Cell fusion unit CFB16-HB

The latest LF series machine

Achieves ten-fold cell fusion efficiency than that of PEG method

Equipped with zygote genome editing mode

Features

Separate modes for three different types of experiments

For cell fusion (ex. hybridoma production) and oocyte activation (ex. somatic cell cloning), combinations of AC field and DC pulses are used. Although optimal settings for AC/DC combination are vastly different from each other, only one mode was available in conventional machines. As a result, it was difficult to achieve high output accuracy for both experiments.
CFB16-HB has separate modes for cell fusion and oocyte activation to perfectly optimize the electricity settings for both experiments. In “FUSION” mode high voltage of AC field and DC pulses are generated. On the other hand, in “ACTIVATION” mode, precise low voltage of DC pulses that is required for successful somatic cell nuclear transfer is available.
In addition, “GENOME EDIT” mode is installed in CFB16-HB, which enables the users to perform zygote genome editing experiments.

Wide variety of electrodes available

We line up a variety of electrodes for cell fusion experiments, from newly developed autoclavable electrode chambers for large-scale hybridoma production to wire-type electrodes for trial experiments. For somatic cell nuclear transfer (SCNT) or oocyte activation, uniquely developed needle-type electrodes or petri dish-type electrodes are also available, respectively.

Short AC/DC shift interval

CFB16-HB can shift from AC (required for cell alignment) to DC pulses (required for cell fusion) in 5 microseconds, which makes sure that the cells are fused before they are out of line.

Two types of post-fusion AC

In addition to the standard constant amplitude AC, fade-out AC mode in which AC field strength fades out in the set span of time is available.

Large touch-panel screen

CFB16-HB has a 5.7-inch touch-panel screen. The waveform pattern is displayed as a graphic, so you can intuitively understand the input pattern. In addition, the numeric keypad screen popping up when entering the set value makes the data entry tasks easy. More than 20,000 protocols, which can be given any name, can be saved in CFB16-HB. The saved protocols can be called from PROTOCOL so that you can move on to your experiment smoothly. The history of pulse settings and outputs for the last 100 outputs is automatically saved in the main unit. Not only can you check on the screen, but you can also save the data to your computer via USB.

* Product specifications are subject to change without notice

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Cell fusion・Somatic nuclear transfer・Oocyte activation

Features

CFB16-HB・FRONT

CFB16-HB・REAR

Specification

FUSION mode

AC

Pulse waveform	Rectangular
Voltage range	0-85 V in increments of 1 V
Frequency	800 kHz
Pre-fusion duration time	0-120 sec in increments of 1 sec
Post-fusion duration time	0-120 sec in increments of 1 sec

DC pulses

Pulse waveform	Rectangular
Voltage range	10-1500 V in increments of 1 V
Pulse width	5-3000 μsec in increments of 1 μsec
Pulse interval	0.1-10 sec in increments of 0.1 sec
Number of pulses	1 - 1000 (+) 1 - 500 (+/-, ALT)
Maximum of output	≦120000 VμS

ACTIVATION mode

AC

Pulse waveform	Sinusoidal wave
Voltage range	0-10.0 V in increments of 0.1 V
Frequency	800 kHz
Duration time	0-120 sec in increments of 1 sec

DC pulses

Pulse waveform	Rectangular
Voltage range	1-200 V in increments of 1 V
Pulse width	5-3000 μsec in increments of 1 μsec
Pulse interval	0.1-10 sec in increments of 0.1 sec
Number of pulses	1 - 1000 (+) 1 - 500 (+/-, ALT)

GENOME EDIT mode

Voltage range	1-200 V in increments of 1 V	Waveform	Square wave
Pulse width (Pon)	0.1 - 1000 ms	Number of pulses	1 - 1000 (+) 1 - 500 (+/-, ALT)
Pulse interval (Poff)	1.0 - 1000 ms		

Measurement range of resistance	up to 40 kΩ
Measurement range of applied voltage	-512 V - +512 V in increments of 1 V
Measurement range of impressed current	Decaying pulse: -10.23 - +10.24 A in increments of 0.01 A, Square pulse: -1023 - +1024 mA in increments of 1 mA

Number of memorable programs	>20000	History of applied pulses	Last 100 patterns (sequentially overwrote)

Power unit	Single-phase 100 V; 400 VA; 50/60 Hz
Dimensions/Weight	240 mm(W)-380 mm(D without projections) -190 mm(H without rubber foot), 9 kg

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