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RegenerAge system: Therapeutic effects of combinatorial biologics (mRNA and allogenic MSCs) with a spinal cord stimulation system on a patient with spinal cord section

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As it has been previously demonstrated that co-electroporation of *Xenopus laevis* frog oocytes with normal cells and cancerous cell lines induces the expression of pluripotency markers, and in experimental murine model studies that mRNA extract (Bioquantine® purified from intra- and extra-oocyte liquid phases of electroporated oocytes) showed potential as a treatment for a wide range of conditions as Squint, Spinal Cord Injury (SCI) and Cerebral Palsy among others. The current study observed beneficial changes with Bioquantine® administration in a patient with a severe SCI. Pluripotent stem cells have therapeutic and regenerative potential in clinical situations, CNS disorders even cancer. One method of reprogramming somatic cells into pluripotent stem cells is to expose them to extracts prepared from *Xenopus laevis* oocytes. We showed previously that coelectroporation of *Xenopus laevis* frog oocytes; with normal cells and cancerous cells lines, induces expression of markers of pluripotency. We also observed therapeutic effects of treatment with a purified extract (Bioquantine®) of intra- and extra-oocyte liquid phases derived from electroporated *X. laevis* oocytes, on experimentally induced pathologies including murine models of melanoma, traumatic brain injury, and experimental skin wrinkling induced by squalene-monohydroperoxide. The positive human findings for spinal cord injury, and cerebral palsy with the results from previous animal studies with experimental models of traumatic brain injury, respectively. Because of ethical reasons, legal restrictions, and a limited numbers of patients, we were able to treat only a very small number of patients. These results indicate that Bioquantine® may be safe and well tolerated for use in humans, and deserves further study in a range of degenerative disorders. We propose that the mechanism of action of Bioquantine® in these various diseases derives from its unique pharmacology and combinatorial reprogramming properties. In conclusion, the preliminary findings suggest that Bioquantine® is safe and well tolerated on patients with cerebral palsy and spinal cord injury, among others. In addition to the regenerative therapy and due to the patient condition, we decided to include the Restore-Sensor SureScan. Based on the electrical stimulation for rehabilitation and regeneration after spinal cord injury published by Hamid and MacEwan, we designed an improved delivery method for the *in situ* application of MSCs and Bioquantine® in combination with the RestoreSensor® SureScan®. To the present day the patient who suffered a total section of spinal cord at T12-L1 shows an improvement in sensitivity, strength in striated muscle and smooth muscle connection, 11 months after the first therapy of cell regeneration and 3 months after the placement of RestoreSensor® at the level of the lesion, the patient with a complete medullary section shows an evident improvement on his therapy of physical rehabilitation on crawling from front to back by himself and standing on his feet for the first time and showing a progressively important functionality on the gluteal and legs sensitivity.

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