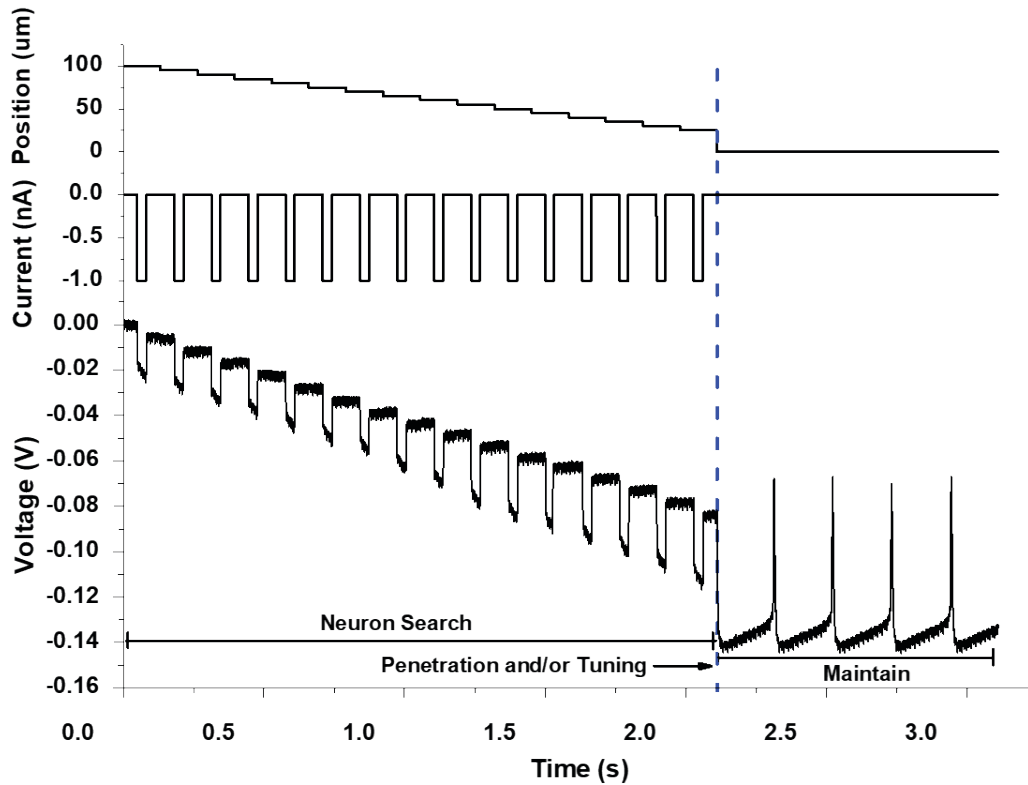
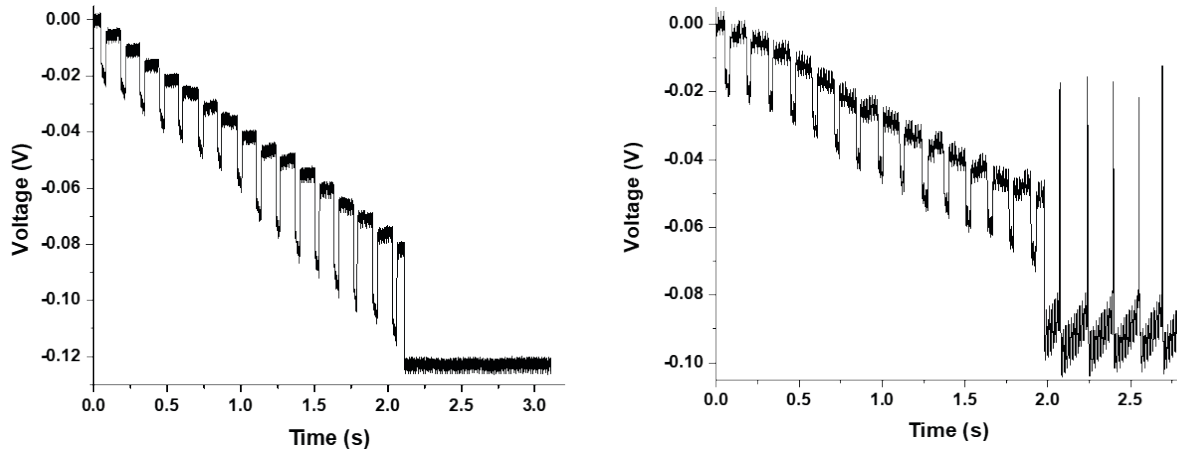


A



B



Supplementary Fig.1: Validation of the closed-loop control after integration of controller with a GP microelectrode and a conventional hydraulic microdrive. (A) Illustration of a typical trial of the closed loop control - the controller moved the electrode using the microdrive in steps of $5 \mu\text{m}$ towards a neuron in the isolated abdominal ganglion, until the electrical impedance of the tip was above the threshold value of $8 \text{ M}\Omega$, beyond which the controller switched to the 'Penetration and/or Tuning' mode to impale the neuron and obtained intracellular recordings. (B) Representative plots showing performance of the controller in 2 additional neurons with good quality resting potentials (RP) and/or action potentials (AP).