

Fiscal Year:	FY 2012	Task Last Updated:	FY 09/20/2012
PI Name:	Weaver, Aaron Ph.D.		
Project Title:	Spaceflight Injectable Delivery System		
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) 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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PI Web Page:			
City:	Cleveland	State:	OH
Zip Code:	44135	Congressional District:	10
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	10/01/2008	End Date:	12/30/2011
No. of Post Docs:	0	No. of PhD Degrees:	0
No. of PhD Candidates:	0	No. of Master' Degrees:	0
No. of Master's Candidates:	0	No. of Bachelor's Degrees:	0
No. of Bachelor's Candidates:	0	Monitoring Center:	NASA JSC
Contact Monitor:	Watkins, Sharmila	Contact Phone:	281.483.0395
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Flight Program:			
Flight Assignment:	NOTE: Per the Human Research Roadmap and HRP Master Task List, the project is currently in an archived state. End date changed to 12/30/2011; original end date was 9/30/2014 (Ed., 9/20/2012)		
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	In the event of an emergency during spaceflight, it may be necessary for the crew to find extended safety in their Extra-Vehicular Activity (EVA) spacesuits. During this EVA contingency, NASA requires the capability to deliver liquid medications via intramuscular injection to ill or injured crewmembers. The delivery of liquid medication in a damaged vehicle unable to maintain a habitable environment poses unique challenges. Some of these challenges include the behavior of the fluid in a low-pressure and off-nominal-temperature environment, the formation of bubbles in microgravity, and the ability to physically use the medical delivery device at the desired anatomical location while the astronaut is suited. Under the auspices of NASA's Human Research Program, the In-Suit Injection System project at the Glenn Research Center (GRC) aims to develop an injection device capable of delivering necessary medications during an EVA contingency.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	This technology development project aims to design a medical injection device for the harsh environment of space. This technology could translate to harsh Earth environments such as during underwater diving or during a hazardous materials/chemicals scenarios requiring the user to be in a containment suit.
Task Progress:	<p>[Editor's Note September 2012: the following from the Human Research Roadmap http://humanresearchroadmap.nasa.gov/ ; Per the Human Research Roadmap and HRP Master Task List, the project is currently in an archived state. End date changed to 12/30/2011; original end date was 9/30/2014]</p> <p>The Injectables task successfully completed PDR (preliminary design review) in September of 2011. At that time, it was felt that the forward need for an injection device was too undefined to further proceed with the project. With uncertainty in the needs of the suit developers (Injectables was conceived under Constellation Program and was working under those mission scenarios), new and uncertain Design Reference Missions (DRMs), and uncertainty from the medical community on what needed to be provided because of the changing DRMs, the Injectables task was put on hold. The project is currently in an archived state that will allow for continued development if the need arises.</p>
Bibliography Type:	Description: (Last Updated:)