Fiscal Year:	FY 2007	**Task Last Updated:**	FY 05/29/2009
PI Name:	James, John T. Ph.D.		
Project Title:	LADTAG Lunar Dust Health Standard		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Environmental health		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **SHFH**:Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	(1) **Dust**:Risk of Adverse Health and Performance Effects of Celestial Dust Exposure (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 (3) **Renal Stone**:Risk of Renal Stone Formation		
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:**	281-483-7122
Organization Name:	NASA Johnson Space Center		
PI Address 1:	2101 NASA Parkway, SF-23		
PI Address 2:			
PI Web Page:			
City:	Houston	**State:**	TX
Zip Code:	77058	**Congressional District:**	22
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	Directed Research
Start Date:	10/02/2006	**End Date:**	12/31/2010
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
Contact Monitor:	Woolford, Barbara	**Contact Phone:**	218-483-3701
Contact Email:	barbara.j.woolford@nasa.gov		
Flight Program:			
Flight Assignment:	NOTE: Start/end dates changed to 10/2/2006-12/31/2010 (previously 4/30/2006-1/31/2011) per B. Woolford/JSC via S. Steinberg-Wright/JSC (9/2009)		
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Khan-Mayberry, Noreen (NASA Johnson Space Center) McKay, David (NASA Johnson Space Center) Jeevarajan, Antony (NASA Johnson Space Center) Loftus, David (NASA Ames Research Center) Lam, Chiu-wing (Wyle Laboratories)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Although there were a few early attempts to understand the toxicity of lunar dust obtained by Apollo astronauts or the Luna probes, no scientifically defensible toxicological studies have been performed on authentic lunar dust. The multi-center LADTAG (Lunar Airborne Dust Toxicology Advisory Group) was formed and responded to a request from the Office of the Chief Health and Medical Office (OCHMO) to develop recommendations for defining risk criteria for human lunar dust exposure, and then set an environmental standard. The Lunar Airborne Dust Toxicology Advisory Group (LADTAG), chaired by Dr. John T. James, NASA's Agency Toxicologist & Dr. Russell L. Kerschmann, ARC Space Life Science Division Chief & board certified pathologist, formed a world class group of technical experts in lunar geology, inhalation toxicology, biomedicine, cellular chemistry and biology from within the agency along with the nations' leading external experts in these fields. Based upon LADTAG's recommendations, NASA decided to develop a research database on which a defensible exposure limit can be set. Lunar Dust Toxicity Research Project's analysis of lunar dusts and lunar dust simulants will include detailed particle characterizations (size distribution, morphology, and mineralogy, determining the properties of particle activation (degree of reactivity and persistence of reactivity), determining how to reactivate lunar dust, the process of dust passivation and discerning the pathological mechanisms of lunar dust exposure via inhalation, intratracheal instillation, cell culture exposure, dermal exposure and ocular exposure. The resulting set of health standards will be time-based and will vary by the duration and type of exposure. It may also be necessary to set multiple standards for different types of lunar dust, as well as, for dust in its fresh or activated state vs. aged and passivated dust Development of time-based standards, acute exposure limits, exposures of a few hours, and chronic exposure limits, episodic exposures up to six months, for inhalation (pulmonary) toxicity and human risk criteria will be developed no later than 2010. LDTRP does not rule out the development of setting other (non pulmonary) standards and human health risk criteria, for dermal and ocular exposure, contingent upon research findings of non-airborne dust toxicity studies.
Rationale for HRP Directed Research:	This research is directed because it contains highly constrained research, which requires focused and constrained data gathering and analysis that is more appropriately obtained through a non-competitive proposal.
Research Impact/Earth Benefits:	
Task Progress:	New project for FY2007. [Ed. note: Task added to Task Book in May 2009]
Bibliography Type:	Description: (Last Updated: 01/23/2014)