<p style="text-align:center;">**Supporting Information for**</p>

Improving the control of the electroforming process in oxide-based memristive devices by X-ray nanopatterning

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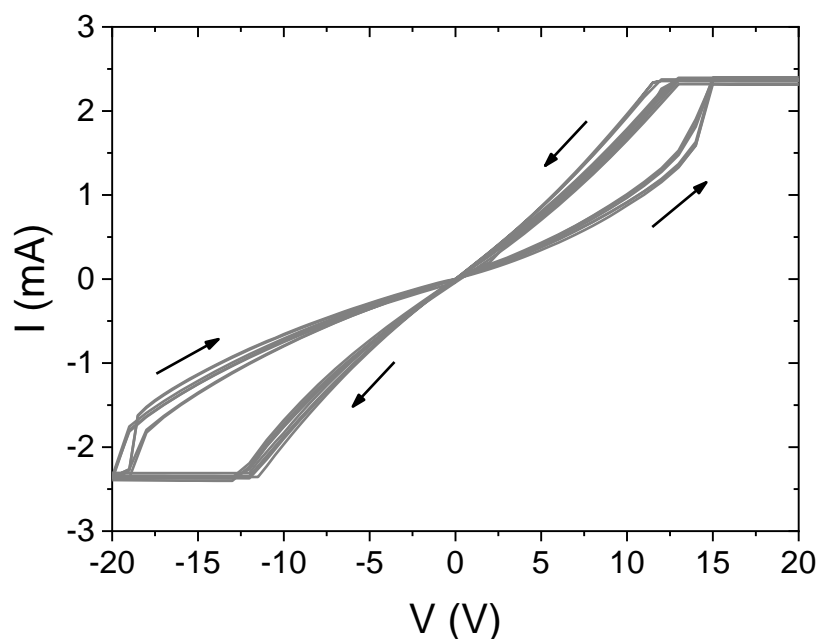
Figure S1. I-V curves for multiple ON-OFF cycles showing the reproducibility of the high resistance state and of the low resistance state.
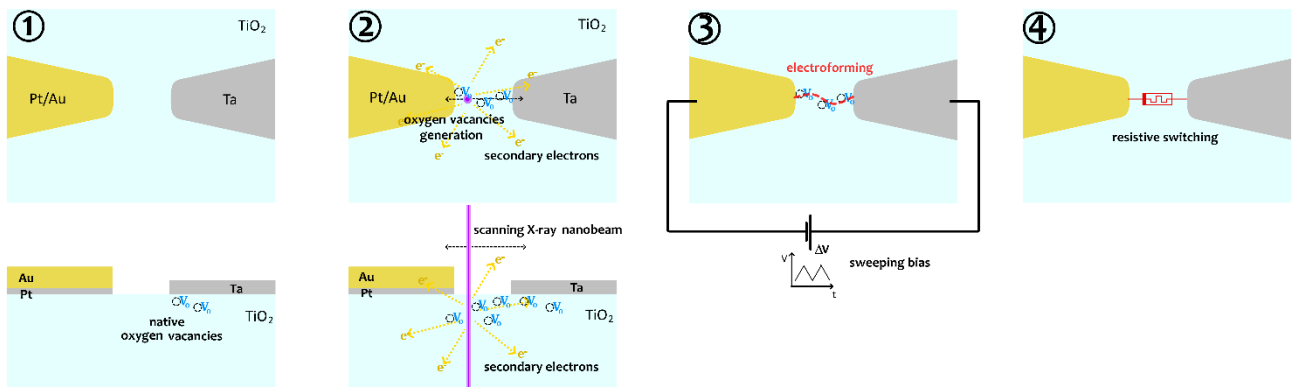
Figure S2. Schematic diagram of the different steps of the X-ray nanopatterning process: (1) initial sample state, characterized by the presence of some oxygen vacancies induced by thermal annealing; (2) generation of additional oxygen vacancies by X-ray nanobeam irradiation; (3) application of a suitable bias to achieve electroforming in the line between the electrodes previously irradiated by the X-ray nanobeam; (4) final sample state, which can be switched from a high resistance to a low resistance state and *viceversa*.