

**TITLE OF THE INVENTION: APPARATUS AND METHOD FOR TESTING
ELECTROPORATION ABLATION PERFORMANCE USING HIGH-FREQUENCY
BIDIRECTIONAL PULSES**

ABSTRACT

The present invention provides an apparatus and a method for testing an electroporation ablation performance using high-frequency bidirectional pulses. The apparatus includes a pulse generation mechanism, which includes a bipolar pulse generator and a pulse control unit and is configured for generating high-frequency bidirectional pulses targeting a cell suspension of a cell assembly of interest; a traversal analysis device, which is configured for traversing respective numerical value combinations of a target pulse frequency, a set electric field intensity and a set length of time for the cell assembly of interest consisting of a fixed total number of living cells from a set part, so as to predict respective cell inhibition proportions and respective low-loss ablation performance levels corresponding to the respective numerical value combinations, respectively; and a prioritization analysis mechanism, which is configured for selecting, based on prediction data, a numerical value combination with an optimal ablation performance. According to the present invention, respective optimized ablation parameter combinations for structs to be ablated that are from different parts and have different volumes can be acquired in an artificial intelligent mode and a numerical value simulation-based traversal mode, while an electroporation ablation system with high efficiency and automated design is introduced.

FIG. 1