





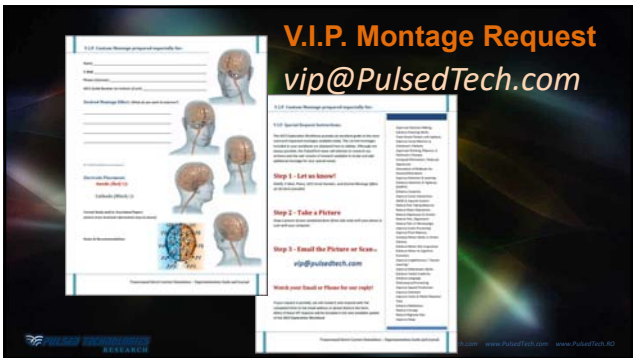
Special Downloads

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Building YOUR SuperBrain

Transcranial Direct Current Stimulation

tDCS Exploration Workbook



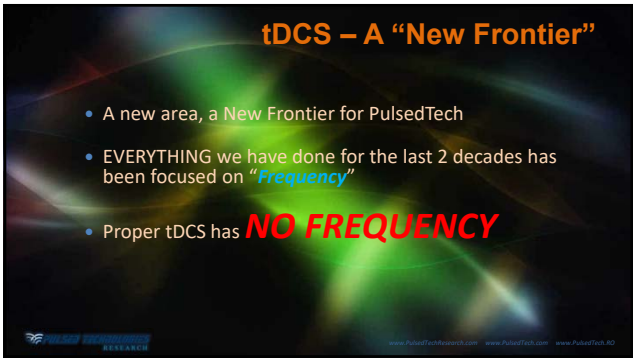
V.I.P. Montage Request

vip@PulsedTech.com

Step 1 - Let us know!

Step 2 - Take a Picture

Step 3 - Email the Picture or Scan...



tDCS – A “New Frontier”

- A new area, a New Frontier for PulsedTech
- EVERYTHING we have done for the last 2 decades has been focused on “Frequency”
- Proper tDCS has **NO FREQUENCY**

What is tDCS?

- Method used to **modulate cortical excitability**, producing **facilitatory or inhibitory effects** upon a variety of behaviors
- Involves emission of **weak electrical current** via placement flowing between two electrodes to the scalp [**Anode (+)** & Cathode (-)]
- **Positive Anode** current **facilitates** behaviors associated with cortical region under target
- **Negative Cathode** current **inhibits** behaviors associated with cortical region under target

[Nitsche et al 2008]

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What is tDCS?

Amp Up

Tone Down

- Method used to **modulate cortical excitability**, producing **facilitatory or inhibitory effects** upon a variety of behaviors
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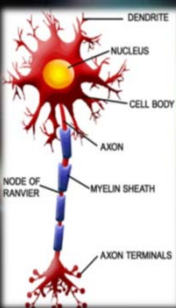
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The Mechanism of tDCS

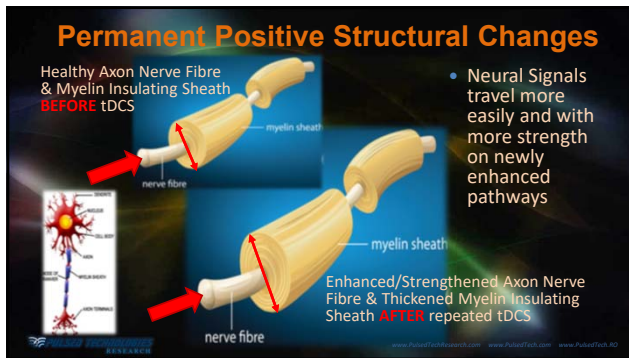
While tDCS is occurring:

