SONIDEL LIMITED

www.sonidel.com

Transfection into CELLS in ADHERENCE by Electroporation

The NEPA21 is the only device on the market to approach **ADHERENT CELLS in the WELL PLATE** Electroporation from the perspective of optimising delivered energy.

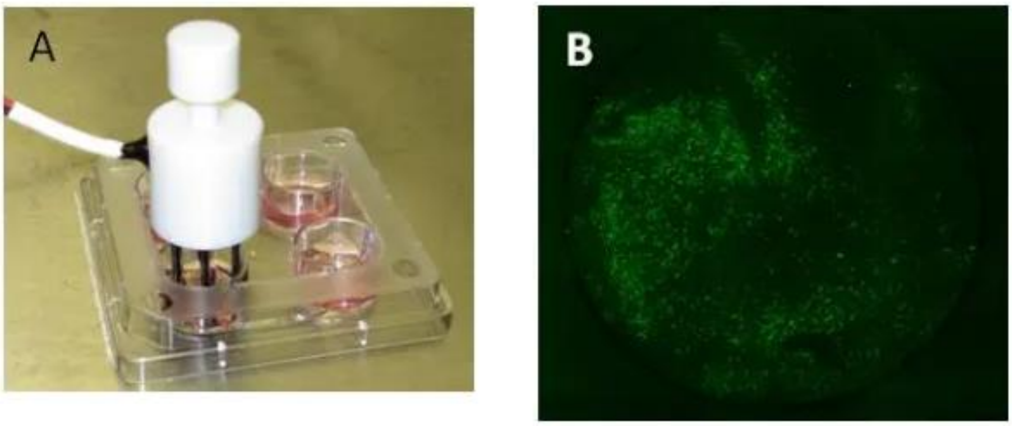
- By using the cell-culture-plate Electrode CUY900 series with the NEPA21 electroporator, it is now possible to transfer DNA/RNA directly into cells IN ADHERENCE in a commercially available multi-well plate.
- The finer control over the delivered energy available with the NEPA21 offers specific and important advantages for ADHERENT CELL electroporation. As the thrust of NEPA21 protocols is to minimise delivered energy, this means that the targets are electroporated with less current (than competing device protocols).
- For particularly sensitive and delicate targets, identifying and only delivering the required energy (and no more) to porate the membrane is of utmost importance for their viability post electroporation.
- The success of the NEPA21 for cell electroporation is evident by the number of laboratories what have published with the NEPA21 system, and the quantum of client laboratory verified Viability % and Transfection Efficiency %.
- The NEPA21 system is supported by a suite of over 250 different electrode configurations, which further enhance the applicability of the system and empower researchers with further experimental options and opportunities.

See page below

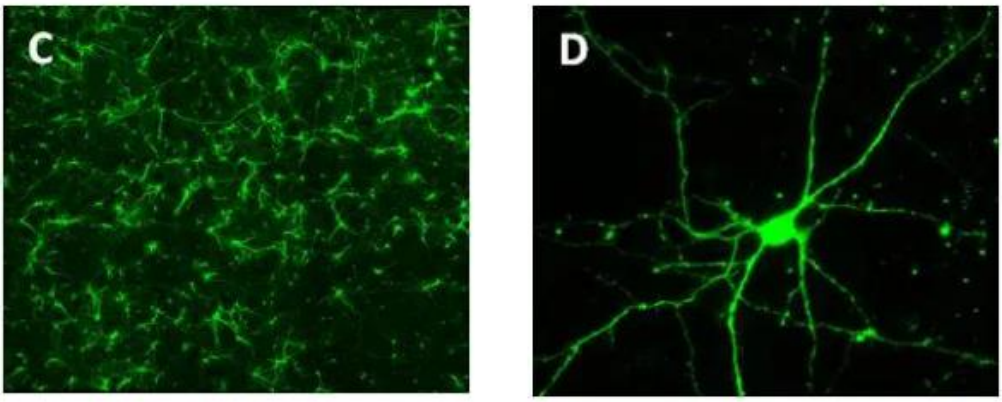
APPLICATIONS

Transfection into Mouse-Rat: ADHERENT CELLS in the WELL PLATE by Electroporation

Transfection into Primary Neurons



[Click here for an enlarged photo]



