Image: NASA's OSIRIS-REx spacecraft prepared for mission to an asteroid

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Credit: NASA/Dimitri Gerondidakis

NASA's OSIRIS-REx spacecraft is revealed after its protective cover is removed inside the Payload Hazardous Servicing Facility at Kennedy Space Center in Florida, on May 21, 2016. The spacecraft traveled from

Lockheed Martin's facility near Denver, Colorado to Kennedy to begin processing for its upcoming launch, targeted for Sept. 8 aboard a United Launch Alliance Atlas V rocket. After launch, OSIRIS-REx - which stands for Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer - has an approximately two-year cruise to reach the asteroid Bennu in 2018.

Upon arrival, OSIRIS-REx will spend a year flying in close proximity to Bennu, its five instruments imaging the asteroid, documenting its lumpy shape, and surveying its chemical and physical properties. In 2020, OSIRIS-REx will collect a pristine sample of at least two ounces of the asteroid's surface material that will be returned back to Earth in 2023 for analysis. Bennu is part of the debris left over from the formation of the solar system. It is pristine enough to hold clues to solar system's origin and the source of water and organic molecules found on Earth.

Provided by NASA