

Synthetic biology off planet for game-changing solutions for a greener Earth

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Abstract

Synthetic biology – creating new capabilities with life – promises to create a greener future for planet Earth, from fields as diverse as pharmaceuticals to manufacturing, agriculture and nanotechnology. Progress can be stymied by such considerations as economics, politics, legal and philosophical issues surrounding GMOs. Often solutions to these problems already exist, so it is difficult for a new, superior method to displace the old. As we move humans beyond Earth, to long duration stays in the International Space Station, and then onward to the Moon and Mars, the challenges of supporting human life will need radical new solutions. While there are new constraints, such as worrying about the mass of a solution, constraints offer opportunities for game-changing solutions that will then allow revolutions back on our home planet.