Supporting Information

Crystallization of tin chloride for promising pseudocapacitor electrode

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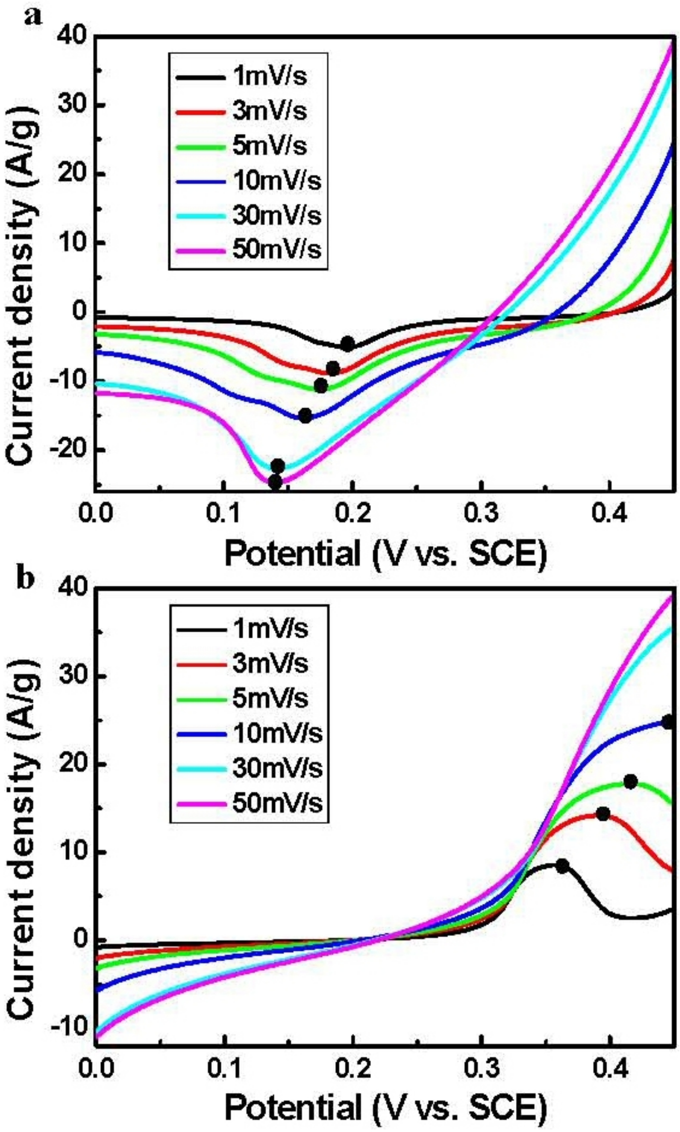

Figure S1.CV curves (current density versus potential) of the inorganic $SnCl_4$ salt electrodes at various scan rate of 1-50 mV s^{-1}. (a) Reduction peaks and (b) oxidation peaks at different scan rates. The present of the redox peaks in the CV curve confirms the occurrence of pseudocapacitive reaction in electrode