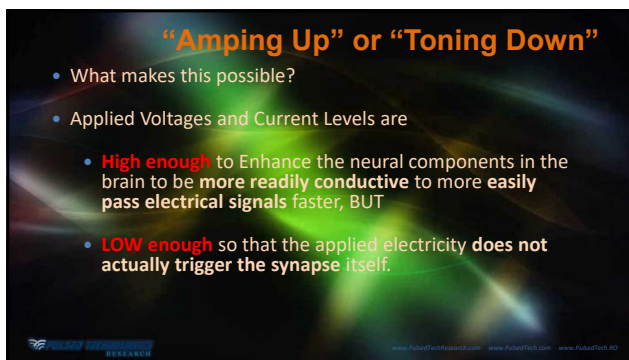
- The neural pathway is being strengthened by the build up of myelin (the material that protects and insulates the nerve axon).
- After repeated use of tDCS on a specific pathway, the pathways tend to **become permanently strengthened and enhanced**

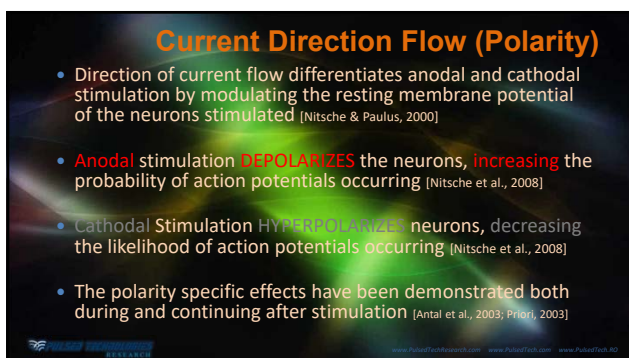


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IMPORTANT !

- When using this technology it is **IMPERATIVE** for the user to also carry out the action that is meant to be altered or enhanced
- In order to gain lasting effects and quality outcomes, repetition is key.
- i.e. If an individual is attempting “Accelerated Learning” he or she needs to be actively studying or learning.
- i.e. If an individual is attempting to enhance “Motor Skills” or “Motor Control”, he or she should be performing the physical act or exercise while under the influence of tDCS

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tDCS Session Time

- A tDCS Session time is typically 20 – 30 minutes (max)

A tDCS effect typically continues for as much as an **hour and a half** after the session has ended

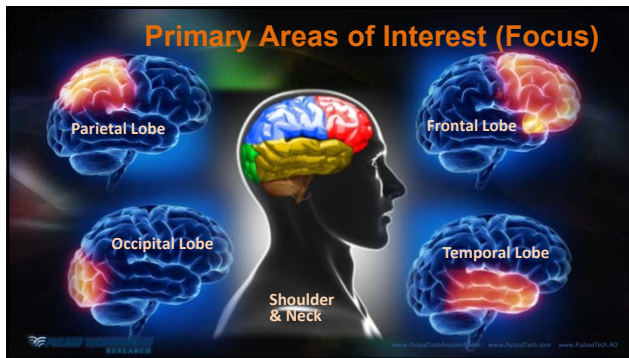
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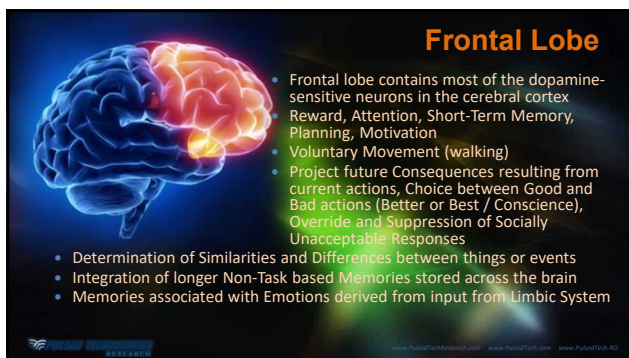
Permanent Change

