

IX JORNADA DE JÓVENES INVESTIGADORES DEL I3A

Biological Matrix for 2.5D Renal Model *in vitro*

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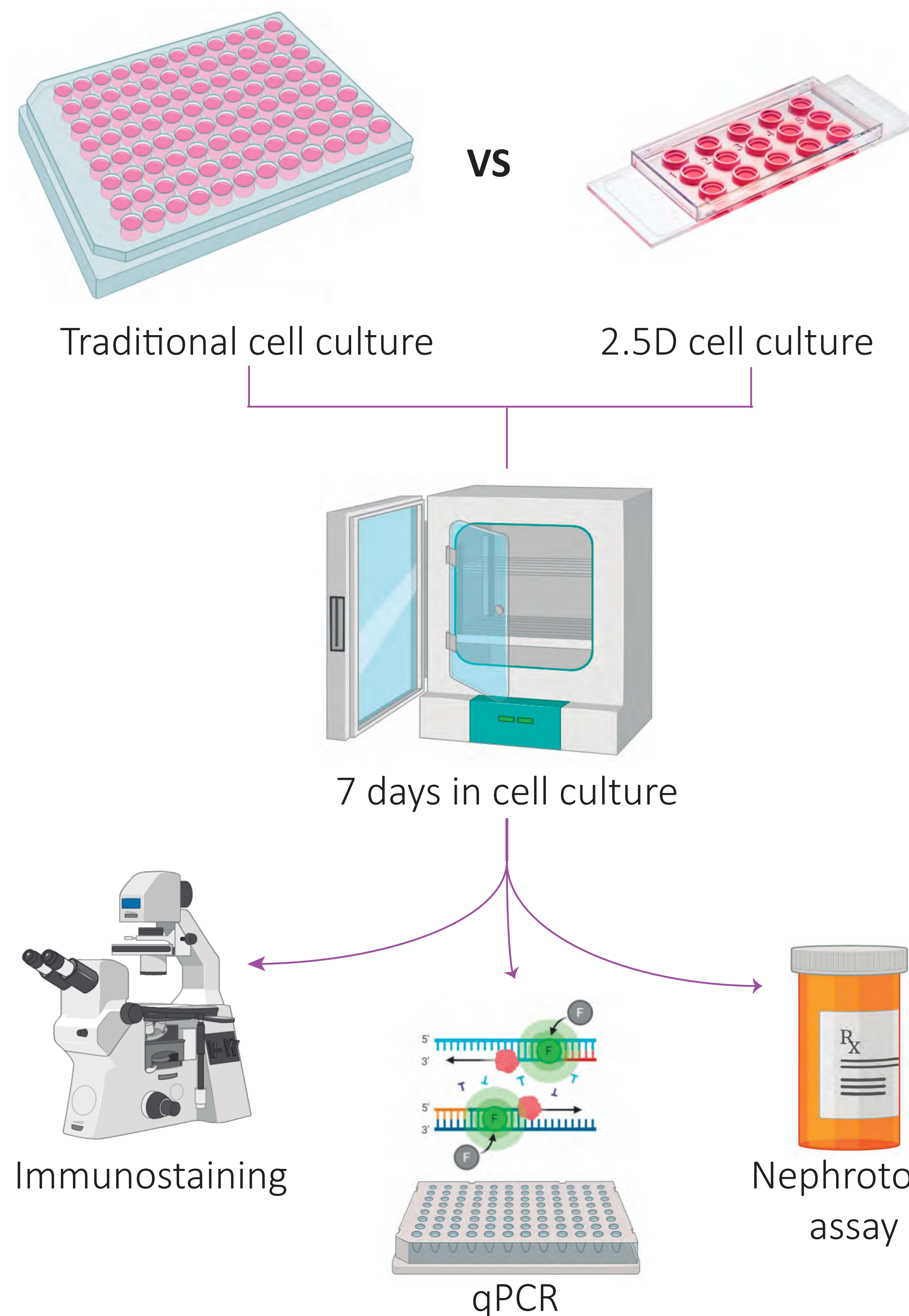
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INTRODUCTION