[Click here for an enlarged photo] [Click here for an enlarged photo]

A: 2 steps pulse electroporation using the electrodes (CUY900-13-3-5) for adherent cells.
B: EGFP fluorescence image of the neurons 2 days after electroporation.
C: High magnification image of Figure B. Many robust EGFP signals suggest high transfection efficiency.
D: High magnification image of Figure C (x40). Neurites are shown clearly.
Data provided courtesy of Department of Neurochemistry, National Institute of Neuroscience, Japan.

Transfection in Cell-Culture-Plates/Dishes

See the cell images by clicking the cell names.
V: Viability, TE: Transfection Efficiency.

Client Laboratory Verified RESULTS

Cells	V	TE		Cells	V	TE
Primary Human Skin Fibroblasts	100%	50%		Primary HUVEC	95%	75%
Primary Mouse Hippocampal Neurons Embryonic day 14 (4 DIV)	60%	50%		Primary Mouse Hippocampal Neurons Embryonic day 18 (2 DIV)	85%	54%
Mouse Neural Stem Cells	71%	50%		Primary Mouse Microglial Cells (1 DIV after 1 week co-culturing astrocyte and microglial cells)	80%	73%
Primary Mouse Glial Cells (14 DIV)	80%	50%		Primary Mouse Stromal Cells (1-month cultured)	90%	50%
Primary Mouse Liver Cells siRNA Knock Down	Excel.	89%		Primary Rat Cerebral Cortex Neurons Embryonic day 17 (2 DIV)	70%	60%
Primary Rat Hippocampal Neurns Postnatal day 7 (11 DIV)	100%	50%		Primary Rat Granulosa Cells	Excel.	41 %
hMSC -Human Mesenchymal Stem Cells	70%	65%		SH-SY5Y-Human Neuroblastoma Cells	90%	50%
EPC -Human Endothelial Progenitor Cells				HPDE -Human Pancreatic Duct Epithelial Cells		80%
THP-1 -Human Acute Monocytic Leukemia Cells	90%	45%		C2C12-Mouse Myotubes	94%	60%
3T3-L1 -Mouse Embryonic Fibroblasts (7 days after differentiation)	90%	70%		MEF -Mouse Embryonic Fibroblasts	60%	80%
Neuro-2a -Mouse Neuroblastoma Cells	80%	90%		C6 -Rat Glioma Cells	57%	55%

Client laboratories have provided us with a large suite of results.
Please feel free to contact us for the latest results data: sales@sonidel.com

PUBLICATIONS

Transfection into Mouse-Rat: ADHERENT CELLS in the WELL PLATE by Electroporation

HEK293T/HeLa

Targeted protein degradation by Trim-Away using cell resealing coupled with microscopic image-based quantitative analysis

Kunishige R, Murata M, Kano F.

Front Cell Dev Biol. 2022 Dec 19:10:1027043.

Mouce Müller Glia

Apolipoprotein E-Containing Lipoproteins and LRP1 Protect From NMDA-Induced Excitotoxicity Associated With Reducing α2-Macroglobulin in Müller Glia

Hayashi H, Mori M, Harashima M, Hashizume T, Furiya M, Mukaigaito C, Takemura E, Yamada M, Mise K, Yuan B, Takagi N.

Invest Ophthalmol Vis Sci. 2021 Oct 4;62(13):23.

Primary mouse/rat cortical neurons

Neuronal Ca 2+ -dependent activator protein 1 (NCDAP1) induces neuronal cell death by activating p53 pathway following traumatic brain injury

Masaaki Arai, Osamu Imamura, Nobuo Kondoh, Minori Dateki, Kunio Takishima

J Neurochem. 2019 Dec;151(6):795-809.