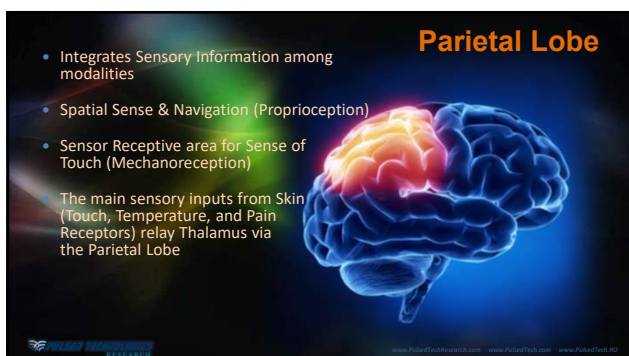
- When implementing these strategies

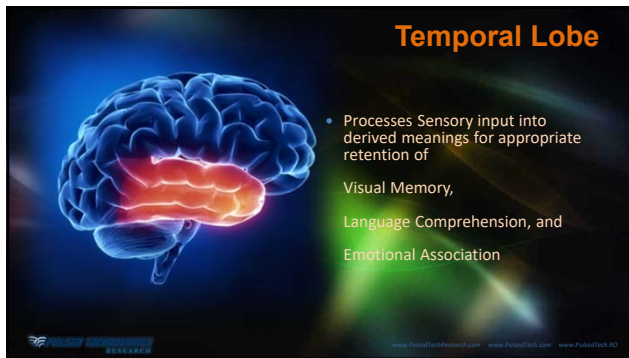
Lasting physical changes have been recorded via fMRI in as little as **5 uses**

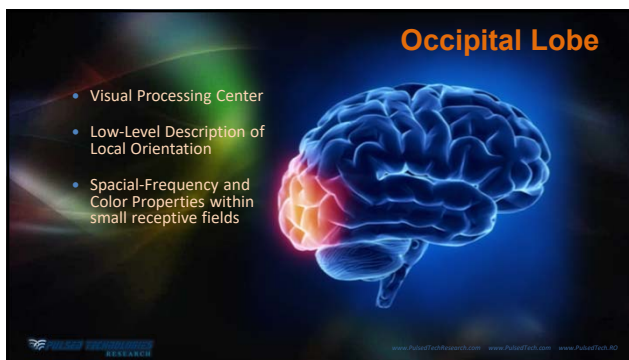
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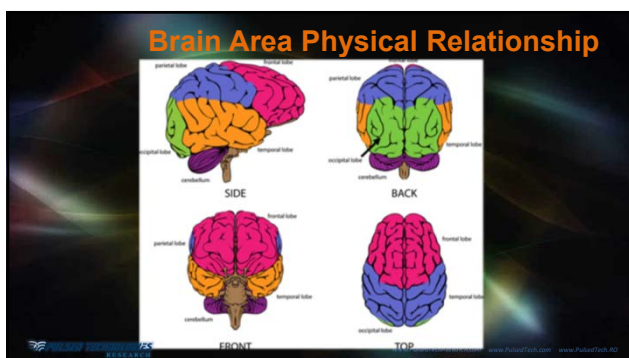


