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 \( \text{Ca}^{2+} \) 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.

**Application**

- **Human iPSC-derived Cardiomyocyte Pacing**

  Measurements of intracellular \( \text{Ca}^{2+} \) concentration changes

  **Cells** : Cor.4U® (human iPSC-derived cardiomyocytes, Axogenesis AG) 40,000 cells/well
  **Plate** : Corning® 96 Well Flat Clear Bottom Black Polystyrene TC-Treated Microplates (#3904)
  **Dye** : Cal-520/AM final 2 \( \mu \)M, 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

  **Ratio**

<table>
<thead>
<tr>
<th>Time 10 s</th>
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**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.
Electric stimulations were added to human iPSC-derived peripheral neurons at 10, 20, 30, and 40 Hz sequentially. At concentration more than 5 μM Bepridil, the intracellular Ca\(^{2+}\) concentration changes were completely inhibited.

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**Fluorescence / Luminescence measurements while electric field stimulation.**

**Variable EFS frequency.**

**Variable EFS voltage.**

FDSS/μCELL

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

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<tr>
<th>Part number</th>
<th>Description</th>
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<tbody>
<tr>
<td>A11529-14</td>
<td>Heater Option</td>
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<tr>
<td>U8524-11</td>
<td>High Speed Acquisition Software</td>
</tr>
<tr>
<td>U8524-12</td>
<td>Analysis software for cardiomyocyte</td>
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<tr>
<td>M13040-01</td>
<td>96ch EFS Pacing Stimulation kit</td>
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