

# ECFG21

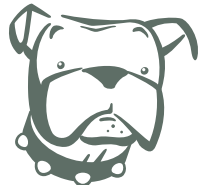
## Electro-Cell Fusion Generator

### *Merging Membranes*

- ▶ Hybridoma Creation
- ▶ Somatic-Cell Nuclear Transfer
- ▶ Tetraploid Embryo Complementation



**Bulldog**  
**Bio**



# ECFG21

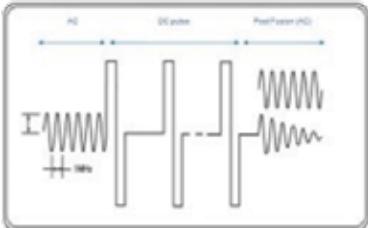
## Electro-Cell Fusion Generator

Traditional methods for coaxing lipid bilayer membranes from two different cell types to merge involve chemicals and conditions not particularly healthy for thriving cells. The ECFG21 uses an amazing 3-step electric field process for super-efficient fusion of proximal cells. The process is simple. First, apply a mild AC field, which physically moves cells into long, single-file, strings. Next, a series of DC square pulses pokes tiny holes in the plasma membrane of these cells. Last, the AC field is reapplied keeping cells in close contact as membranes heal. During this final stage, cells that physically touch will fuse at an astonishing rate and with the vast majority of fused cells in a one-to-one ratio. There are a number of conveniently sized electrode baths for different applications. For example, the P8X10 holds up to 6.4 ml — perfect for a single spleen hybridoma protocol. Your lab will find that fusing cells via mild electric fields is straight forward and downright efficient.



### Cells Take Marching Orders from AC Electric Field.

This image was taken only 30 seconds after a random mix of cells was exposed to a low current AC electric field. Cells quickly migrate along the electromagnetic wave lines and are brought into proximal contact with no more than 2 other cells. These strands of cells are key for optimal cell fusion.



### 3-Phase Electro-Cell Fusion Protocol.

This illustration shows how cells first align, then are pulsed to disrupt the membranes, then re-aligned to encourage fusion. Total time that cells are exposed the electric field is under 1 minute.

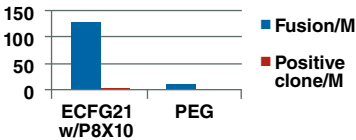




## Tough Antigens. Easy Hybridomas

It's not well understood, but certain antigens are just extraordinarily difficult to raise monoclonal antibodies. What is known is that challenging antigens seem to produce B-cells that are either quite rare, or very sensitive to hybridoma creation. For these antigens, standard PEG-fusion protocols will produce low levels of hybridoma cells. Compounding this issue, these hybridomas invariably have an extremely low percentage of clones (often approaching zero) against the target antigen. The ECFG21 can increase positive clones by 100-fold or more. For example, a highly hydrophobic 8-amino acid peptide antigen resulted in one hybridoma per thousand B-cells when using a standard PEG protocol. However, the ECFG21 provided 80x that number of healthy hybridomas. More importantly, when studying the number of clones that also tested positive for the antigen, the ECFG21 produced a 0.1% positive clone rate, while the PEG protocol produced only a 0.001% rate. Similar results have been seen for other hydrophobic or immunosuppressive antigens.

### Hybridoma Production of a 20 kDa immunosuppressive protein with high homology.



This chart clearly shows that the number of clones that tested positive using the ECFG21 was dramatically higher than using the classical PEG method. In this case, the number of positive clones detected using the PEG method was zero. Equally impressive is that the number of positive clones from the ECFG21 is nearly the same as the total number of clones created using the PEG method.

## Somatic Cell Nuclear Transfer

The ECFG21 is a great alternative for reprogramming somatic cells using enucleated oocytes for animal cloning. Successful nuclear transfer relies upon the precise control of electric pulses produced by the ECFG21, as well as use of master-made electrodes.

### Simple Method

Electro-Cell Fusion is easier and quicker than traditional chemical-based protocols. All that is required is: i) wash and resuspend cells in a low ion buffer, ii) pulse cells with AC and DC fields for about 40 seconds, iii) incubate cells for 10 minutes to start the fusion process, and iv) wash and resuspend cells in media ready for plating and growth. It really is that easy.



# ECFG21 Electro-Cell Fusion Generator

AC		DC Pulse	
Voltage	0 – 80 Vrms	Pulse Wave	Square Wave
Frequency	1 MHz	Voltage	1 – 1500 V
Duration	0 – 99 seconds	Pulse Length	1 – 99 $\mu$ sec
Post-Fusion Duration	0 – 99 seconds	Pulse Interval	0.1 – 9.9 sec
Post-Fusion Decay Mode	On/Off	Number of Pulses	0 – 99
Pause between AC / DC	5 $\mu$ sec	Decay Rate	0 – 99%
		Polarity Switching	On/Off

Output Measurements			
Voltage	AC/DC	Energy (J)	DC
Current	AC/DC		

Other			
Impedance Measurement	0.01-50 k $\Omega$	Size	386(W) x 370(D)
Operation Mode	Automatic/Manual	Weight	9 kg
Memory	99 programs	Warranty	2 Year

ITEM #	DESCRIPTION	
ECFG21	ECFG21 Super Electro Cell Fusion Generator	Inquire
C115CB-2	Female plug & Cover banana plug cable, red & black, 2 M, for NEPA21/ECFG21	\$ 189
C117	Hook & male plug cable, red & black, for NEPA21/ECFG21	\$ 99
C200	Foot switch for ECFG21	\$ 350
CUY497P2	ECFG21 Bath w/platinum plate electrodes on slide glass, 2 mm gap, L80 x W2 x H5 mm, 0.8 ml for cell fusion	\$2,495
CUY497P8	ECFG21 Bath w/platinum plate electrodes on slide glass, 8 mm gap, L80 x W8 x H5 mm, 3.2 ml for cell fusion	\$2,495
CUY497P8X10	ECFG21 Bath w/platinum plate electrodes on slide glass, 8 mm gap, L80 x W8 x H10 mm, 6.4ml for cell fusion	\$4,995
CUY497P10X10	ECFG21 Bath w/platinum plate electrodes on slide glass, L80 x W10 x H10 mm, 8.0 ml for cell fusion	\$4,995
CUY499L	Clear, Sterile Box for CUY497 Series of ECFG21 Cell Fusion Electrodes	\$ 795
CUY5000P0.5	Platinum Wire Petridish Electrode for Cloning Activation, 0.5 mm gap, compatible, compatible w/ ECFG21 & NEPA21	Inquire
CUY5000P1	Platinum Wire Petridish Electrode for Cloning Activation, 1mm gap, compatible w/ ECFG21 & NEPA21	Inquire
CUY5100-100	Z-Shape Cloning Electrode for Somatic Cells & Fertilized Eggs, 5 mm Length x 100 $\mu$ m Diameter Tip, 2/pkg, Compatible w/ECFG21 & NEPA21	Inquire

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