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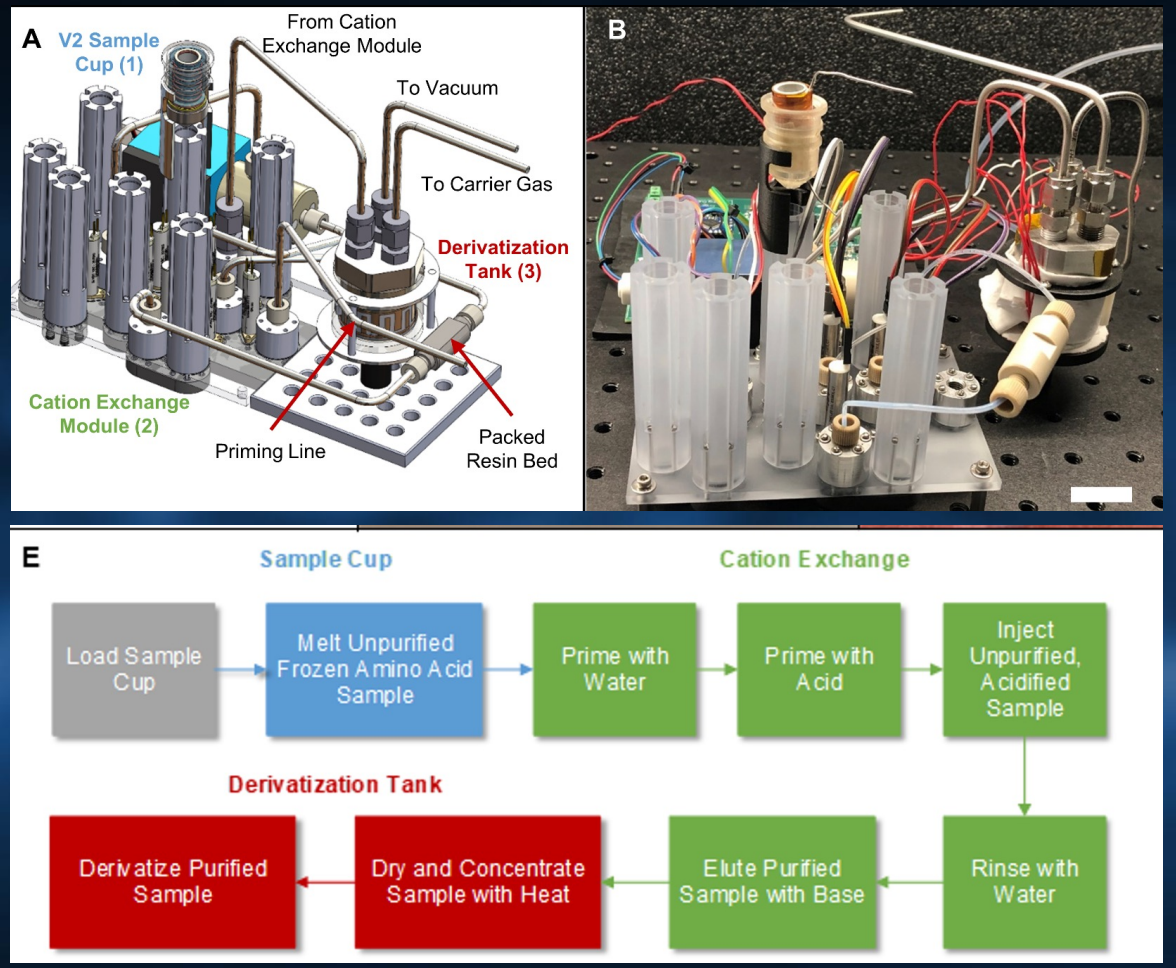
Biosignature Preparation for Ocean Worlds (BioPOW) Instrument Prototype

The BioPOW instrument prototype was designed to purify amino acids, in-situ, from complex ocean world samples to enable sensitive and accurate detection by conventional analysis techniques (e.g. GC-MS).

- Individual modules (sample cup, manifold purifier, and derivatization tank) were tested for performance before integration into a small size (12cm × 20cm × 20cm) and low weight (590 g) automated platform
- BioPOW produces sample-agnostic, purified amino acids for versatile downstream detection techniques
- This prototype can improve detection sensitivity and confidence in biosignature detections at ocean worlds, supporting future life-detection capabilities



Integrated BioPOW instrument prototype and workflow

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