## **CRYOLOGYX**

Simplifying and Accelerating Cell-Based Assays

## **Assay Ready** Cryopreservation of Hepatocytes as 2-D Monolayers

Author(s): Dr Ruben Tomás<sup>1</sup> and Natalia Gonzalez<sup>1</sup>

<sup>1</sup>CryoLogyx, Venture Centre, Coventry CV4 7EZ

Hepatocyte cryopreservation in cryovials

For long-term storage and transport. **However:** 

- Thawing, expansion, counting and plating steps required **before** the assay.
- Potential genetic drift and contamination disruptions.
- Cryopreserved primary hepatocytes exhibit reduced

**Our solution:** Assay Ready Hepatocytes

With CryoLogyx's patented formulation, CryoShield™

Ice nucleating macromolecules enable HepG2 hepatocytes cells primary mouse and cryopreservation as adherent 2-D monolayers, stored at -80 °C and ready 24 h post-thaw.

HepG2 cell line Primary hepatocytes Most used *in vitro* models for:

Drug discovery process

• Hepatotoxicity.

• Cytochrome P450 induction/inhibition.



Figure 2. Post-thaw HepG2 cell recovery. (A) Average cell recovery. (B) Well-to-well variability. (C) Postthaw cell recovery at different seeding densities. Grey = cultured cells; blue = CryoShield<sup>TM</sup> cryopreserved.

Figure 3. Post-thaw HepG2 functional assays (A) Normalised daily cell counts. (B) CYP2C9 and CYP3A4 activity. (C) Phenformin dose-response curve. Grey = cultured cells; blue = CryoShield<sup>TM</sup> cryopreserved

#### Assay-Ready Primary Mouse Hepatocyte Plates

Increased post-thaw recovery of primary mouse hepatocytes using CryoShield<sup>™</sup> vs 10% DMSO.



Reduced cell function after cryopreservation but remained comparable to commercially available cryopreserved hepatocytes.





Figure 4. Post-thaw primary hepatocyte recovery and viability data. (A) Average percentage cell recovery. (B) Lactage dehydrogenase (LDH) release assay. (C) Calcein (green, healthy cells) and ethidium iodide staining (red, dead cells). Grey bars = cultured cells; blue bars = CryoShield<sup>TM</sup> cryopreserved.

Figure 5. Post-thaw primary hepatocyte functional assays for cultured, CryoShield<sup>™</sup> cryopreserved and commercial hepatocytes. (A) CYP450 activity. (B) urea secretion. (C) metformin dose-response curve.

CryoShield<sup>™</sup> enables hepatocyte cryopreservation in an assay ready format.



Minimal cell handling

Streamline your drug screening programs now with assay-ready hepatocyte monolayers

Distributed by: **CliniSciences** Group

# **CliniSciences** Group

#### Austria

Company: CliniSciences GmbH Address: Sternwartestrasse 76, A-1180 Wien - Austria Telephone: +43 720 115 580 Fax: +43 720 115 577 Email: <u>oesterreich@clinisciences.com</u> Web: https://www.clinisciences.com

### Belgium

Company: CliniSciences S.R.L Address: Avenue Stalingrad 52, 1000 Brussels - Belgium Telephone: +32 2 31 50 800 Fax: +32 2 31 50 801 Email: belgium@clinisciences.com Web: https://www.clinisciences.com



#### Denmark

Company: CliniSciences ApS Address: Oesterbrogade 226, st. 1, Copenhagen, 2100 - Denmark Telephone: +45 89 888 349 Fax: +45 89 884 064 Email: danmark@clinisciences.com Web: https://www.clinisciences.com



#### Finland

Company: CliniSciences ApS Address: Oesterbrogade 226, st. 1, Copenhagen, 2100 - Denmark Telephone: +45 89 888 349 Fax: +45 89 884 064 Email: suomi@clinisciences.com Web: https://www.clinisciences.com

France

Company: CliniSciences S.A.S Address: 74 Rue des Suisses, 92000 Nanterre- France Telephone: +33 9 77 40 09 09 Fax: +33 9 77 40 10 11 Email: info@clinisciences.com Web: https://www.clinisciences.com



