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(54) **Title:** SPECIFIC ELECTROPORATION AND LYSIS OF EUKARYOTIC CELLS

(57) **Abstract:** The present invention relates to a method of targeted electroporation and/or lysis of eukaryotic cellular bodies in a biological sample with at least two subgroups of eukaryotic cellular bodies, wherein each subgroup has a different susceptibility to electroporation and/or lysis in electric fields, comprising the following steps: transferring the biological sample in a chamber, exposing the biological sample to an electric field in the chamber, wherein the electric field is generated by at least two electrodes which are coated with a dielectric material with a relative permittivity greater than 3.9, and selecting the electric parameters of the electric field such as the field strength, the frequency or the wave form so that the subgroups are differently affected by said electric field for electroporation and/or lysis; as well as devices for said method.