

Fiscal Year:	FY 2015	Task Last Updated:	FY 02/27/2015
PI Name:	Emmett, Mark Ph.D.		
Project Title:	Induction of Hepatocellular Carcinoma by Space Radiation: A Systems Biology Study of Causative Mechanisms		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Radiation health		
Joint Agency Name:		TechPort:	No
Human Research Program Elements:	(1) SR :Space Radiation		
Human Research Program Risks:	(1) Cancer :Risk of Radiation Carcinogenesis		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Organization Name:	The University of Texas Medical Branch		
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City:	Galveston	State:	TX
Zip Code:	77555-5302	Congressional District:	14
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	2013-14 HERO NNJ13ZSA002N-RADIATION
Start Date:	01/07/2015	End Date:	01/06/2019
No. of Post Docs:		No. of PhD Degrees:	
No. of PhD Candidates:		No. of Master' Degrees:	
No. of Master's Candidates:		No. of Bachelor's Degrees:	
No. of Bachelor's Candidates:		Monitoring Center:	NASA JSC
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Meyer-Baese, Anke Ph.D. (Florida State University) Moskal, Joseph Ph.D. (Falk Center for Molecular Therapeutics) Nilsson, Carol M.D., Ph.D. (University of Texas Medical Branch, Galveston) Ullrich, Robert Ph.D. (University of Texas Medical Branch)		
Grant/Contract No.:	NNX15AD65G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Exposure to high-energy heavy ions (HZE) during space travel is a health risk for astronauts. Even at low doses, exposure to HZE can lead to cancer. To better understand the molecular mechanisms of HZE induced carcinogenesis we will use a mouse model of HZE-induced hepatocellular carcinoma to study microenvironment changes after exposure to low level HZE. A comprehensive systems biology approach consisting of transcriptomics, lipidomics, proteomics, and metabolomics with novel data analysis will be used to build detailed biological pathways and identify molecular mechanisms that drive carcinogenesis. This work will further our understanding of risk at a mechanistic level and allow the development of new models for estimating human risk.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2015.
Bibliography Type:	Description: (Last Updated: 04/10/2021)