

Title (en)
ELECTRODE ARRAY FOR HYBRID COCHLEAR STIMULATOR

Title (de)
ELEKTRODENMATRIX FÜR HYBRID-KOCHLEA-STIMULATIONSGERÄT

Title (fr)
RESEAU D'ELECTRODES POUR STIMULATEUR COCHLEAIRE HYBRIDE

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Application
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Abstract (en)

[origin: WO0069513A1] A cochlear electrode array is adapted for implantation within the basal end of the scala tympani duct of a human cochlea. A first embodiment of the cochlear electrode array (10) comprises a skinny, elongate carrier (12) of from 6-8 mm in length. Four to eight spaced-apart electrode contacts (14) reside along one of the flat sides of the carrier, each of which is connected to a respective wire (22) embedded within the carrier. The wires exit a proximal end of the carrier via a wire bundle. The wire bundle, in turn, is connectable to an implantable cochlear stimulator (ICS) or equivalent pulse generator. The electrode array (10) is inserted into the relatively straight portion of the basal end of the scala tympani duct of the cochlea through a small slit (42) made in the round window membrane that separates the cochlea from the middle ear. The slit is oriented so as to place the electrode contacts facing the modiolar wall (32). The proximal end of the carrier may include flexible flaps (16) or tines that maintain the electrode array in its desired position within the basal end of the cochlea. Such tines or flaps further help seal the carrier against the slit opening to prevent fluids from escaping the cochlea. The cochlea thus remains filled with fluid which can activate hair cells as fluid waves are established through motion of the round window membrane. In use, electrical stimulation is provided only to the basal end of the cochlea through the electrode array to supplement hearing of high frequency sounds. Normal hearing (activation of hair cells through fluid motion) occurs at the apex and middle regions of the cochlea for sensing lower frequency sounds. A second embodiment of the cochlear electrode (100) is made by forming a small (120) of about 0.4 mm diameter on the end of a very fine flexible platinum/iridium (Pt/Ir) wire (140). At a proximal end of the wire, a suitable connector (540) allows the wire to be detachably connected to a pulse generator (500).

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Citation (search report)

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- See references of WO 0069513A1

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