

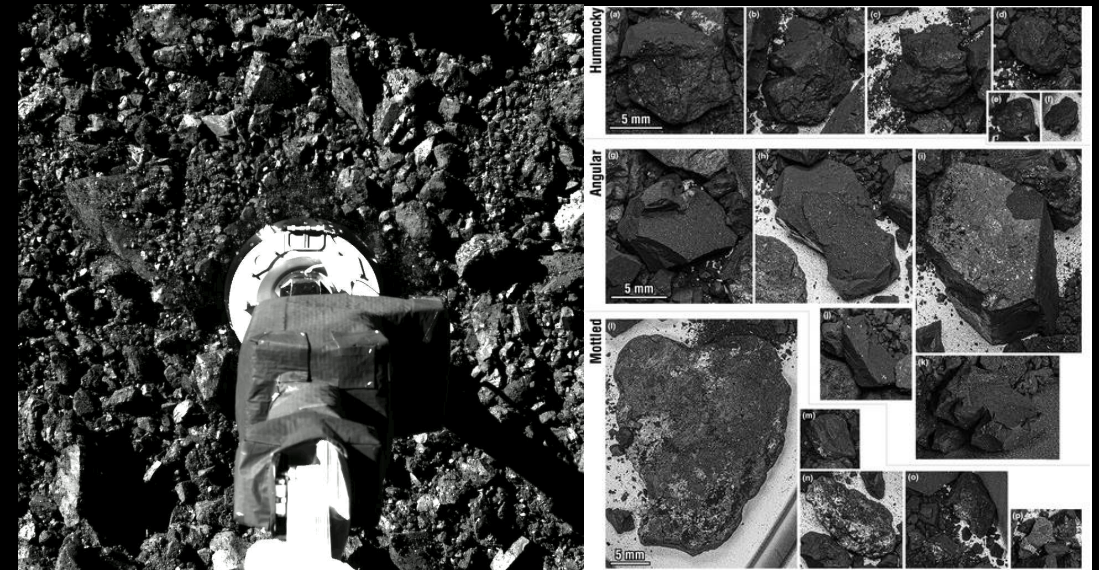
Asteroid Bennu in the Laboratory

The first lab results from NASA's OSIRIS-REx sample return mission were reported in June.

The Bennu sample contains the ingredients that formed our solar system and are essential components of life as we know it. These include carbon, nitrogen, and organic compounds. The sample also contains water-soluble phosphates, which hint that Bennu splintered off a long-gone ocean world. The sample is primitive, with similar composition to the Sun. Some Bennu grains are older than the Sun.

These lab analyses results confirm the measurements taken by the OSIRIS-REx spacecraft in 2019, when it was orbiting Bennu. OSIRIS-REx detected organics, clays, magnetite, and carbonates.

The results also show that the OSIRIS-REx remote sensing instruments accurately characterized the asteroid's geology. This gives confidence for the spectroscopic characterization of primitive airless bodies (e.g., the Lucy mission, and future asteroid mining). The samples are scientifically important and unique, confirming that Bennu was the right target for OSIRIS-REx. Astrobiology studies of Bennu are ongoing.



The collection of 121.6 g of sample from Asteroid Bennu in 2020 (left) includes stones and dust (right) with unique properties, curated at NASA JSC.

Credit: NASA/Goddard/University of Arizona/Lockheed Martin