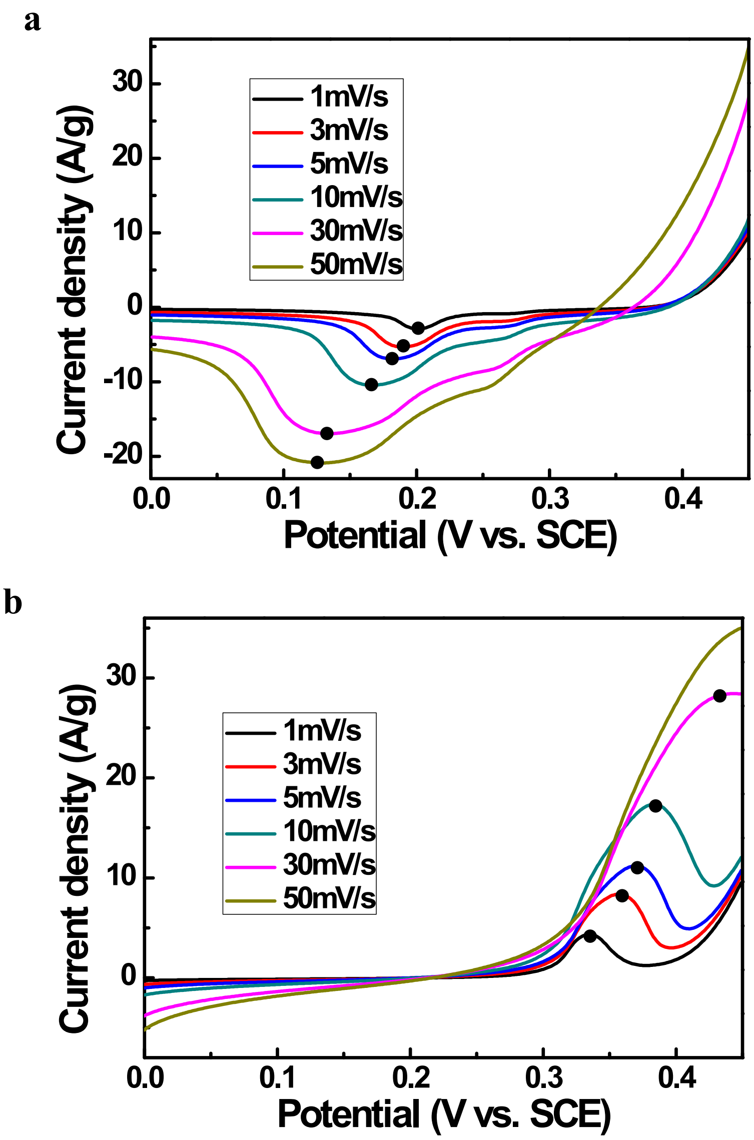

Figure S2. CV curves (current density versus potential) of the inorganic $SnCl_2$ salt electrodes. (a) Reduction peaks and (b) oxidation peaks at various scan rates. The redox peaks were present in the CV curves, which confirm the pseudocapacitance reaction mechanism. The CV curve was obtained at the potential range of 0-0.45 V. All data are taken in a 2M KOH solution at room temperature.

Figure S3. Photograph of the change of $SnCl_4$ and $SnCl_2$ salts in air after different aging time.

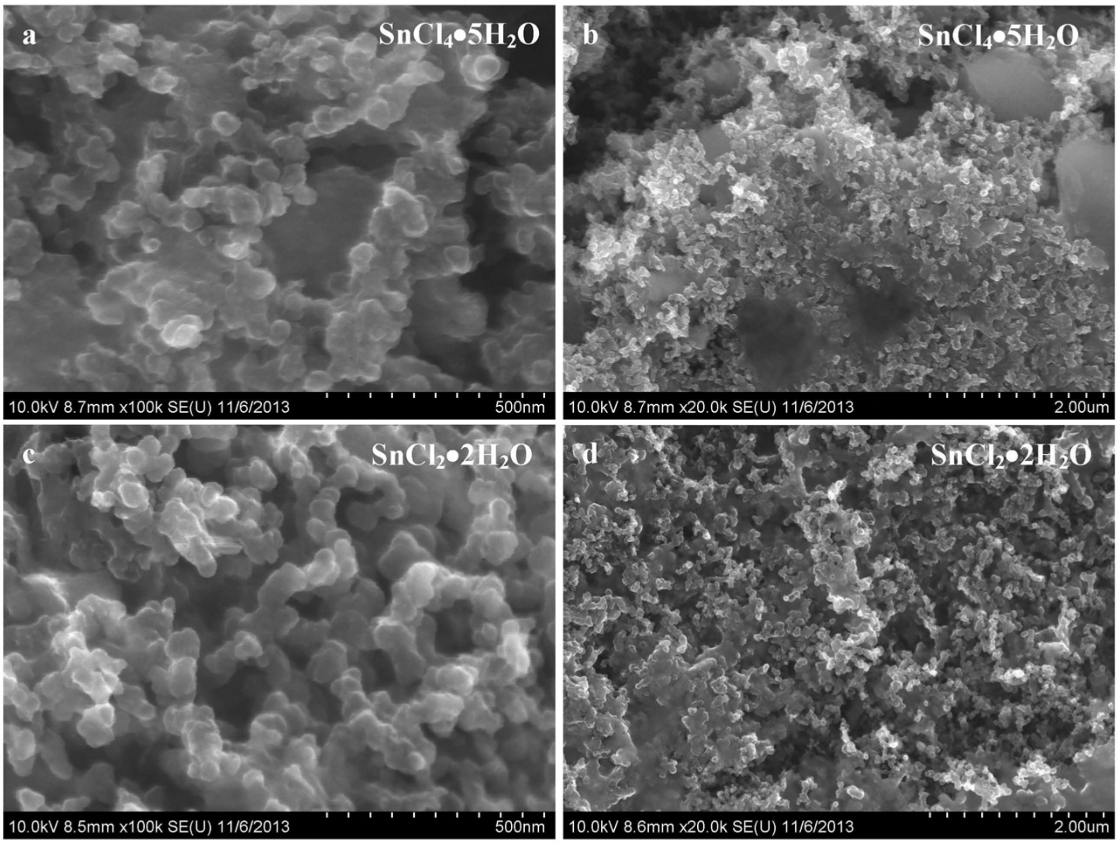

Figure S4. SEM images of the inorganic $SnCl_4$ and $SnCl_2$ salts electrodes after electrochemical measurements. The spherical structures are carbon black used in the electrode preparation (See Fig. S2), which include the formed SnO/Sn colloids. The spherical carbon can serve as matrix to constrain the SnO/Sn grown largely.

