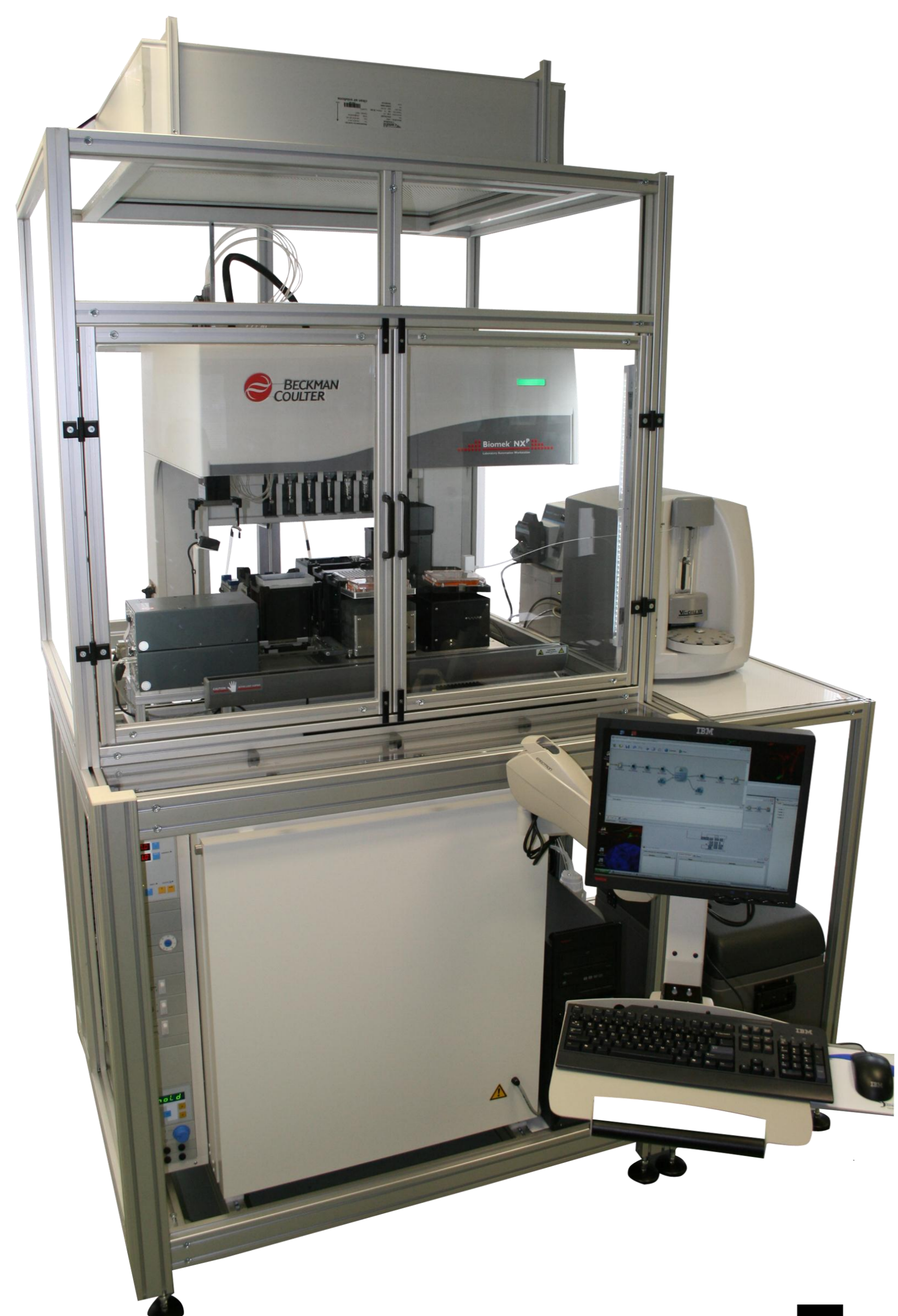


An Automated Cell Culture System For Microplate Format Labware

S. Junginger¹⁾, K. Thurow¹⁾, N. Stoll²⁾, A. Diener¹⁾
¹⁾ celisca - Center for Life Science Automation
²⁾ Institute of Automation, University of Rostock

