

# **Planetary protection issues in the preparation and planning of sample return missions**

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Small bodies of the solar system represent compelling targets for ongoing scientific study and further exploration. As repositories of material that has not been exposed to the full range of modifications seen on planetary bodies, comets and asteroids may contain materials representative of the earliest stages of solar system formation. Due to the inherent limitations of remote analytical techniques, the best way to study some of this material may be by returning samples of it to laboratories on Earth. Because comets and asteroids have been shown to have organic constituents, and because the understanding of the origin of life is so limited, the potential for these small bodies to contain indigenous life forms has been examined and must be considered before any return to Earth of small-body samples. A 1998 study by the US Space Studies Board provided a framework for consideration of this potential, which was adopted by COSPAR in 2002. This paper will discuss the application of the framework, and the options available to mission designers in carrying out small-body sample-return missions.