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Guest editorial:

HIGHLIGHT REPORT: MONITORING CYTOCHROME P450 ACTIVITIES IN LIVING HEPATOCYTES

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Recently, Jannick Theobald and Xinlai Cheng from Heidelberg University published a methods' paper how to monitor cytochrome P450 (CYP) activities in living hepatocytes (Theobald et al., 2017). For this purpose, the authors used substrates that are metabolized by CYP enzymes thereby forming highly fluorescent leaving groups that were quantified by a plate reader. This technique allows repeated real-time measurements of cultivated hepatocytes over extincted time periods (Theobald et al., 2017). The monitoring technique was validated by the use of CYP inducers and was applied to characterize differentiating HepaRG cells. The authors conclude that the fluorescence-based assay can easily be used as a tool to characterize hepatocyte *in vitro* systems.

Hepatotoxicity still represents a major challenge in drug development (Leist et al., 2017; Schenk et al., 2017; Reif et al., 2017; Jansen et al., 2017; Crespo Yanguas et al., 2016; Stöber, 2015, 2016; Yanguas et al., 2016; Braeuning and Schwarz, 2016).

Currently, much effort is invested to develop improved hepatocyte *in vitro* systems (Godoy et al., 2013; Ramboer et al., 2015; Verhulst et al., 2015; Pfeiffer et al., 2015; Kim et al., 2015) and *in silico* techniques (Ghallab et al., 2016; Bartl et al., 2015; Vartak et al., 2016; Thiel et al., 2015). The technique presented by Theobald and colleagues can easily be integrated into *in vitro* systems and should therefore facilitate characterization of cultivated hepatocytes.

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