#### Germany

Company: Biotrend Chemikalien GmbH Address: Wilhelm-Mauser-Str. 41-43, 50827 Köln - Germany Telephone: +49 221 9498 320 Fax: +49 221 9498 325 Email: info@biotrend.com

Web: https://www.biotrend.com

#### Iceland

Company: CliniSciences ApS Address: Oesterbrogade 226, st. 1, Copenhagen, 2100 - Denmark Telephone: +45 89 888 349 Fax: +45 89 884 064 Email: island@clinisciences.com Web: https://www.clinisciences.com

#### Ireland

Company: CliniSciences Limited Address: Ground Floor, 71 lower Baggot street Dublin D02 P593 - Ireland Telephone: +353 1 6971 146 Fax: +353 1 6971 147 Email: ireland@clinisciences.com Web: https://www.clinisciences.com

#### Italy

Company: CliniSciences S.r.l Address: Via Maremmana inferiore 378 Roma 00012 Guidonia Montecelio - Italy Telephone: +39 06 94 80 56 71 Fax: +39 06 94 80 00 21 Email: italia@clinisciences.com Web: https://www.clinisciences.com



#### Netherlands

Company: CliniSciences B.V. Address: Kraijenhoffstraat 137A, 1018RG Amsterdam, Netherlands Telephone: +31 85 2082 351 Fax: +31 85 2082 353 Email: nederland@clinisciences.com Web: https://www.clinisciences.com

#### Norway

Company: CliniSciences ApS Address: Oesterbrogade 226, st. 1, Copenhagen, 2100 - Denmark Telephone: +45 89 888 349 Fax: +45 89 884 064 Email: norge@clinisciences.com Web: https://www.clinisciences.com



#### Poland

Company: CliniSciences sp.Z.o.o. Address: ul. Rotmistrza Witolda Pileckiego 67 lok. 200 - 02-781 Warszawa -Poland Telephone: +48 22 307 0535 Fax: +48 22 307 0532 Email: polska@clinisciences.com Web: https://www.clinisciences.com

#### Portugal

Company: Quimigen Unipessoal LDA Address: Rua Almada Negreiros, Lote 5, Loja 14, 2615-275 Alverca Do Ribatejo - Portugal Telephone: +351 30 8808 050 Fax: +351 30 8808 052 Email: info@quimigen.com Web: https://www.quimigen.pt

#### Spain

UK

Company: CliniSciences Lab Solutions Address: C/ Hermanos del Moral 13 (Bajo E), 28019, Madrid - Spain Telephone: +34 91 269 40 65 Fax: +34 91 269 40 74 Email: <u>espana@clinisciences.com</u> Web: https://www.clinisciences.com



#### Sweden

Company: CliniSciences ApS Address: Oesterbrogade 226, st. 1, Copenhagen, 2100 - Denmark Telephone: +45 89 888 349 Fax: +45 89 884 064 Email: sverige@clinisciences.com Web: https://www.clinisciences.com



#### Switzerland

Company: CliniSciences Limited Address: Marktgasse 18 8302 Kloten -Switzerland Telephone: +41 (044) 805 76 81 Fax: +41 (044) 805 76 75 Email: <u>switzerland@clinisciences.com</u> Web: https://www.clinisciences.com

۲

Company: CliniSciences Limited Address: 11 Progress Business center, Whittle Parkway, SL1 6DQ Slough- United Kingdom Telephone: +44 (0)1753 866 511 or +44 (0) 330 684 0982 Fax: +44 (0)1753 208 899 Email: uk@clinisciences.com IWeb: https://www.clinisciences.com



USA Company: Biotrend Chemicals LLC Address: c/o Carr Riggs Ingram, 500 Grand Boulevard, Suite 210 Miramar Beach, FL 32550- USA Telephone: +1 850 650 7790 Fax: +1 850 650 4383 Email: info@biotrend-usa.com Web: https://www.biotrend-usa.com

