

## **Primary Hepatocytes and hepatocyte-like cells in Research and as a possible Tool for Drug Development**

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The knowledge of degradation of new pharmacological drug candidates in the human body is essential, because of their possible toxic metabolic products and the subsequent side effects. The liver is the main organ to metabolise these drugs by various enzyme systems. Theoretical models of catabolic decomposition are far from answering all questions needed. Up to now, most drugs in pharmaceutical research are tested by the use of animal models with very limited success. In order to replace these 'insufficient' models, human hepatocytes isolated from patient with primary tumours are a valuable alternative to animal study. However, the limited availability of human hepatocytes leads to the investigation for alternative cell types which possess metabolic capacity. Recently, we and others have developed with monocyte-derived hepatocyte-like cell, which contains a variety of metabolic systems found in primary liver cells, an alternative to primary human hepatocytes. Throughout differentiation, NeoHepatocytes showed a continuously increasing expression of drug-metabolizing enzymes (*e.g.*; CYP1A1, 1A2, 2A6, 2B6, 2C8, 2C9, 2D6, 2E1, and 3A4), resulting in stable basal activity [Ehnert et al. 2008]. These results showed a possible application of NeoHepatocytes for the pharmaceutical industry. However, because of their relatively low phase I basal activity further studies are needed to reach the same basal phase I level like in primary human hepatocytes. An important step towards this aim was done when we modified our culture conditions.

### **Literature:**

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