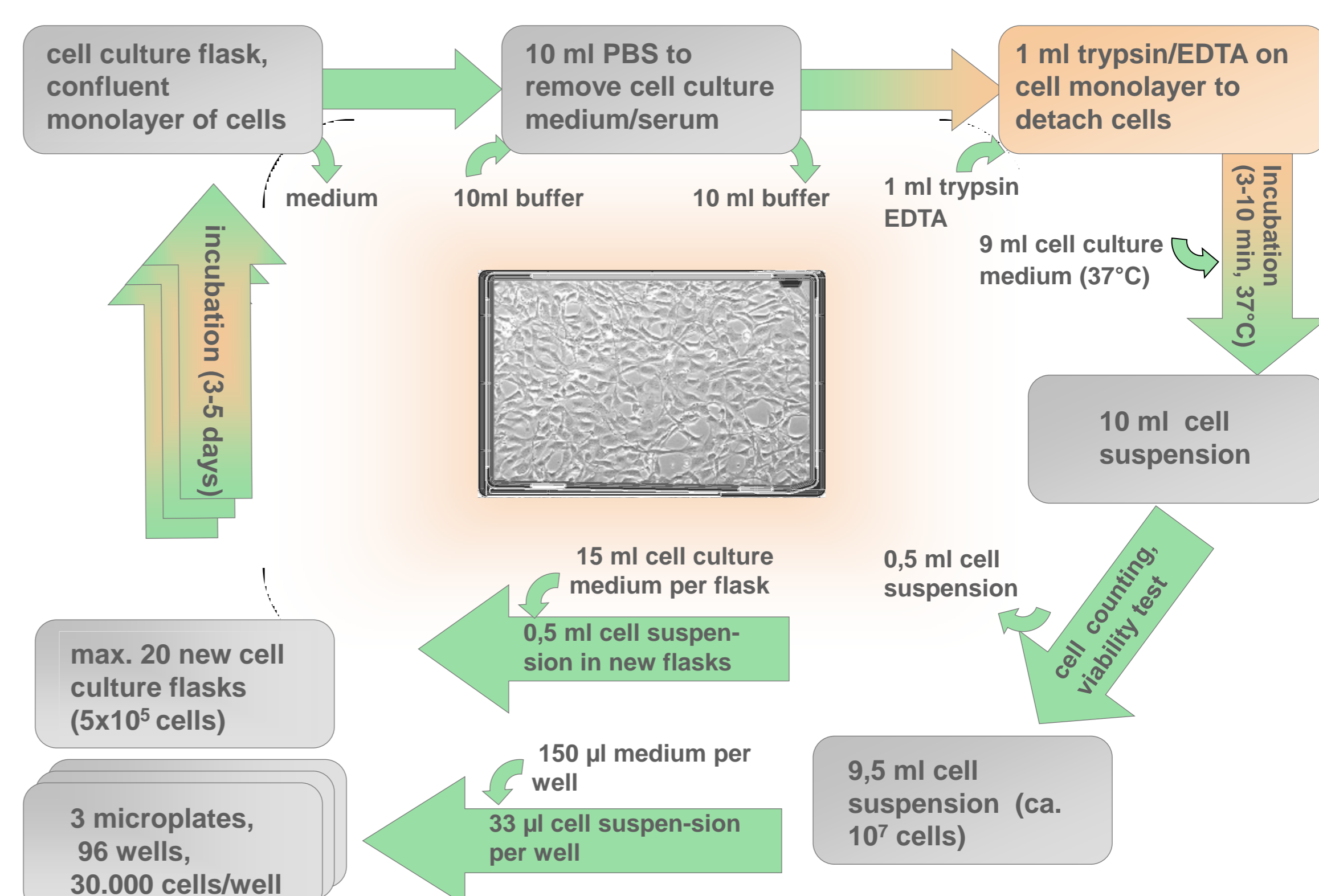


Introduction

Living cells in constant quality are needed in High throughput screening, High content screening, Ion channel assays, Cell therapy, Tissue engineering Stem cell research, cell based protein production etc. Based on intensive analysis of automated cell culture requirements Celisca has developed an automated cell culture system based on a Biomek NX liquid handling platform. The system supports full automation cell culture in microtiter format labware and automation friendly cell culture flasks. A team of scientists and engineers has developed proprietary technical solutions to allow fully automated cell culture and developed applications for optimal culture conditions with different cell lines in diverse labware.

Features

Main functions include cell line maintenance, cell line expansion and preparation of assay plates under sterile conditions. In detail the systems is capable of full automated cell seeding, passaging, harvesting, plating cells into multi-well-plates and media exchange. Several complex measuring systems allow for quality control including measuring of cell count, viability, cell size or clustering to non contact media pH-sensing and



light scatter measurement. Software integration modules for proprietary components have been developed to provide an intuitive easy to operate user interface which allows defining of processes in one unique software package.

The modular design is open for a number of options such as confluency measurement, reader integration up to integration of automated microscopy.

The cell culture system supports all types of automation friendly cell culture flasks which can be compared with standard T75 flasks - Greiner AutoFlask™, Corning RoboFlask™ and BD Falcon Automated cell culture flask. In addition, all types of multiwell culture plates and microtiter plate format labware are supported by the system and it's integrated devices.

Especially for the requirements of parallel culture of different cell lines and the cell culture specific splitting in active processes and longer incubation processes the system is equipped with a global cell culture Process Management Software tool.

