OPENING STATEMENT

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House Committee on Science, Space, and Technology

"Advances in the Search for Life"

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Good morning, and welcome to our witnesses.

Humanity's centuries-old quest to understand our place in the universe has gained significant ground in recent years. Geologists are uncovering evidence of the oldest life forms in Earth's geological record. The age of these fossils indicates that, as soon as conditions were right on Earth, life appeared. That discovery raises profound questions. Has the same thing occurred on other bodies within and beyond our solar system? Is the genesis of life a common occurrence throughout the universe?

Planetary scientists continue to find new environments within our solar system with the potential to harbor life. A key requirement for life as we know it is water and the mantra for the search for life beyond Earth has been to "follow the water." Recent discoveries indicate that our solar system has an abundance of it: NASA's Mars Reconnaissance Orbiter discovered intermittent flows of liquid water on or just below the Martian surface; The Hubble Space Telescope has sent back images of what appear to be intermittent water plumes gushing from the surface of Jupiter's moon, Europa; And the NASA Cassini mission has revealed evidence of hydrothermal activity in the subsurface water ocean of Saturn's moon, Enceladus. With indications of water on several other solar system bodies including asteroids, dwarf planets, and moons of Jupiter and Saturn, it appears that at least one condition for habitability is relatively common throughout our solar system.

How do recent discoveries of water and habitable environments in our own solar system inform the search for life on planets orbiting other stars? NASA's Kepler mission has more than doubled the number of known exoplanets – bringing astronomers closer to finding an elusive Earth twin. The upcoming launch of the James Webb Space Telescope and the Transiting Exoplanets Survey Telescope will provide more opportunities to study these systems and to uncover new ones.

There appear to be many possible environments to search for life, both within our solar system and beyond. To narrow down the targets for research and exploration, scientists are working to understand fully how life originated here on Earth.

The study of Earth's history, the early forms of life on Earth, and how the two evolved together is critical to this effort. And so, the search for life truly is an interdisciplinary endeavor that draws on expertise in core science disciplines like biology, geology, chemistry, physics, and astronomy. The strength of these core disciplines is central to making maximum progress in the search for life beyond Earth, and that's why we need to be committed to keeping America's research enterprise strong. We need to continue to invest as a nation in research and development, not cut back.

I feel fortunate to be serving on the Science Committee at a time when progress is being made so rapidly in the search for life beyond Earth and I look forward to hearing about that progress from our witnesses. With that, I yield back.