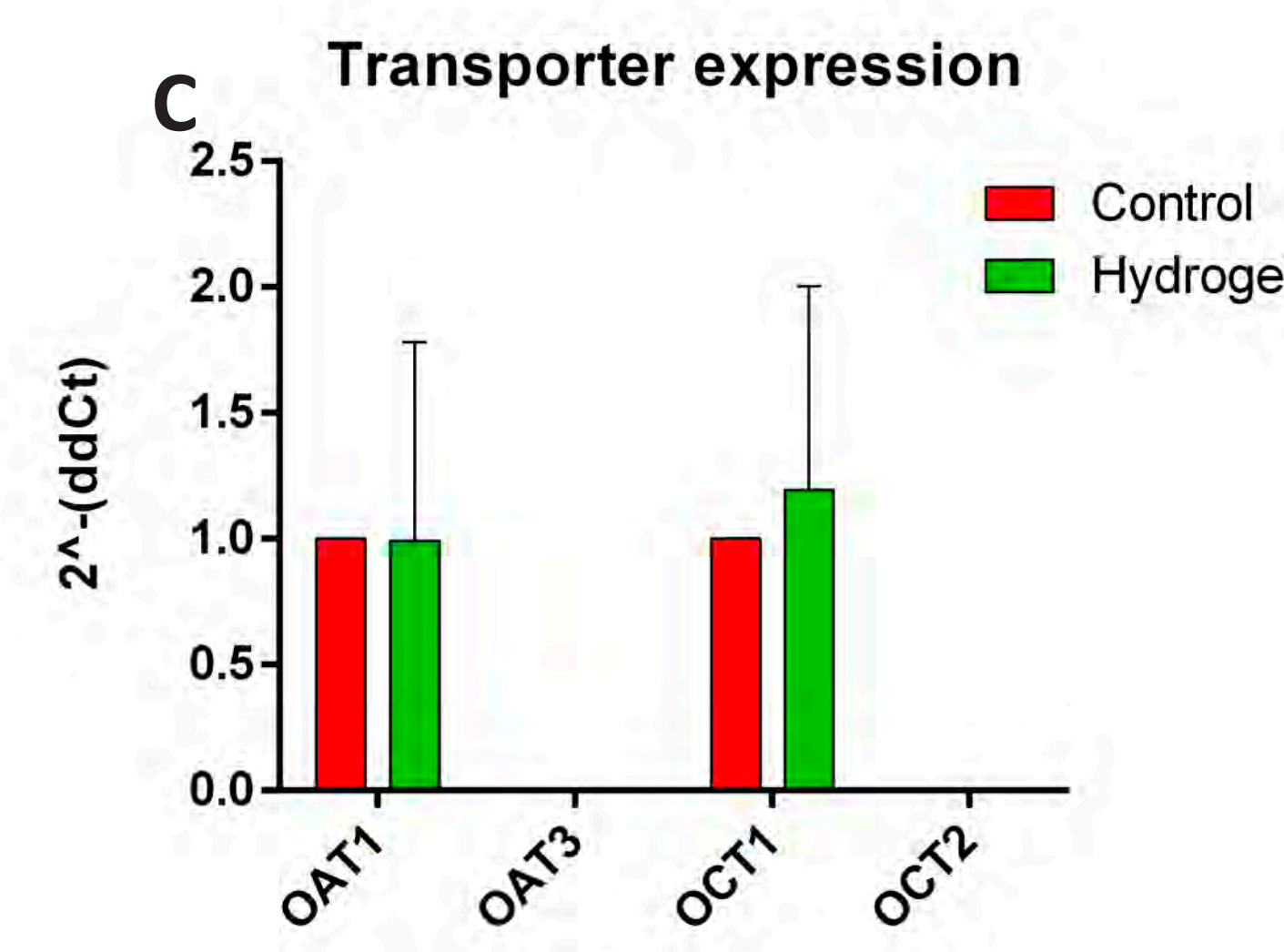
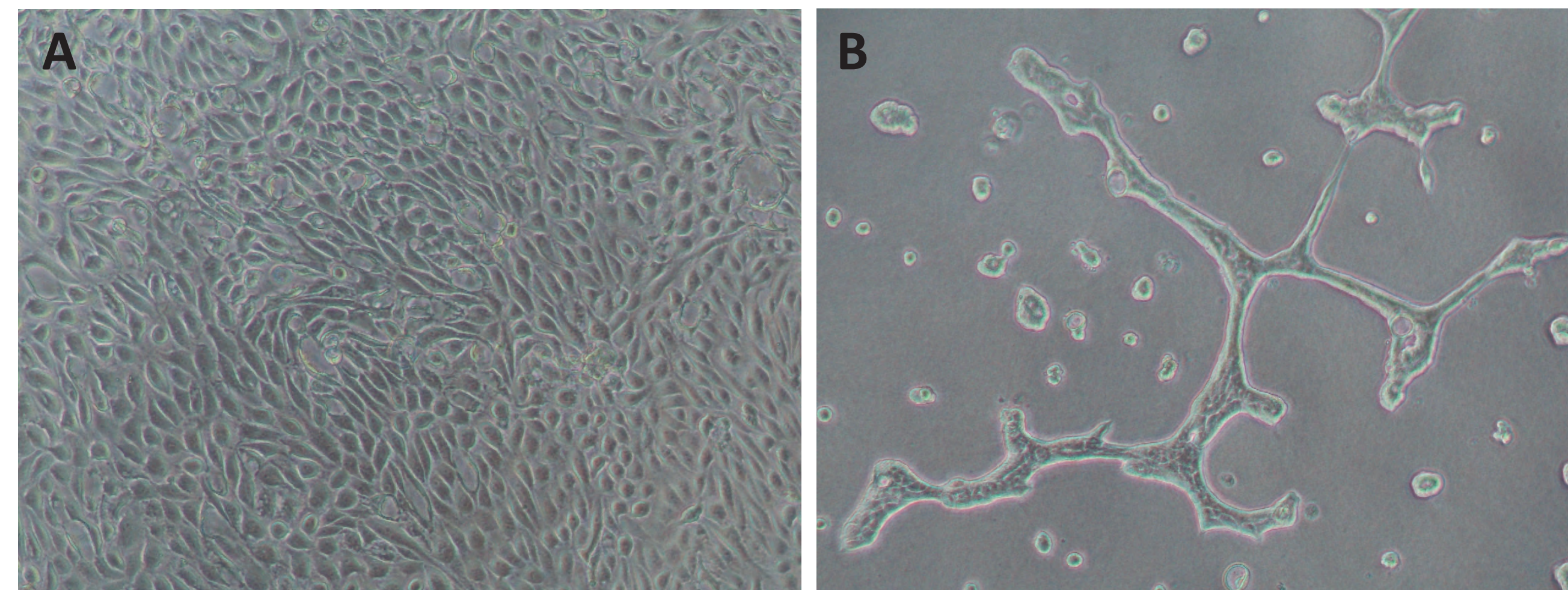
The extracellular matrix provides mechanical support to renal cells and enhance tridimensional disposition in cell culture. For that reason, biological matrices are widely used in renal models *in vitro*. Here we present a user-friendly 2.5D renal model that can be used for nephrotoxic assays.

