

Fiscal Year:	FY 2016	Task Last Updated: FY 08/22/2016	
PI Name:	Zanello, Susana Ph.D.		
Project Title:	Multimodal Modeling towards Noninvasive Assessment of Intracranial Pressure in Weightlessness and Biomarker Identification of Predisposition to VIIP Syndrome		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Biomedical countermeasures		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) HHC: Human Health Countermeasures		
Human Research Program Risks:	(1) SANS: Risk of Spaceflight Associated Neuro-ocular Syndrome (SANS)		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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PI Organization Type:	NASA CENTER	Phone:	832-576-6059
Organization Name:	KBR/NASA Johnson Space Center		
PI Address 1:	Human Research Program Chief Scientist Office		
PI Address 2:			
PI Web Page:			
City:	Houston	State:	TX
Zip Code:	77058	Congressional District:	36
Comments:	NOTE (January 2021): PI now at KBR/NASA JSC as of December 2020. Previously at imec USA from June 2019-November 2020; NASA JSC (KBRwyle) from August 2017 until spring 2019. Prior to August 2017, PI was with Universities Space Research Association.		
Project Type:	FLIGHT	Solicitation / Funding Source:	2013-14 HERO NNJ13ZSA002N-ILSRA. International Life Sciences Research Announcement
Start Date:	04/01/2016	End Date:	07/05/2021
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		
Contact Monitor:	Norsk, Peter	Contact Phone:	
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Flight Program:	ISS		
Flight Assignment:	NOTE: End date changed to 7/5/2021 per R. Schulte/HRP HHC element, due to PI move to KBR/NASA JSC management (Ed., 12/15/21)		
Key Personnel Changes/Previous PI:	NOTE: Co-Principal Investigator is Dr. Michael Williams, University of Washington, with project entitled, "Invasive and Noninvasive ICP Monitoring and VIIP Biomarker Identification."		
COI Name (Institution):	Fiedler, James Ph.D. (Universities Space Research Association) Scott, Jessica Ph.D. (Universities Space Research Association) Hu, Xiao Ph.D. (University of California, San Francisco)		
Grant/Contract No.:	NNX16AH78G		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	There is a clear need to investigate whether there is an association between intracranial pressure (ICP) increase and the Visual Impairment and Intracranial Pressure (VIIP) syndrome. The Non-Invasive ICP Framework (NICF) is a general approach for inferring ICP using noninvasive signals that are related to ICP. Leveraging multimodal noninvasive data from crew members to be collected in planned longitudinal experiments in flight will significantly improve the accuracy of this noninvasive ICP measurement tool. In addition, we will evaluate biomarkers in blood and urine of crew members, with the aim of investigating the molecular bases and genetic predisposition of developing VIIP syndrome. Overall, this study proposes the use of noninvasive measures plus biomarker discovery and validation as input to build a predictive model that will inform the likelihood of a given crew member of developing vision/neurological complications post flight.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2016.
Bibliography Type:	Description: (Last Updated: 09/04/2023)