CRITICAL PATH ROADMAP DISCIPLINE(S)	PRIMARY SPECIES / TYPE	SPACE FLIGHT EXPERIMENT TITLE	NASA OBPR - TASK BOOK Year Experiment Was Listed in Book							
			1995	1996	1997	1998	1999	2000	2001	2002
Bone Loss; Muscle Alterations & Atrophy	Animal	An Evaluation of Collagen Metabolism in Non-Human Primates associated with the BION Space Program-Markers of Urinary Collagen Turnover and Muscle Tissue Collagen Types			1997	1998	1999			
Bone Loss; Muscle Alterations & Atrophy	Animal	Bone and Lean Body Mass Changes Following Space Flight	1995	1996	1997	1998	1999			
Bone Loss; Immunology, Infection & Hematology	Animal	Bone Marrow Macrophage Differentiation in Space; Differentiation of Bone Marrow Macrophages in Space				1998	1999	2000	2001	2002
Bone Loss; Muscle Alterations & Atrophy	Animal	Effect of Gravity on the Attachment of Tendon to Bone	1995	1996	1997	1998				
Bone Loss	Animal	Effect of Microgravity on Bone Development	1995	1996	1997	1998				
Bone Loss	Animal	Effect of Microgravity on Osteoblast Gene Expression (Biorack)	1995							
Bone Loss	Animal	Effect of Microgravity on Osteoblast Gene Expression (Euro-Mir)	1995							
Bone Loss	Animal	Effect of Spaceflight on TGF-b Expression by hFOB Cells	1995	1996	1997	1998				
Bone Loss	Animal	Effects of Gravity on Bone Matrix Production and Mineralization			1997	1998				
Bone Loss	Animal	Effects of Hypogravity on Osteoblast Differentiation	1995	1996						
Bone Loss	Animal	Gravity and Bone Growth	1995							
Bone Loss	Animal	Influence of Space Flight on Bone Cell Cultures	1995	1996						
Bone Loss; Clinical Capabilities	Animal	Intermittent Administration of Parathyroid Hormone: Countermeasure for Loss of Bone Mass and Strength During Spaceflight			1997	1998				
Bone Loss	Animal	Investigations of the Effects of Microgravity on In Vitro Cartilage Calcification	1995	1996	1997					
Bone Loss	Animal	Microgravity Effects during Fertilization, Cell Division, Development, and Calcium Metabolism in Sea Urchins	1995	1996	1997	1998				
Bone Loss	Animal	Microgravity Effects on Bone Cell Gene Expression	1995	1996	1997	1998				
Bone Loss	Animal	Osteoblast Adhesion and Phenotype in Microgravity	1995	1996	1997	1998				
Bone Loss	Animal	OsteoMass: Effects of Microgravity on Osteoblast Gene Expression in Variable Gravity			1997	1998				
Bone Loss	Animal	Role of Corticosteroids in Bone Loss during Space Flight	1995	1996	1997	1998				
Bone Loss	Animal	Skeletal Development in Embryonic Quail on the International Space Station					1999	2000	2001	2002
Bone Loss; Muscle Alterations & Atrophy	Animal	Skeletal Development in Long Duration Spaceflight	1995	1996	1997	1998				
Bone Loss	Animal	Space Flight and Bone Metabolism: Age Effects; Space Flight and Bone Metabolism: Age Effects and Development of an Animal Model for Adult Human Bone Loss					1999	2000	2001	2002
Bone Loss; Muscle Alterations & Atrophy	Animal	The Effect of Spaceflight on Cartilage Cell Cycling and Differentiation			1997	1998	1999			
Bone Loss	Animal	The Effects of Space Flight on Bone Strength and Intracellular Calcium in the Rhesus Monkey by Non-Invasive Techniques	1995	1996						
Bone Loss	Animal	Vitamin D Endocrine System After Short-term Space Flight	1995	1996						
Bone Loss; Muscle Alterations & Atrophy	Human	Bed Rest Study (ground based for LMS)	1995	1996						
Bone Loss; Muscle Alterations & Atrophy	Human	Bone Mineral Loss and Recovery After Shuttle/MIR Flights	1995	1996	1997	1998	1999			
Bone Loss; Food & Nutrition	Human	Calcium Kinetics During Space Flight				1998	1999	2000	2001	2002
Bone Loss; Food & Nutrition	Human	Direct Measurement of the Initial Bone Response to Spaceflight in Humans	1995	1996	1997	1998				
Bone Loss; Food & Nutrition	Human	Dynamics of Calcium Metabolism and Bone Tissue	1995	1996						
Bone Loss; Clinical Capabilities; Muscle Alterations & Atrophy	Human	Foot Reaction Forces During Space Flight				1998	1999	2000	2001	2002
Bone Loss; Muscle Alterations & Atrophy	Human	Magnetic Resonance Imaging after Exposure to Microgravity (284054); Magnetic Resonance Imaging After Exposure to Microgravity (9401586)	1995	1996	1997	1998				
Clinical Capabilities; Food & Nutrition; Bone Loss	Human	Renal Stone Risk Assessment	1995	1996						
Clinical Capabilities; Food & Nutrition; Bone Loss	Human	Renal Stone Risk During Long Duration Space Flight	1995	1996	1997	1998	1999			
Clinical Capabilities; Bone Loss	Human	Renal Stone Risk During Space Flight: Assessment and Countermeasure Validation			1997	1998	1999	2000	2001	2002
Bone Loss	Human	Sub-Regional Assessment of Bone Loss in the Axial Skeleton in Long-Term Spaceflight				1998	1999	2000	2001	2002
Bone Loss; Clinical Capabilities; Muscle Alterations & Atrophy	Human	A Low Intensity Mechanical Countermeasure to Prohibit Osteoporosis in Astronauts During Long-Term Spaceflight								2002