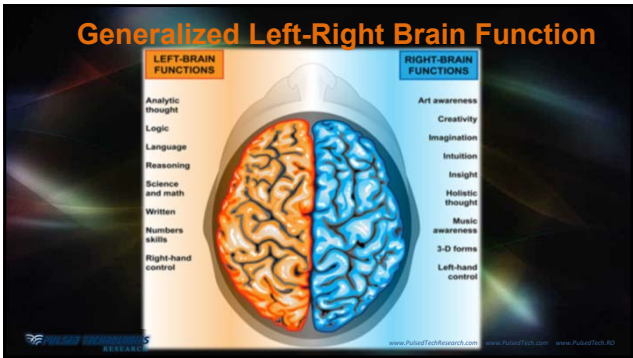


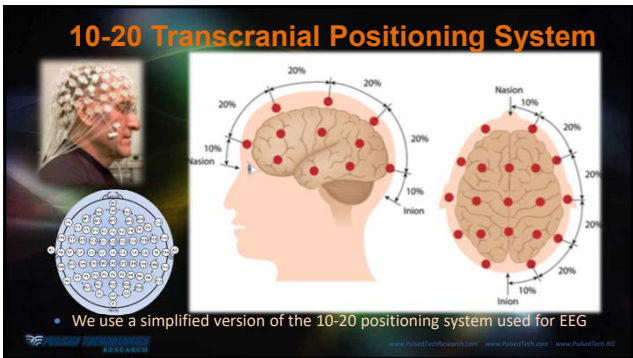


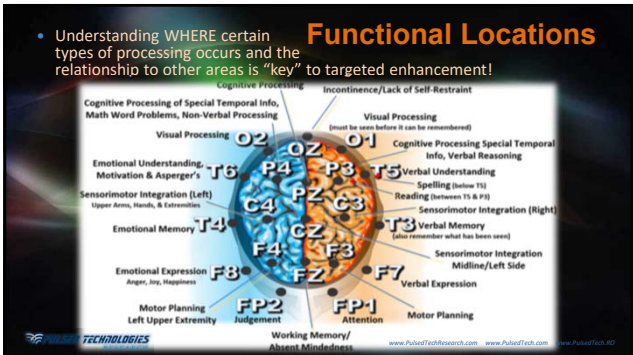


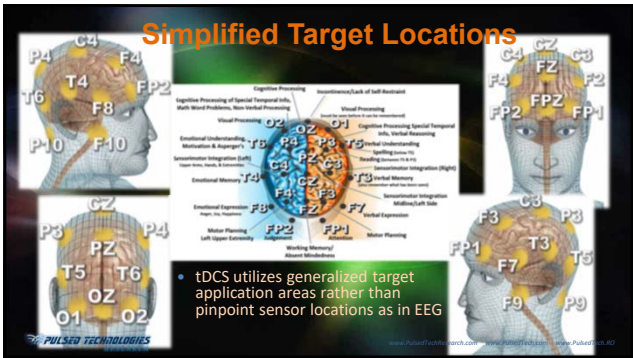
















tDCS Known Functional Improvements

- Sensory
- Motor
- Memory
- High-Level Cognitive Function
- Attention
- Mathematics
- Language
- Learning

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Published Literature

- Restoration of Memory
- Enlivenment (lasting for hours)
- Exhilaration
- Relief from Pain
- Reduction of Wariness
- Increased Capacity for Labor and Thinking
- Increased Capacity for Exertion

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Potentially Affected Fields of Science

- Medicine
- Psychology
- Neuroscience
- Physiology
- Pharmacology
- Biochemistry

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tDCS in the Media

- Numerous Articles are emerging as the practical advantages of tDCS are becoming public

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DARPA

- tDCS Stimulation applied at 2 milliamps for 30 minutes = **IMPROVEMENT IN LEARNING**
- 2.1x Improvement in non-threat detection accuracy
- 3.1x Improvement for threats alone

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Physical & Functional Changes to the Brain

- Focus, Attention, Concentration, Learning
- Enhanced Motor Control and Endurance
- Mood, Depression, Addiction, Sleep
- Physical Repair & Regeneration

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Physical & Functional Changes to the Brain

- Focus, Attention, Concentration, Learning
- Enhanced Motor Control & Endurance
- Mood, Depression, Addiction, Sleep, ADHD, Autism
- Physical Repair, Regeneration, & Retraining

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Functional Enhancements to the Brain

- Memory Enhancement
- Competitive "Edge" in the Workplace
- Meditation/Focus
- Accelerated Learning and Recall

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Competitive "Edge" in Learning or Work

- Actor (Learning Lines)
- Learning Disabilities (ADHD/Autism)
- Students



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Competitive "Edge" In Physical Exercise

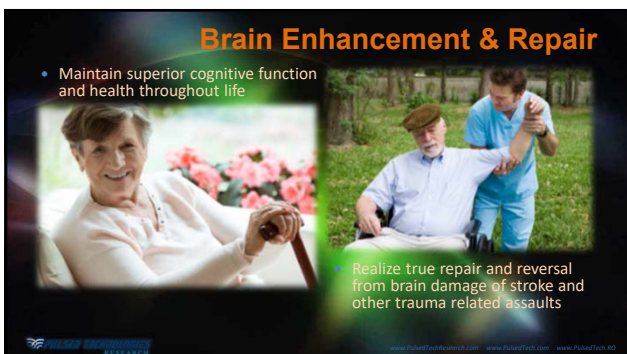
- Increase Endurance and Precise Motor Control



