

<b>Fiscal Year:</b>	FY 2006	<b>Task Last Updated:</b>	FY 01/12/2010
<b>PI Name:</b>	Putcha, Lakshmi Ph.D.		
<b>Project Title:</b>	Stability of Pharmacotherapeutics and Nutrition Compounds-Pharma		
<b>Division Name:</b>	Human Research		
<b>Program/Discipline:</b>	HUMAN RESEARCH		
<b>Program/Discipline--Element/Subdiscipline:</b>	HUMAN RESEARCH--Biomedical countermeasures		
<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>Pharm:</b> Risk of Ineffective or Toxic Medications During Long-Duration Exploration Spaceflight		
<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>Organization Name:</b>	NASA Johnson Space Center		
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<b>Zip Code:</b>	77058	<b>Congressional District:</b>	22
<b>Comments:</b>	Deceased as of September 2015.		
<b>Project Type:</b>	FLIGHT	<b>Solicitation / Funding Source:</b>	2004 Space Life Sciences 04-OBPR-01: ILSRA 2004
<b>Start Date:</b>	10/01/2005	<b>End Date:</b>	12/31/2009
<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>	Shuttle/ISS		
<b>Flight Assignment:</b>	ISS STS-121, STS-117, STS-122, STS-126		
<b>Key Personnel Changes/Previous PI:</b>	NOTE: previously combined in project entitled Stability of Pharmacotherapeutics and Nutrition Compounds, with Scott Smith as PI and Lakshmi Putcha as Co-PI; split into two Task Book projects in January 2010 for the entire project period, per JSC direction, with each CoPI listed as PI (ed.)		
<b>COI Name (Institution):</b>	Du, Brian ( Wyle Life Sciences ) Boyd, Jason ( Universities Space Research Association )		
<b>Grant/Contract No.:</b>			
<b>Performance Goal No.:</b>			
<b>Performance Goal Text:</b>			

<b>Task Description:</b>	<p>Data gathered from past Space Shuttle missions suggest that some of the medications packed in the Shuttle's medical pack degrade even after relatively brief periods (less than 20 days) of space flight. The observed degradation included both physical and chemical characteristics of medicine formulations. The degradation was sufficient to influence FDA stipulated shelf-life for these formulations and may result in a loss of potency. Physical and chemical instability of medications could render treatments with degraded drugs ineffective for assurance of optimal crew health during long duration space exploration missions. An evaluation of subjective data on medications used by crewmembers during space flight indicated that eight percent of all treatments administered in the Space Shuttle program were reported ineffective. Pharmaceutical instability may modify effectiveness and safety, and is one possible cause of the ineffectiveness of treatments. Degradation of food products will also render them ineffective in providing health and energy sustenance. The stability of medications and foods used by the crew, therefore, must be adequate to facilitate safe exploration of space in the future. The Stability of Pharmacotherapeutic and Nutritional Compounds (Stability) investigation will evaluate mission critical medications and foods to understand issues relating loss of potency for medicines and to nutritional adequacy of foods in space.</p> <p>See also <a href="http://www.nasa.gov/">http://www.nasa.gov/</a></p>
<b>Rationale for HRP Directed Research:</b>	
<b>Research Impact/Earth Benefits:</b>	<p>The results of this investigation will help understand the effects of adverse environments on food and medicines, this information will assist Earth based explorers make healthy choices for long term exploration of remote and adverse habitats like the Antarctic, arctic and the world oceans.</p>
<b>Task Progress:</b>	<p>New project for FY2006. [Ed. note: added to Task Book in January 2010; previously combined in project entitled Stability of Pharmacotherapeutics and Nutrition Compounds, with Scott Smith as PI and Lakshmi Putcha as Co-PI]</p>
<b>Bibliography Type:</b>	<p>Description: (Last Updated: 11/12/2020)</p>