C2C12 myotubes

mTORC1 and PKB/Akt control the muscle response to denervation by regulating autophagy and HDAC4

Castets P, Rion N, Théodore M, Falcetta D, Lin S, Reischl M, Wild F, Guérard L, Eickhorst C, Brockhoff M, Guridi M, Ibebunjo C, Cruz J, Sinnreich M, Rudolf R, Glass DJ, Rüegg MA.

Nat Commun. 2019 Jul 18;10(1):3187.

UBE2E1 Is Preferentially Expressed in the Cytoplasm of Slow-Twitch Fibers and Protects Skeletal Muscles from Exacerbated Atrophy upon Dexamethasone Treatment.

Cécile P, Julien A, Andrea A, Agnès C, Cécile CG, Clara T, Christiane D, Lydie C, Daniel B, Marco S, Didier A, Daniel T

Cells. 2018 Nov 16;7(11). pii: E214.

Palmitate increases musclin gene expression through activation of PERK signaling pathway in C2C12 myotubes.

Gu N, Guo Q, Mao K, Hu H, Jin S, Zhou Y, He H, Oh Y, Liu C, Wu Q

Biochem Biophys Res Commun. 2015 Nov 20;467(3):521-6.

LRP4 third β-propeller domain mutations cause novel congenital myasthenia by compromising agrin-mediated MuSK signaling in a position-specific manner.

Ohkawara B, Cabrera-Serrano M, Nakata T, Milone M, Asai N, Ito K, Ito M, Masuda A, Ito Y, Engel AG, Ohno K

Hum Mol Genet. 2013 Nov 29. [Epub ahead of print]

Mice hippocampal primary neurons (DIV 6)

The Interactome of Palmitoyl-Protein Thioesterase 1 (PPT1) Affects Neuronal Morphology and Function

Sapir T, Segal M, Grigoryan G, Hansson KM, James P, Segal M, Reiner O.

Front Cell Neurosci. 2019 Mar 13:13:92.

Primary human epidermal keratinocytes (HPEKs)

Characterization of centriole duplication in human epidermis, Bowen's disease, and squamous cell carcinoma.
Watanuki S, Fujita H, Kouyama K, Amagai M, Kubo A
J Dermatol Sci. 2018 Jul;91(1):9-18.

Primary rat DRG neurons

MAP2 Defines a Pre-axonal Filtering Zone to Regulate KIF1- versus KIF5-Dependent Cargo Transport in Sensory Neurons.
Gumy LF, Katrukha EA, Grigoriev I, Jaarsma D, Kapitein LC, Akhmanova A, Hoogenraad CC
Neuron. 2017 Apr 19;94(2):347-362.e7.

COS-7

Probing cytoskeletal modulation of passive and active intracellular dynamics using nanobody-functionalized quantum dots.
Katrukha EA, Mikhaylova M, van Brakel HX, van Bergen En Henegouwen PM, Akhmanova A, Hoogenraad CC1, Kapitein LC
Nat Commun. 2017 Mar 21;8:14772.

Primary mouse myoblasts

Runx1 Transcription Factor Is Required for Myoblasts Proliferation during Muscle Regeneration.
Umansky KB, Gruenbaum-Cohen Y, Tsoory M, Feldmesser E, Goldenberg D, Brenner O, Groner Y
PLoS Genet. 2015 Aug 14;11(8):e1005457.

Retinal Ganglion Cells from human iPSCs

Generation of retinal ganglion cells with functional axons from human induced pluripotent stem cells.
Tanaka T, Yokoi T, Tamalu F, Watanabe S, Nishina S, Azuma N
Sci Rep. 2015 Feb 10;5:8344.

Primary mouse hippocampus and cortex

Shootin1 Acts in Concert with KIF20B to Promote Polarization of Migrating Neurons.
Sapir T, Levy T, Sakakibara A, Rabinkov A, Miyata T, Reiner O.
J Neurosci. 2013 Jul 17;33(29):11932-48.

ACCESSORIES

Transfection into CELLS IN ADHERENCE (directly in the well-plate) by Electroporation

Cell-Culture-Plate Electrodes

Cables, Foot Switch & Others