Fiscal Year:	FY 2018	**Task Last Updated:**	FY 02/23/2018
PI Name:	Cunha, Micaela Ph.D.		
Project Title:	A Mechanistic Framework to Assess the Efficacy of Aspirin and Other Radio Protectors to Reduce Carcinogenesis by Space Radiations		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	TRISH--TRISH		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	None		
Human Research Program Risks:	None		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	md3546@cumc.columbia.edu ; micaela.scunha@gmail.com	**Fax:**	FY
PI Organization Type:	UNIVERSITY	**Phone:**	212-305-2405
Organization Name:	Columbia University		
PI Address 1:	Center for Radiological Research		
PI Address 2:	630 W 168th Street VC 11 Fl		
PI Web Page:			
City:	New York	**State:**	NY
Zip Code:	10032-3725	**Congressional District:**	13
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	2017 TRI-RFA-17-01: Translational Research Institute for Space Health (TRISH) Postdoctoral Fellowships
Start Date:	01/01/2018	**End Date:**	05/31/2019
No. of Post Docs:	1	**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:**	TRISH
Contact Monitor:		**Contact Phone:**	
Contact Email:			
Flight Program:			
Flight Assignment:	NOTE: End date changed to 5/31/2019 per E. Urquieta/TRISH; original end date was 12/31/2019 (Ed., 5/29/19)		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Brenner, David Ph.D. (MENTOR: Columbia University)		
Grant/Contract No.:	NNX16AO69A-P0201		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	POSTDOCTORAL FELLOWSHIP NASA is planning a 2-3-year inter-planetary mission to start around 2030, as well as subsequent Mars landing missions. Current data from human and animal studies suggests that exposure of astronauts to radiation in space, in particular to high linear energy transfer (LET) galactic cosmic rays (GCR) and neutrons, may result in increased cancer risks which are not yet adequately quantified. Thus, it is important to develop effective and safe biomedical countermeasures to minimize these risks. One possibility is to use drugs that have been shown to reduce the background spontaneous cancer risks, such as aspirin for gastrointestinal (GI) cancers. We have previously developed a mechanistic framework to evaluate the risk of radiation carcinogenesis and have successfully applied it, taking into consideration multiple variables such as low- and high-LET radiation, low and high dose rates, or age-at-exposure effects. The aim of this project is to extend this framework to assess the effects of biomedical countermeasures on GCR-induced cancer risks. We will start by analyzing data regarding aspirin and GI cancers, as there is convincing evidence that aspirin reduces the risk of colorectal cancer but the ultimate goal of the proposed project is to provide a general methodology for the assessment of any anti-cancer agent under consideration for reducing the risks of GCR-induced carcinogenesis.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2018.
Bibliography Type:	Description: (Last Updated:)