# Life-supporting pilot plant

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Credit: ESA/UAB

A prototype version of a self-sustaining life-support system, intended to allow humans to live in space indefinitely, is seen in Spain's University Autònoma of Barcelona.

This is the pilot plant of the international ESA-led Micro-Ecological Life

Support System Alternative, or MELiSSA, a mini-ecosystem behind airtight glass.

Today, International Space Station crews must be resupplied from Earth, but such supply lines will become impractical as explorers venture farther out into space.

Instead, the 11-nation MELiSSA seeks to perfect a regenerative life-support system that could supply astronauts with all the oxygen, water and food they require.

The pilot plant hosts a multi-compartment loop with a light-powered bioreactor and a culture of oxygen-producing algae to keep 'crews' of three rats alive and comfortable for months at a time. While the algae yield oxygen and trap carbon dioxide, the rats do exactly the reverse.

A MELiSSA-based experiment is being run on the International Space Station. In May, experts will gather to discuss MELiSSA and closed-loop life support systems, along with topics such as air, water and waste recycling and food production.

Provided by European Space Agency

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