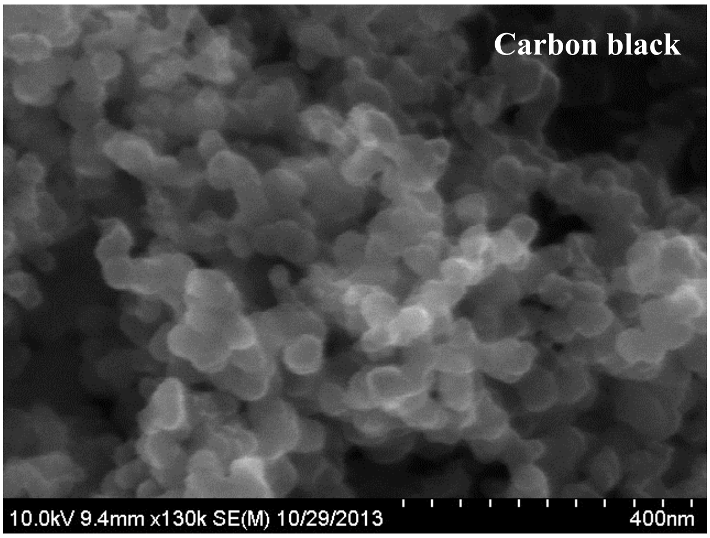

Figure S5. SEM images of carbon black used in the electrode preparation.

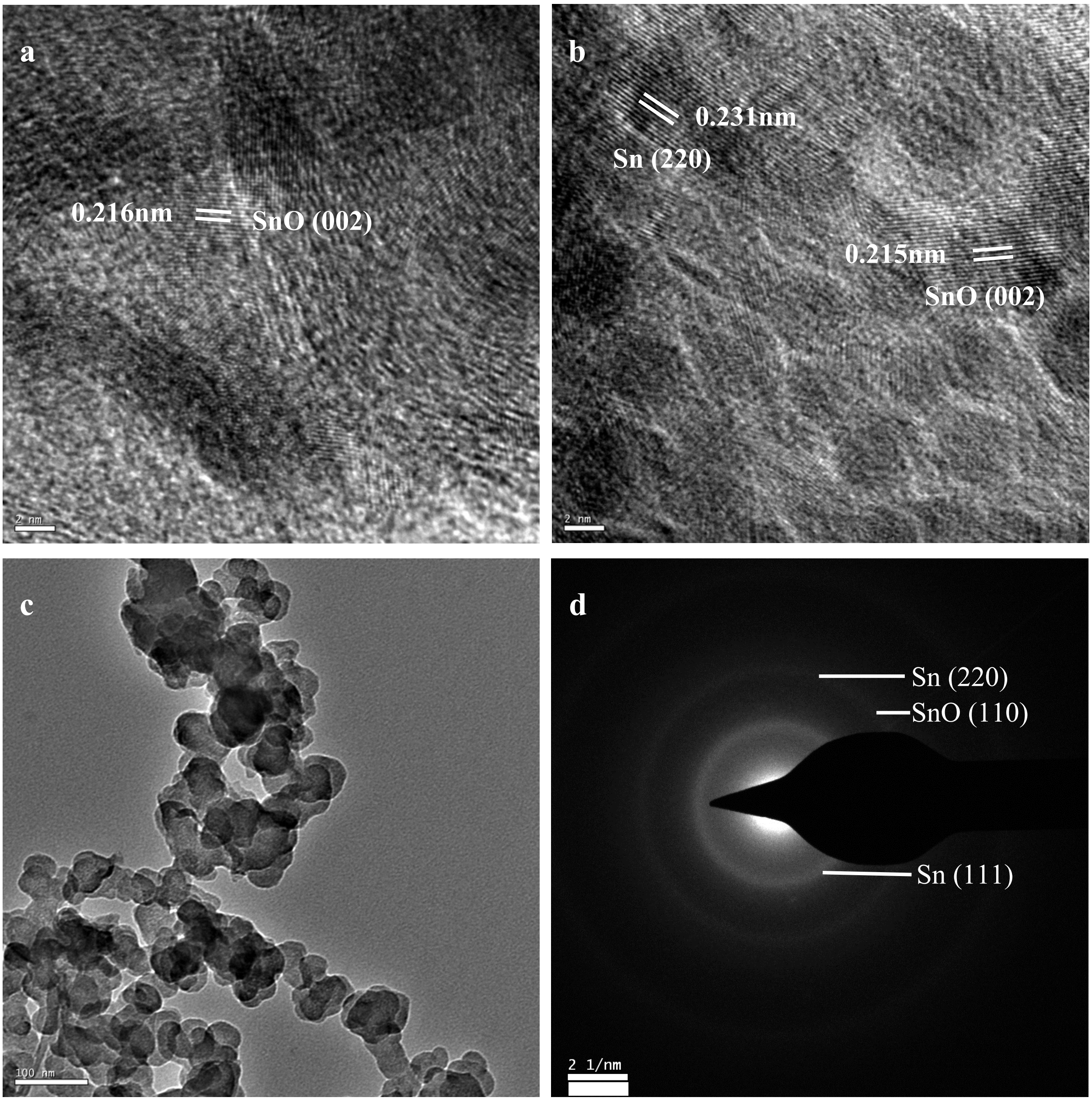

Figure S6. TEM images of the inorganic $SnCl_2$ salts electrodes after electrochemical measurements. (a, b) HRTEM images show the coexistence of Sn and SnO nanoparticles, (c) low-magnification TEM image indicates the large-size of conductive carbon nanospheres, where the Sn and SnO nanoparticles are around carbon spheres, (d) electron diffraction pattern also confirms the coexistence of Sn and SnO phases.