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Brain Enhancement & Repair

- Maintain superior cognitive function and health throughout life
- Realize true repair and reversal from brain damage of stroke and other trauma related assaults




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“Safe” Brain Enhancement

- We can safely enhance certain parts and activities of the brain by stimulating and increasing the electrical activity.
- We can tone down certain areas and activities of the brain, reducing electrical activity by controlling the direction of electrical flow.
- Regular use of tDCS has shown long term repair and improvement in the selectively targeted activities.
- The PulsedTech Workbook, Guide, and Kit makes the tDCS procedure really safe and easy!

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tDCS Exploration Workbook & Kit



- The new PulsedTech Workbook/Guide and Kit provides all that is needed to SAFELY experiment with and experience tDCS technology.

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tDCS Exploration Kit

Pulsed Technologies' tDCS kit is a "multi" Instrument:

- Safe tDCS Power Source to Electrodes*
- Book, Workbook, Reference Materials, Note & Workspace**

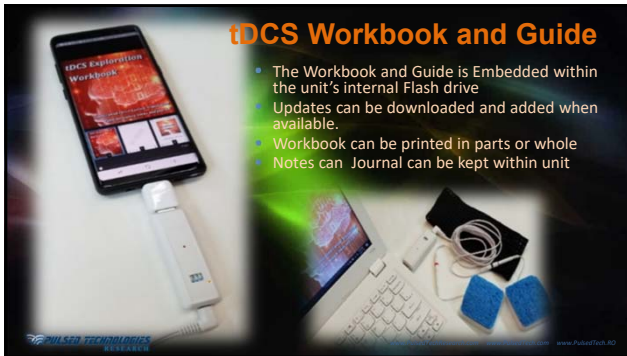


* user-selectable current output limiting
 ** on internal flash drive

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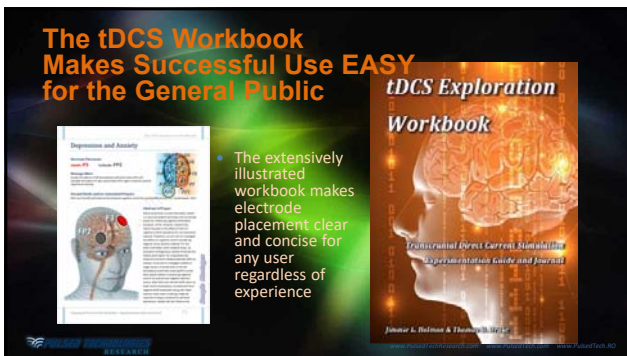
tDCS Workbook and Guide

- The Workbook and Guide is Embedded within the unit's internal Flash drive
- Updates can be downloaded and added when available.
- Workbook can be printed in parts or whole
- Notes can Journal can be kept within unit



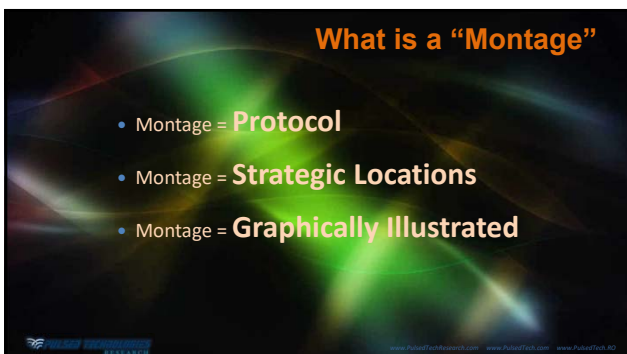
The tDCS Workbook Makes Successful Use EASY for the General Public

