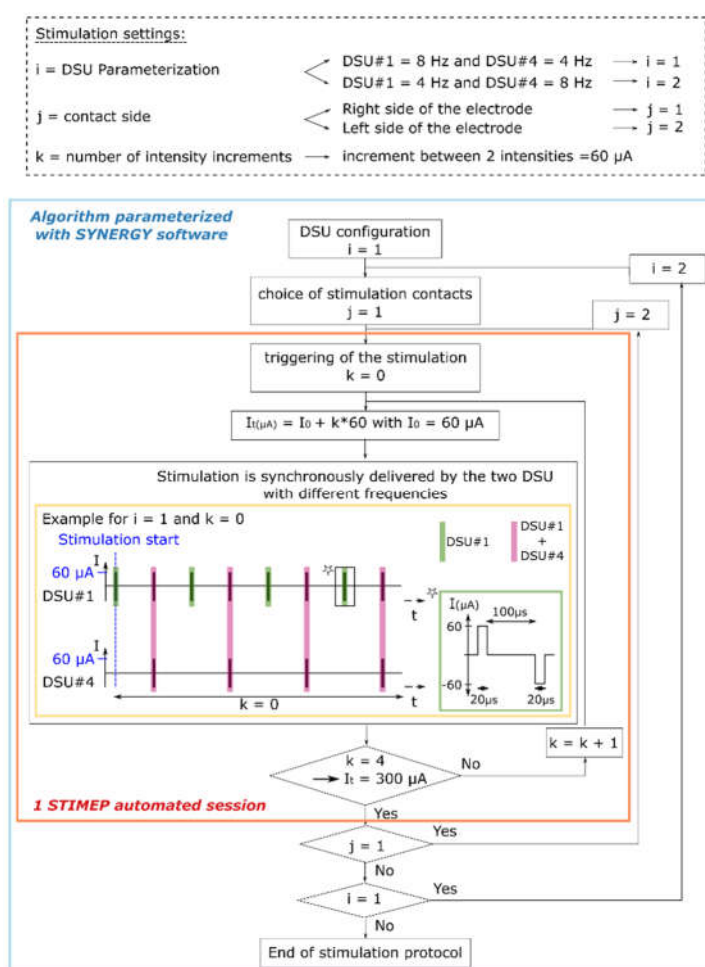


## Article

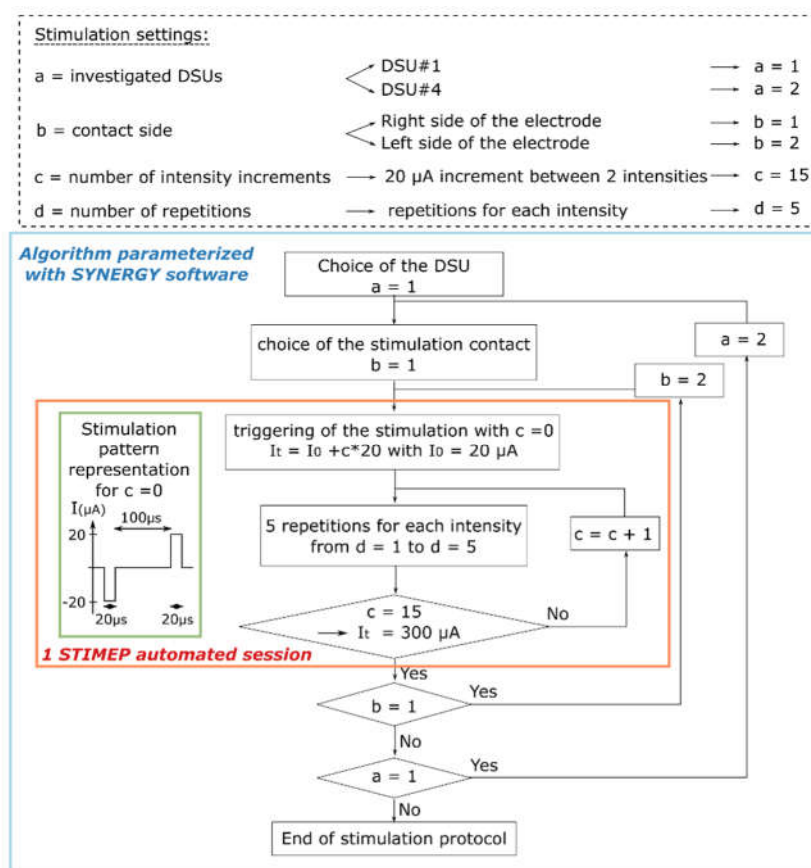
# New Stimulation Device to Drive Multiple Transverse Intrafascicular Electrodes and Achieve Highly Selective and Rich Neural Responses

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## Supplementary Figures



**Supplementary Figure S1.** Algorithm illustrating parameterization of SYNERGY software to implement Protocol 2. Protocol 2 was designed to perform stimulation using two DSU simultaneously (DSU#1 and DSU#4) in order to drive two TIME implanted in different fascicles (TIME#2 and TIME#3). 5 stimulation intensities were tested from 60 to 300  $\mu\text{A}$  with constant pulse width (20  $\mu\text{s}$ ) and multiple repetitions (either 4 or 8 repetitions for the 4 Hz or the 8 Hz stimulation). This experimental session aimed to assess STIMEP ability to deliver synchronized stimulation on different DSU but also to highlight the potential of a multi-TIME approach for rehabilitation purposes.



**Supplementary Figure S2.** Algorithm corresponding to Protocol 3. 15 stimulation intensities were tested from 20 to 300  $\mu$ A with constant pulse width (20  $\mu$ s) and frequency (5 Hz). This third protocol was designed to investigate the impact of stimulation pattern on selectivity by reversing pulses po-larity – experiments were performed using the same experimental set-up as protocol 2. i.e., using two TIMEs (TIME#2 and TIME#30 connected to DSU#1 and DSU#4 respectively).