

# OBPR Research Priorities

OBPR Divisions	Research Themes	Research Thrusts (Prioritized by ReMAP)	ReMAP Priorities (1-4)	Organizing Questions
Biastronautics Research	Biomedical Research & Countermeasures	Radiation Health	Priority 1	No. 1
		Integrated Physiology	Priority 1	No. 1
		Organ System Physiology	Priority 1	No. 1
		Clinical/Operational Medicine	Priority 1	No. 1
		Behavior & Performance	Priority 1	No. 1
		Environmental Health	Priority 4	No. 4
	Advanced Human Support Technology	Advanced Environmental Monitoring & Control	Priority 1	No. 4
		Space Human Factors Engineering	Priority 2	No. 3 No. 4
		Advanced Life Support	Priority 1	No. 4
		Advanced Extravehicular Activity	Priority 4	No. 4
Fundamental Space Biology	Fundamental Space Biology	Cell & Molecular Biology (See Note 1)	Priority 1	No. 1 No. 2
		Organismal & Comparative Biology	Priority 1	No. 1 No. 2
		Developmental Biology	Priority 2	No. 2
		Evolutionary Biology	Priority 4	No. 2
		Gravitational Ecology	See Note 2	No. 4
		Molecular Structures & Interactions (See Note 2)	Priority 1	No. 1 No. 2
	Fundamental Microgravity Research	Phase Transformation	See Note 3	No. 3 No. 4
		Condensed Matter	See Note 3	No. 3
		Fundamental Laws	See Note 3	No. 3
		Kinetics, Structure, & Transport	See Note 3	No. 3
Fluid Stability, Dynamics		See Note 3	No. 3 No. 4	
Thermophysical, Physicochemical, & Biophysical Properties		Priority 3	No. 3	
Physical Sciences Research	Biotechnology & Applications	Cell Science & Tissue Engineering (see Note 1)	Priority 1	No. 1 No. 2
		Structural Biology	Priority 3	No. 3
		Energy Conversion	See Note 4	No. 3
		Materials Synthesis & Processing	Priority 4	No. 3
		Bio-inspired/Microfluidics Technology	Recommends Termination	No. 4
	Engineering Research Enabling Exploration	Fire Safety & Fluid Systems Engineering	Priority 2	No. 4
		Propulsion & Power	Priority 1	No. 4
		Biomolecular Technology & Sensors	Priority 4	No. 4
		Radiation Protection	Priority 3	No. 4
		Mission Resource Production & Robotic Exploration	Priority 4	No. 4
Space Product Development	Commercial Applied Sciences	Biotechnology	Priority 3	No. 3
		Agribusiness	Priority 4	No. 3
		Advanced Materials	Priority 4	No. 3
	Commercial Engineering Research & Technical Development	Remote Sensing & Autonomous Systems	Priority 2	No. 4
		Telecommunications	Priority 2	No. 4
		Thermal Control	Priority 2	No. 4
		Power Generation, Storage, & Distribution	Priority 2	No. 4
		Robotics & Structure	Priority 2	No. 4
		Propulsion	Priority 2	No. 4

## Organizing Questions

- 1. How can we assure survival of humans traveling far from Earth?
- 2. What must we know about how space changes life forms, so that humankind will flourish?
- 3. What new opportunities can our research bring to expand our understanding of the laws of nature and enrich lives on Earth?
- 4. What technology must we create to enable the next explorers to go beyond where we have been?
- 5. How can we educate and inspire the next generations to take the journey? (As this question relates to the Education and Outreach efforts of all divisions and not directly to the research thrusts, it is not included in this sidebar. Please see p. 11 for more information.)

## Notes

- Note 1:** Cell & Molecular Biology combined with elements of Molecular Structures & Interactions and Cell Science & Tissue Engineering (Physical Sciences Research). ReMAP recommended combining Cell Science & Tissue Engineering research with Cell & Molecular Biology research.
- Note 2:** Gravitational Ecology was not ranked because it was already represented in the Environmental Health and Advanced Life Support research areas.
- Note 3:** ReMAP qualified this Priority 1\* ranking. Some of the projects within this area are Priority 1 because of scientific merit alone but not all are directly related to human space exploration.
- Note 4:** ReMAP recommended that Energy Conversion research be integrated with other basic microgravity research as it is fundamentally similar to other investigations within the Physical Sciences Research Division.