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(54) Title: METHODS AND APPARATUS FOR INDUCING CONTROLLED RENAL NEUROMODULATION

(57) Abstract: Methods and apparatus are provided for inducing, monitoring and controlling renal neuromodulation using a pulsed electric field to effectuate electroporation or electrofusion. In some embodiments, tissue impedance, conductance or conductivity may be monitored to determine the effects of pulsed electric field therapy, e.g., to determine an extent of electroporation and its degree of irreversibility. Pulsed electric field electroporation of tissue causes a decrease in tissue impedance and an increase in tissue conductivity. If induced electroporation is reversible, upon cessation of the pulsed electric field, tissue impedance and conductivity should approximate baseline levels; however, if electroporation is irreversible, impedance and conductivity changes should persist. Thus, monitoring of impedance or conductivity may be utilized to determine the onset of electroporation and to determine the type or extent of electroporation. Furthermore, monitoring data may be used in one or more manual or automatic feedback loops to control the electroporation.

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A61N 1/32**(2006.01)

USPC: 607/2,40,41,44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 607/2, 40, 41, 44, 62; 606/27, 32, 33, 41

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0060857 (Perrson)	1-36, 38-82, 84-89
Y	US 2003/0216792 (LEVIN)	1-36, 38-82, 84-89
Y	US 2005/0171523 (RUBINSKY)	1-36, 38-82, 84-89
Y	US 6,041,252 (WALKER)	40-43
Y	US 2003/0158584	44, 45

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