EXPERIMENTAL SETUP



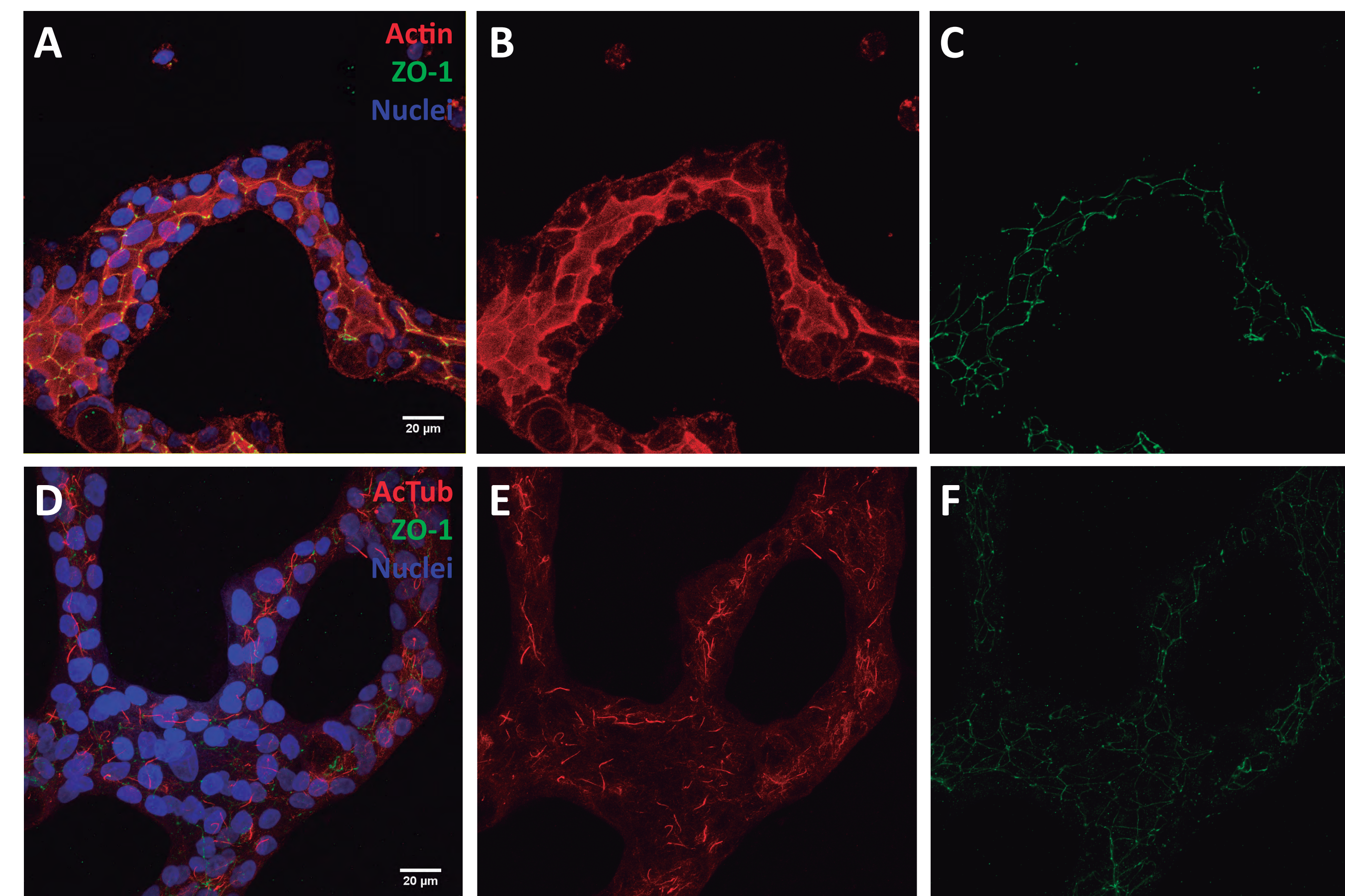
RESULTS

2.5D cell culture vs traditional cell culture



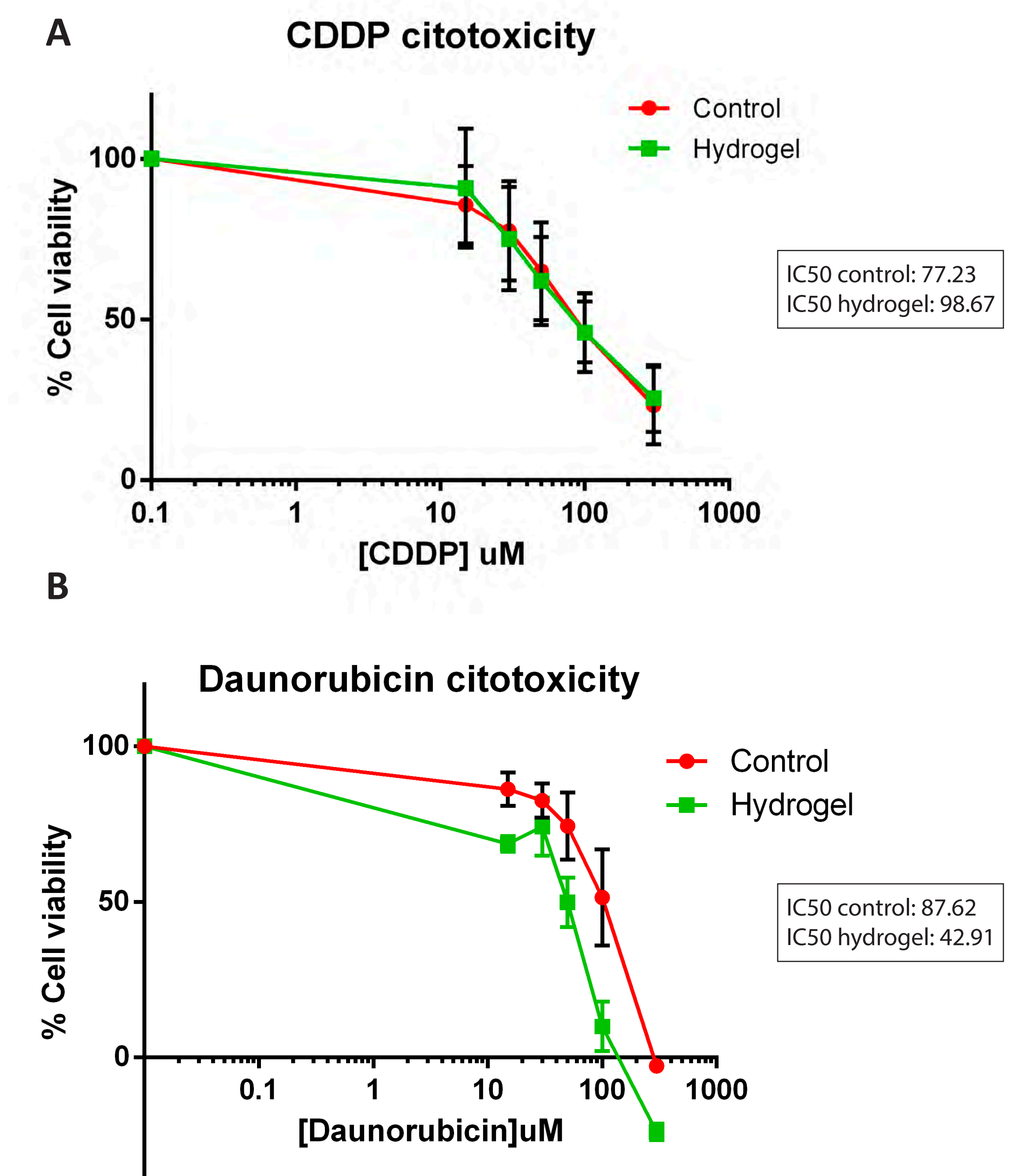
Cells were seeded either on a plastic surface (A) or on top of a hydrogel (B). OAT1 and OCT1 were present in both control and hydrogel (C). OAT3 and OCT2 transporters are missing in both conditions.

Tubule-like structures mimic proximal tubule *in vitro*



Primary cilia (E) are directed towards the lumen. Actin defines the inner part of the tubular structure (B). ZO-1 is a specific marker of proximal tubular cells (C, F).

Nephrotoxic assays



After 7 days of cell culture, renal cells were treated with two different nephrotoxic drugs, CDDP (A) and daunorubicin (B). Graphic shows % of cell viability after cells were exposed to different concentrations of CDDP or daunorubicin.

CONCLUSIONS

- 2.5D renal cell culture recapitulates proximal tubule structure using a biological matrix.
- RPTEC/TERT1 express characteristic markers present in proximal tubular cells as OAT1, OCT1, ZO-1 and primary cilia.
- This new renal model has been validated as a tool for nephrotoxic assays.