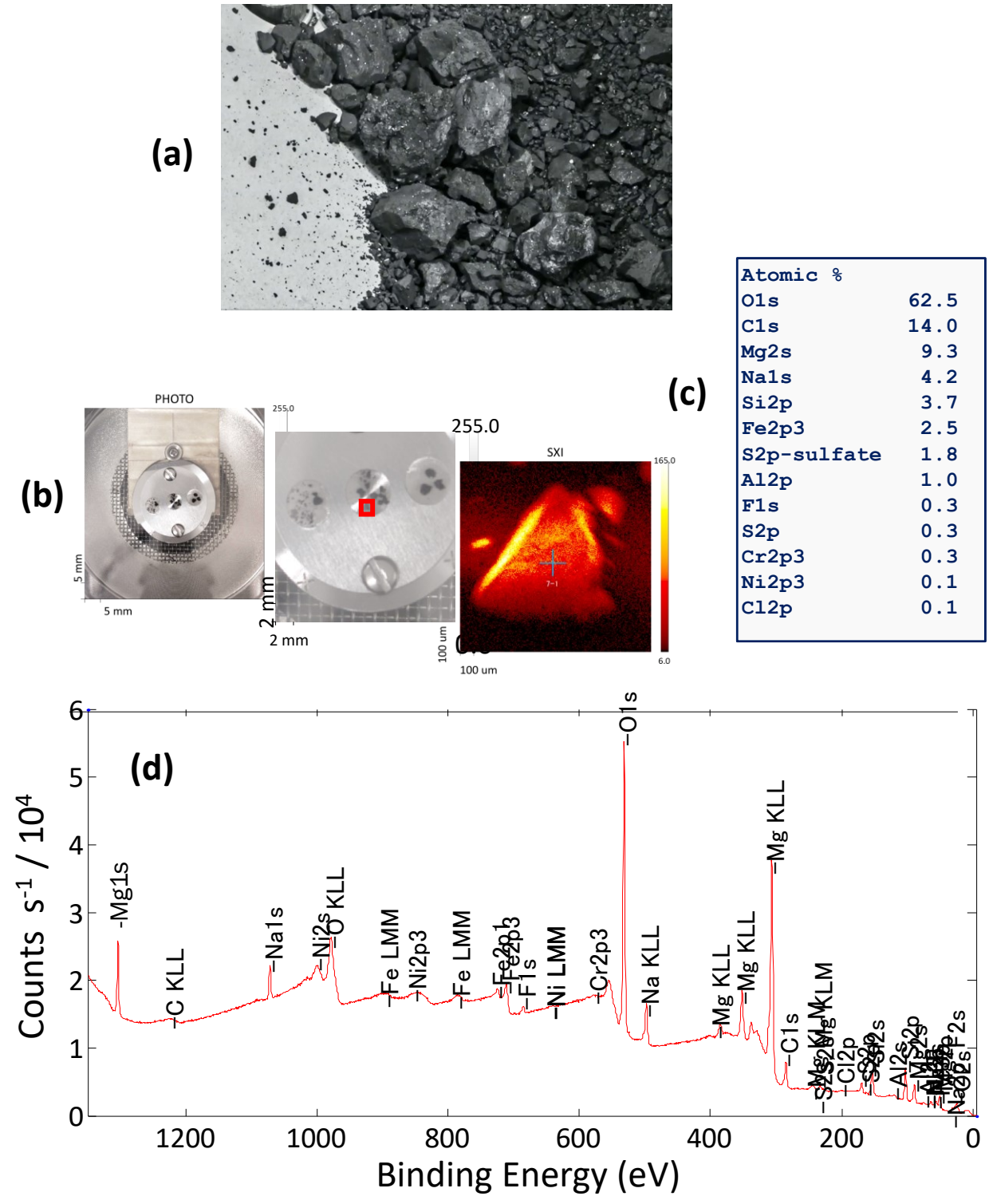

Figure 1. *NASA's OSIRIS-REx mission to near-Earth primitive asteroid Bennu returned >120 grams of regolith, capturing particles in a collection vessel via the controlled release of N_2-gas. (a) Collected particles were analyzed upon return to Earth for organic content, mineralogy, weathering signatures, etc. (b) For XPS, particles were mounted on double-sided Scotch tape affixed to the PHI Versaprobe sample platen and transported from NASA Johnson Space Center to the University of Virginia in a specialized vacuum suitcase. (c) The surface composition [in atomic-%] for one Bennu particle is derived from (d) survey spectra, where data is interpreted to better understand surface weathering processes on asteroids. Surprisingly, strong Na signatures and no Ca was observed on the Bennu particle surface, a likely indicator of aqueous alteration on the Bennu parent body.*