Fiscal Year:	FY 2007	**Task Last Updated:**	FY 02/19/2009
PI Name:	Duncan, James Michael M.D.		
Project Title:	Validation of On-Orbit Methodology for the Assessment of Cardiac Function and Changes in the Circulating Volume Using Ultrasound and Braslet-M Occlusion Cuffs, SDTO 17011 U/R (Braslet)		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Operational and clinical research		
Joint Agency Name:		**TechPort:**	Yes
Human Research Program Elements:	(1) **ExMC**:Exploration Medical Capabilities		
Human Research Program Risks:	(1) **Cardiovascular**:Risk of Cardiovascular Adaptations Contributing to Adverse Mission Performance and Health Outcomes (2) **Medical Conditions**:Risk of Adverse Health Outcomes and Decrements in Performance Due to Medical Conditions that occur in Mission, as well as Long Term Health Outcomes Due to Mission Exposures		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Zip Code:	77058	**Congressional District:**	22
Comments:			
Project Type:	FLIGHT	**Solicitation / Funding Source:**	Directed Research
Start Date:	04/01/2007	**End Date:**	09/30/2010
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:	ISS		
Flight Assignment:	ISS 16, 18		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Alferova, Irina (Institute for Biomedical Problems, Moscow, Russia) Dulchavsky, Scott (Henry Ford Hospital System, Detroit, MI) Ebert, Douglas (Wyle Laboratories) Hamilton, Douglas (Wyle Laboratories) Matveev, Vladimir (Gagarin Cosmonaut Training Center, Star City, Russia) Sargsyan, Ashot (Wyle Laboratories)		
Grant/Contract No.:			
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Validation of On-Orbit Methodology for the Assessment of Cardiac Function and Changes in the Circulating Volume Using Ultrasound and Braslet-M Occlusion Cuffs (Braslet) is Station Development Test Objective (SDTO) 17011 sponsored by NASA and Russian Federal Space Agency (FSA). Braslet is testing the performance of occlusion cuffs in modifying fluid shifts that occur early during physiological transition into the space environment. Understanding the effects of this countermeasure on cardiovascular function will be useful for both medical operations and future research. See also http://www.nasa.gov/
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	Space Applications This SDTO will provide refinements in remote guidance techniques which will allow detailed ultrasound exams to be performed in space with remote guidance by technicians and physicians on the ground. This will enhance the diagnostic and research capabilities of the ISS ultrasound. Data will also be collected regarding the utility and potentially expanded uses of the Braslet-M device for both ISS and exploration class missions. A more detailed understanding of the cardiovascular response to microgravity-induced fluid shifts will also be gained from this work. Earth Applications Refinements in remote guidance techniques provided by Braslet will similarly allow detailed ultrasound exams to be performed in terrestrial locations remote from experienced ultrasound technicians and physicians. Examples include rural clinics, disaster areas, and military applications. Additionally, during this SDTO data will be collected regarding the physiological responses to altered circulatory volume distribution which may lend insight to the diagnosis and treatment of terrestrial conditions (such as cardiovascular disease) which result in altered fluid status.
Task Progress:	New project for FY2007. Task added to Task Book in February 2009.
Bibliography Type:	Description: (Last Updated: 08/30/2018)