HEPOID

A relevant tool for *in vitro* genotoxic and mutagenesis assay

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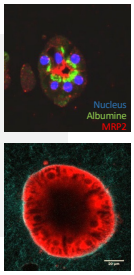
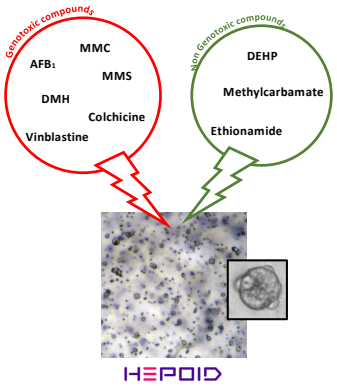
Hepoid, a highly differentiated human 3D culture model to study of genotoxic and mutagenic compounds in human liver



The advanced 3D Hepoid model of human hepatocytes allows **concomitant proliferation and differentiation** of human hepatocytes (primary and HepaRG cells) cultured in collagen matrix. Cells rapidly organize into characteristic **small polarized hollow spheroids** of differentiated hepatocytes exhibiting **high levels of liver-specific functions** and xenobiotic metabolism enzymes expression and activities after a few days of culture and for at least 4 weeks.

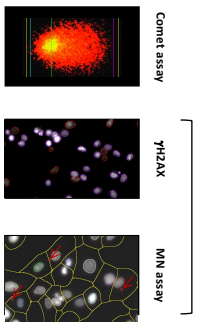
Methods

Well-known genotoxic and non-genotoxic compounds



3D culture of transformed or normal human hepatocytes

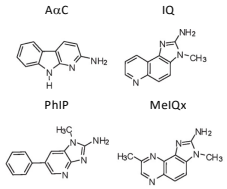
1 Validation of genotoxicity and mutagenesis by a multiapproach analysis



original computational approaches for analysis

2 Application to heterocyclic aromatic amines

- *food and environmental contaminants*
- *suspected of playing a role in the occurrence of hepatocellular carcinoma*
- *classified 2A and 2B by IARC*
- *few data are available on their genotoxic potential in human*



+ Adductomic

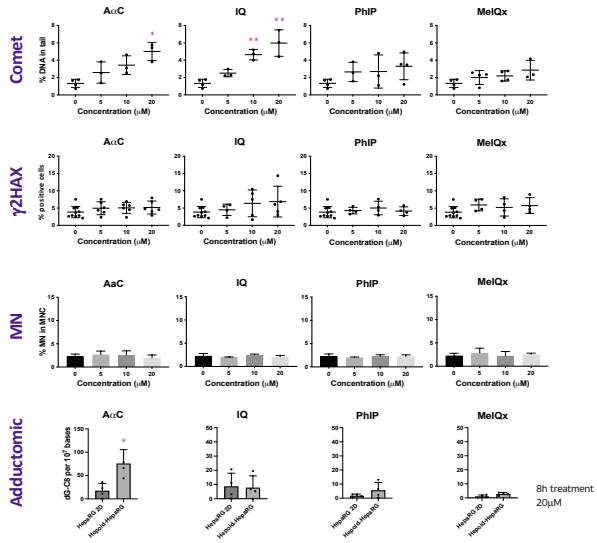
Results

1 Hepoid is relevant to sensitively and specifically discriminate carcinogenic vs non carcinogenic compounds

	γH2AX	Comet	MN
MMS	****	***	**
MMC	****	-	**
Colchicine	-	-	***
Vinblastine	-	-	**
AFB_1	*	*	*
DMH	***	**	**
DEHP	-	-	-
Methylcarbamate	-	-	-
Ethionamide	-	-	-

> in line with the in vivo situation

2 Some heterocyclic aromatic amines cause DNA damage at physiological relevant concentrations in highly differentiated human hepatocytes



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