

<b>Fiscal Year:</b>	FY 2019	<b>Task Last Updated:</b> FY 06/27/2019	
<b>PI Name:</b>	Crucian, Brian Ph.D.		
<b>Project Title:</b>	Pilot Assessment of Stress and Latent Herpesvirus Reactivation at Palmer, Antarctica – Platform for Validation of Immune Countermeasures?		
<b>Division Name:</b>	Human Research		
<b>Program/Discipline:</b>			
<b>Program/Discipline-- Element/Subdiscipline:</b>			
<b>Joint Agency Name:</b>		<b>TechPort:</b>	No
<b>Human Research Program Elements:</b>	(1) <b>HHC:</b> Human Health Countermeasures		
<b>Human Research Program Risks:</b>	(1) <b>Immune:</b> Risk of Adverse Health Event Due to Altered Immune Response		
<b>Space Biology Element:</b>	None		
<b>Space Biology Cross-Element Discipline:</b>	None		
<b>Space Biology Special Category:</b>	None		
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<b>Zip Code:</b>	77058-3607	<b>Congressional District:</b>	36
<b>Comments:</b>			
<b>Project Type:</b>	GROUND	<b>Solicitation / Funding Source:</b>	Directed Research
<b>Start Date:</b>	12/01/2018	<b>End Date:</b>	09/30/2021
<b>No. of Post Docs:</b>		<b>No. of PhD Degrees:</b>	
<b>No. of PhD Candidates:</b>		<b>No. of Master' Degrees:</b>	
<b>No. of Master's Candidates:</b>		<b>No. of Bachelor's Degrees:</b>	
<b>No. of Bachelor's Candidates:</b>		<b>Monitoring Center:</b>	NASA JSC
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<b>Flight Program:</b>			
<b>Flight Assignment:</b>			
<b>Key Personnel Changes/Previous PI:</b>			
<b>COI Name (Institution):</b>	Mehta, Satish Ph.D. ( JES Tech/NASA Johnson Space Center ) Makedonas, George Ph.D. ( JES Tech/NASA Johnson Space Center ) Krieger, Stephanie B.S. ( KBRwyle/NASA Johnson Space Center ) Bhattacharya, Sharmila Ph.D. ( NASA Ames Research Center ) Paul, Amber Ph.D. ( NASA Ames Research Center )		
<b>Grant/Contract No.:</b>	Directed Research		
<b>Performance Goal No.:</b>			
<b>Performance Goal Text:</b>			

Task Description:	<p>Recent publications have characterized adverse health events potentially related to immune system dysregulation in some crewmembers onboard the International Space Station (ISS). An appropriate ground analog has yet to be validated, although several European bases are being characterized. This study seeks to collect low-cost pilot data assessing stress, immunity, and viral reactivation during winterover at the U.S. Palmer Station, Antarctica. The goal is to ascertain if Palmer may serve as a spaceflight analog option for ground validation of immune countermeasures. NASA currently has no relevant data from Palmer station. This study may be performed by simply returning frozen saliva samples from crewmembers performing winterover along with a rapid fingerstick blood analysis on location. The inclusion of a hand held fingerstick blood analyzer will enable the use of a neutrophil/lymphocyte ratio as an indicator of disease susceptibility. Returned saliva samples will be used to assess a variety of parameters including stress hormones, cytokines/inflammation, and latent herpesviruses (an excellent flight-validated biomarker of immune dysregulation).</p> <p>Aims</p> <ol style="list-style-type: none"> <li>1. Investigate the effect of coastal Antarctica winterover on salivary stress hormones, salivary cytokine profiles, and basic peripheral leukocyte distribution.</li> <li>2. Investigate the effect of coastal Antarctica winterover on the reactivation and shedding of latent herpesviruses.</li> <li>3. Characterize other adverse clinical outcomes, as voluntarily shared by crewmembers via a health survey, such that immune changes, viral reactivation, and clinical manifestations may be correlated to infer information regarding clinical risk from persistent immune dysregulation.</li> </ol>
Rationale for HRP Directed Research:	<p>The justification for Directed Task is the highly constrained nature of this pilot study involving focused and constrained data gathering and analysis that is more appropriately obtained through a non-competitive proposal, which could include a follow on task to a solicitation. This is a low-cost pilot study that would have been classified as Discretionary if not for the use of an analog site (Antarctica).</p>
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2019.
Bibliography Type:	Description: (Last Updated: 09/15/2023)