

KIDNEY-ON-A-CHIP

BACKGROUND

The kidney is one of the main target organs for toxicity

- Nephrotoxicity accounts for 2% of drug attrition during preclinical studies and a surprising 19% in phase 3 during drug development

The kidney has a complex anatomy and is thus difficult to mimic *in vitro*

- Static 2D *in vitro* cell based renal models are available but they are limited in complexity and are unable to successfully mimic the complex structures found in the kidney. A consequence of this is that they are unable to reliably predict clinical outcomes and suffer from;
 - Poor injury biomarker responses
 - Poor phenotypic comparison with native setting (polarity, protein expression, morphology, functional properties, etc.)
 - Indistinguishable dose effect relationships

There is a clear need for a regulatory approved *in vitro* experimental kidney model to both predict and investigate drug induced toxicities.

THE TECHNOLOGY & KEY BENEFITS

An *in vitro* experimental kidney model for the investigation and prediction of nephrotoxicity for use in all phases of the drug discovery process

- Human relevant predictive drug toxicology data
- Tailored investigation from high throughput/high level screening to more in depth investigation capability
- Delivers confidence enhancing information for key prioritisation decisions of drug candidates
- Accurate prediction of clinical outcomes

USP

More authentic mimicking of glomerulus filtration that is able to deliver far greater benefits in terms of realistic analytical outcomes compared to standard 2D well assays.

APPLICATIONS

Safety testing and risk assessment in the pharmaceutical, chemical, cosmetic and nanotechnology industries.

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