018; Schenk et al. 2017; Ghallab et al. 2016) systems. Although the current approach of Ates and colleagues is of high interest it still requires larger numbers of test compounds and blinded testing to study whether the accuracy of the novel assay is sufficient. Moreover, a systematic comparison to the currently applied test battery to the results obtained with human hepatocytes would be highly welcome in future.

Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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