- The extensively illustrated workbook makes electrode placement clear and concise for any user regardless of experience





What is a "Montage"

- Montage = **Protocol**
- Montage = **Strategic Locations**
- Montage = **Graphically Illustrated**



The tDCS Workbook Makes Successful Use POSSIBLE

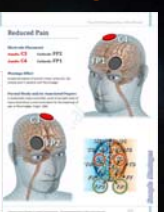


- The ILLUSTRATIONS takes the science out of the labs and make the technology USABLE by the public



- Improved Decision Making
- Enhance Planning Ability
- Treat Stroke Patient with Aphasia
- Improve Visual Memory in Alzheimer's Patients
- Improved Working Memory in Parkinson's
- Increased Motivation/Reduced Depression
- Stimulation of Midbrain for Reward/Motivation
- Improve Attention & Learning
- Enhance Attention & Vigilance (DARPA)
- Enhance Creativity
- Improve Social Interactions
- ADHD & Impulse Control
- Reduce Risk-Taking Behavior
- Reduce Major Depression
- Reduce Depression & Anxiety
- Reduce Pain, Depression
- Reduce Pain in Fibromyalgia

Sample Montages

- Improve Audio Processing
- Improve Pitch Memory
- Increase Motor Ability in Stroke Patients
- Enhance Motor Skill Acquisition
- Enhance Motor & Cognitive Functions
- Improve Insightfulness / "Savant Learning"
- Improve Mathematic Ability
- Enhance Verbal Creativity
- Enhance Language Performance/Processing
- Improve Speech Production
- Improve Attention
- Improve Vision & Motor Reaction Time
- Enhance Meditation
- Reduce Cravings
- Reduce Migraine Pain
- Improve Sleep



Sample Montages

- Easy-to-follow montage diagrams are included in the workbook within the tDCS instrument

Montage Information Highlights

- TITLE
- CLEARLY ILLUSTRATED LOCATIONS
- ELECTRODE PLACEMENT
- INTENDED EFFECT
- FORMAL STUDY and/or ASSOCIATED PAPERS

ABSTRACT/SUMMARY

USER NOTES

Journal Worksheet

- DATE/TIME
- USER TITLE
- ELECTRODE PLACEMENT
- INTENDED EFFECT
- OBSERVED RESULTS
- USER NOTES

Printable Journal Worksheets are included for recording users' progress, experimentation, and planning

Practical Application

- The process is as simple as strategically placing 2 color coded electrodes on the head and running for 20-30 minutes.

Electrode Placement

- Conductive (saline) Sponge electrodes are used on most areas held in place by a headband
- Color Coded Electrodes are inserted into appropriate electrode
- Conventional (adhesive) electrodes may be used on bare skin areas where appropriate



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tDCS Safety

- The tDCS electronics can be safely connected in a variety of ways



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Output Current Limiting

• Switch 1	Up/On all other Down/Off	1.0 mA
• Switch 2	Up/On all other Down/Off	1.5 mA
• Switch 3	Up/On all other Down/Off	2.0 mA



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“Issues” with Pharmaceuticals

- We ARE aware of issues when performing tDCS!
- tDCS seems to enhance DELIVERY, UPTAKE, and utilization of pharmaceuticals
- tDCS user typically responds well to intended tDCS application. Effects of anti-anxiety drugs (i.e. Clonazepam, Xanax) used in PTSD are not normally experienced till following day.
- This suggests the pharmaceutical patient may be able to significantly *reduce* or even *eliminate* overall dosage

Electroporation

- Electroporation, or electropermeabilization, is a molecular biology technique in which an electrical field is applied to cells in order to increase the permeability of the cell membrane, allowing chemicals, drugs, or DNA to be introduced into the cell

Note pore formation occurring during electrical pulse stimulation. **Positive** and **negative** charges collect and arrange themselves with the concentrated fields, manipulate and move cell membrane to thin and form a pore in the cell membrane which immediately heals when the pulsed electrical field is removed.

