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Novel cell culture and transmigration under physiological shear stress

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Résumé:

Long term culturing of cells under perfusion reflects their natural environment far better than doing so under static conditions.

Kima™ Pump is a microfluidic pump designed by Cellix to aid cell culture (e.g. endothelial cells) under physiological conditions (shear flow) in various biochips and flow chambers, including Cellix's Vena8 Endothelial+ biochips where it is possible to culture 8 cell monolayers simultaneously over 24 – 48 hours. The Kima™ pump is controlled by the iKima™ Application for use with the iPod Touch and iPhone.

The Kima™ pump is placed inside CO₂ incubator while the iPod Touch or iPhone, as it's controller, sits in the Universal dock outside the incubator. The Kima™ pump connects easily to Vena8 Endothelial+ biochip and other manufacturer's flow chambers and delivers pulses of fresh media to cells seeded inside the microchannels of the biochip. Transmigration biochip (Vena TEM) developed by Cellix is an efficient model to analyze the ability of leukocytes to migrate through the endothelium under flow conditions. Channel of Vena TEM biochip is coated overnight using protein (e.g. rhICAM) and placed at 4°C. Gel (e.g. Collagen) is added in the microwell and allowed to solidify at 37°C. Cells (e.g T-cells) are infused through the channel and transmigration of the cells are monitored.

<http://venaflux.tebu-bio.com>