

EFS pacing kit for FDSS/μCELL

Specialized for Cardiomyocyte Assays

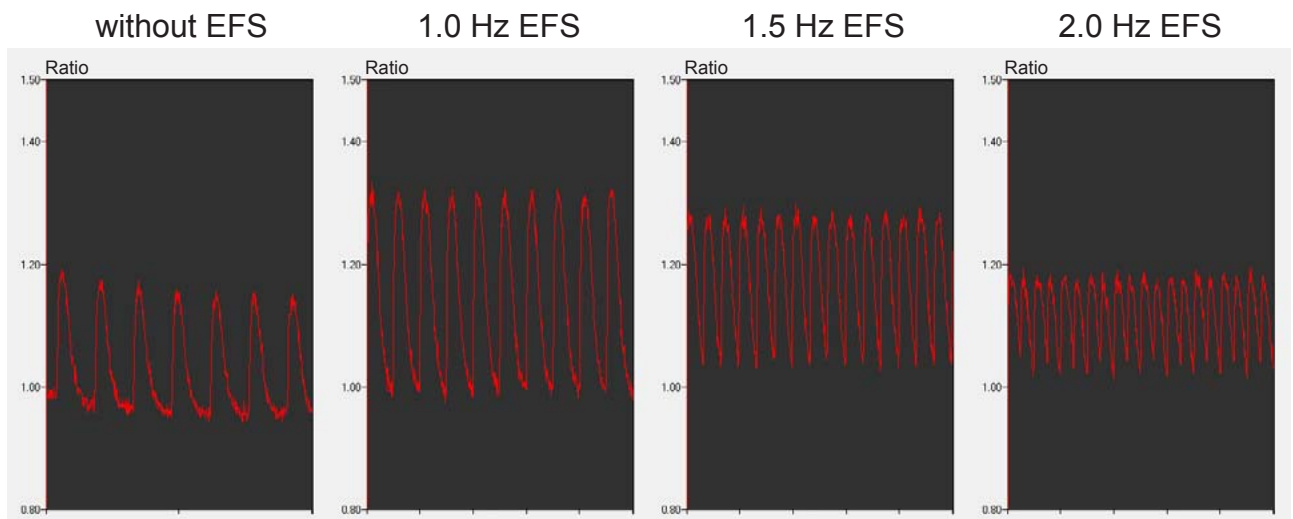
Overview

- Human iPSC-derived Cardiomyocyte Pacing
- Electric Stimulation of Human iPSC-derived Neurons

Electric Field Stimulation (EFS) pacing kit for FDSS/μCELL is an option to have an ability to stimulate cardiomyocytes electrically by the 96-electrode array to pace beatings of the cells, in which the cells are cultivated in a 96-well plate format. This option can be associated with other option available in FDSS/μCELL, such as assay plate heating unit and fast data acquisition software (up to 120 Hz frame reading), each of which could make more accurate monitoring of intracellular molecular events such as Ca²⁺ transients in cardiomyocytes. The EFS option with FDSS/μCELL should be useful in the drug discovery and in cardiomyocyte research. The EFS system also can stimulate neurons electrically.

Application1

- Human iPSC-derived Cardiomyocyte Pacing
Measurements of intracellular Ca²⁺ concentration changes



Cells : Cor.4U[®] (human iPSC-derived cardiomyocytes, Axiogenesis AG) 40,000 cells/well
 Plate : Corning[®] 96 Well Flat Clear Bottom Black Polystyrene TC-Treated Microplates (#3904)
 Dye : Cal-520/AM final 2 μM, Probenecid final 1.25 mM, Loading 45 min
 System : FDSS/μCELL, EM-CCD 2x2 binning, exposure time 16 ms
 EFS (Electric Field Stimulation) : 5 V, 10 ms Interval, 1.0/1.5/2.0 Hz, 60/90/120 times

Time 10 s

Caution Notice:

The FDSS/μCELL EFS system should not be used for optically detecting/monitoring change in transmembrane potential of the cells.

The FDSS/μCELL EFS system should not be used on any cell or cells in which the user or anyone else has expressed target ion channels.

FDSS Option

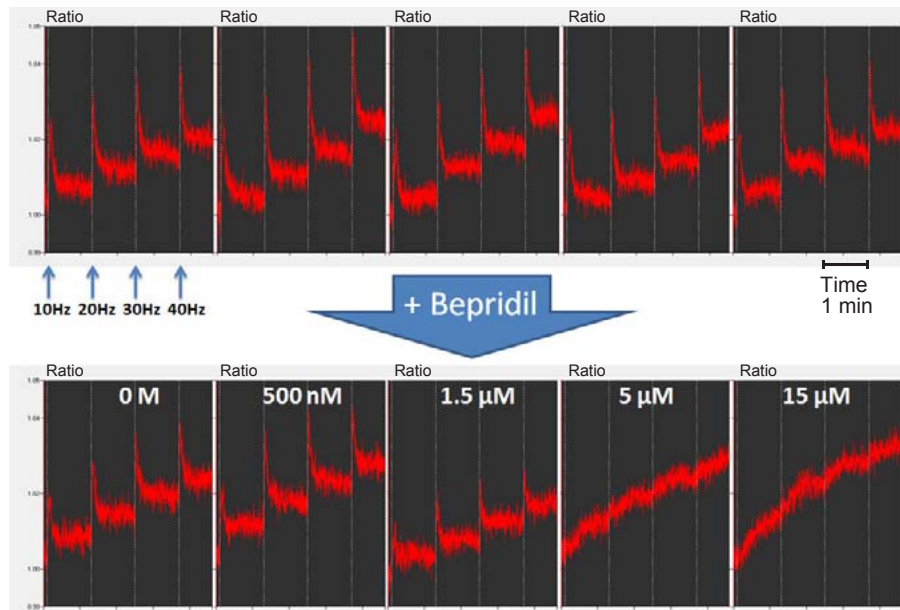
Application2

● Electric Stimulation of Human iPSC-derived Neurons Measurements of intracellular Ca^{2+} concentration changes

Cells : Peri.4U™(human iPSC-derived Peripheral neurons, Axiogenesis AG) 40,000 cells/well
 Plate : Corning® 96 Well Flat Clear Bottom Black Polystyrene TC-Treated Microplates (#3904)
 Dye : Cal-520/AM final 2 μ M, Probenecid final 1.25 mM, Loading 45 min

System : FDSS/ μ CELL, EM-CCD 1x1 binning, exposure time 153 ms

EFS (Electric Field Stimulation) : 20 V, 1 ms Interval, 10/20/30/40 Hz, 50 times at each stimulation



Electric stimulations were added to human iPSC-derived peripheral neurons at 10, 20, 30, and 40 Hz sequentially. At concentration more than 5 μ M Bepridil, the intracellular Ca^{2+} concentration changes were completely inhibited.

▲ **FDSS/ μ CELL**

- Fluorescence / Luminescence measurements while electric field stimulation.
- Variable EFS frequency.
- Variable EFS voltage.

▲ 96-electrode array (patent pending)

* EFS pacing kit option requires fluorescence / luminescence sensor and the latest data analysis computer.
 Please contact your local sales representative for more detail.

Part number	Description
A11529-14	Heater Option
U8524-11	High Speed Acquisition Software
U8524-12	Analysis software for cardiomyocyte
M13040-01	96ch EFS Pacing Stimulation kit

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