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Fixed PY 2006				
Project Title: Space Flight-Induced Reactivation of Latent Epstein-Barr Virus Division Name: Human Research Program/Discipline: HUMAN RESEARCH Program/Discipline: HUMAN RESEARCH—Operational and clinical research Joint Agency Name: TechPort: No Human Research Program Richemsts (1) HECHuran Health Countermeasures TechPort: No Space Biology Element: None Space Biology Cross-Element None Space Biology Special Category: None Fix: PV 409-935-6705 PI Email: protoxy@micropealabs.com, brian.crucian-lifeness.gov Fix: PV 409-935-6705 PI Organization Type: (NDUSTRY Pix: PV 409-935-6700 PI Address 1: 030 Texas Avenue Fix: PV 409-935-6700 PI Address 2: PV Hybrit Type Code: State TX PI Organization Name: 103 Texas Avenue State: TX PI Web Tugs: 175 Congressional District: 22 City: 75 Congressional District: 22 Vily: 15 Aurque State: TX			Task Last Updated:	FY 04/25/2007
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Human Research Program Risks: (1) Immune:Risk of Adverse Health Event Due to Altered Immune Response Space Biology Element: None Space Biology Cross-Element Discipline: None Space Biology Special Category: None PI Email: postow@microsenlabs.com.brian.cruciane1@masa.gov Fax: FY 409-935-6705 PI Organization Type: INDUSTRY Phone: 409-935-6700 Organization Name: Microgen PI Address 1: 90 3T exas Avenue PI Address 2: PI Web Page: City: La Marque State: TX Zip Code: 75568-3318 Congressional District: 22 Comments: Project Type: FLIGHT Solicitation / Funding Source: 98-HEDS-02 Start Date: 0701/2004 End Date: 12/31/2008 No. of Post Docs: 1 No. of PhD Degress: No. of Bachelor's Candidates: No. of Master' Degrees: No. of Bachelor's Candidates: No. of Master's Degrees: No. of Bachelor's Candidates: McCollum, Suzanne Contact Honitor: 281 483-7307 Contact Email: suzanne Contact Phone: 281 483-7307 Contact Email: suzanne Contact Phone: 281 483-7307 Contact Email: suzanne concollum@nasa.gov Flight Program: Shutle/ISS Flight Assignment: Piccon, Duane L. (NASA Johnson Space Center) NNIO6HB73A Performance Goal No.:	Joint Agency Name:		TechPort:	No
Space Biology Element: None Space Biology Cross-Element Discipline: None Space Biology Special Category: None PI Email: mstowe@microgenlabs.com. brian.crucian-1@mass.gov Fax: FY 409-935-6705 PI Organization Type: INDUSTRY Phone: 409-935-6700 Organization Name: Microgen PI Address 1: 903 Texas Avenue PI Address 2: PI Web Page: City: La Marque State: TX Zip Code: 7558-3318 Congressional District: 22 Comments: Project Type: FLIGHT Solicitation / Funding Source: 98-HEDS-02 Start Date: 07/01/2004 End Date: 12/31/2008 No. of Post Does: 1 No. of Master' Degrees: No. of Master's Candidates: No. of Master' Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: McCollum, Suzame Contact Phone: 281 483-7307 Contact Email: suzame, a mecollum/@nasa.gov Flight Program: Str. 108, -109, -110, -111, -113, -114; ISS-5, -6 In flight development phase (data collection has begun) Key Pe	Human Research Program Elements:	(1) HHC:Human Health Countermeasures		
Space Biology Cross-Element Discipline: None Space Biology Special Category: None PI Email: motover@microgenlabs.com, brian.crucian-1@nasa.gov Fax: FY 409-935-6705 PI Organization Type: INDUSTRY Phone: 409-935-6700 Organization Name: Microgen PI Address 1: 903 Texas Avenue PI Address 2: PI Web Page: City: La Marque State: TX Zip Code: 7568-3318 Congressional District: 22 Comments: Project Type: FLIGHT Solicitation / Funding. 98-HEDS-02 Start Date: 701/2004 End pate: 12/31/2008 No. of Post Does: 1 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: No. of Bachelor's Candidates: No. of Bachelor's Candidates: No. of Bachelor's Candidates: Monitoring Center: NASA JSC Contact Monitor: McCollum, Suzanne Contact Phone: 281 483-7307 Contact Email: Suzanne.g mocollum@nasa.gov Flight Assignment: <td>Human Research Program Risks:</td> <td>(1) Immune: Risk of Adverse Health Event Due to Altered</td> <td>Immune Response</td> <td></td>	Human Research Program Risks:	(1) Immune: Risk of Adverse Health Event Due to Altered	Immune Response	
Discipline: Space Biology Special Category: None PI Email: pstowe@microgenlabs.com, brian.crucian-1@mssa.gov Fax: FY 409-935-6705 PI Organization Type: NDUSTRY Nicrogen PI Address 1: 903 Texas Avenue PI Address 2: PI Web Page: City: La Marque State: TX Zip Code: 77568-3318 Congressional District: 22 Comments: Project Type: FLIGHT Solicitation / Funding Source: State: TX Type: State: TX Type: State: TX Type: State: TX Solicitation / Funding Source: Source: Source: No. of Post Does: No. of PhD Degrees: No. of PhD Degrees: No. of Master' Scandidates: No. of Master' Degrees: No. of Bachelor's Candidates: No. of Bachelor's Candidates: No. of Bachelor's Candidates: No. of Bachelor's Candidates: No. of Master' Degrees: No. of Maste	Space Biology Element:	None		
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PI Address 1: 903 Texas Avenue	PI Organization Type:	INDUSTRY	Phone:	409-935-6700
PI Address 2: PI Web Page: City: La Marque State: TX Zip Code: 77568-3318 Congressional District: 22 Comments: Project Type: FLIGHT Solicitation / Funding Source: 98-HEDS-02 Start Date: 07/01/2004 End Date: 12/31/2008 No. of Post Docs: 1 No. of PhD Degrees: No. of Pst Docs: 1 No. of PhD Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Master's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: Contact Monitor: McCollum, Suzanne Contact Phone: 281 483-7307 Contact Email: Suzanne, g. mccollum@nasa.gov Flight Program: Shuttle/ISS Flight Assignment: STS-108, -109, -110, -111, -113, -114; ISS-5, -6 In flight development phase (data collection has begun) Key Personnel Changes/Previous PI: Raymond Stowe replaced Alan Barrett as PI, effective July 2004 (per info from S. McCollum/M. Anderson, 12/2006). See also Barrett for FY02-04 information/reports. COI Name (Institution): Pierson, Duane L (NASA Johnson Space Center) Grant/Contract No.: NNJ06HB73A Performance Goal No.:	Organization Name:	Microgen		
Pl Web Page: City:	PI Address 1:	903 Texas Avenue		
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No. of Master's Candidates: No. of Bachelor's Degrees: No. of Bachelor's Candidates: Monitoring Center: NASA JSC Contact Monitor: McCollum, Suzanne Contact Email: Suzanne.g.mccollum@nasa.gov Flight Program: Shuttle/ISS Flight Assignment: STS-108, -109, -110, -111, -113, -114; ISS-5, -6 In flight development phase (data collection has begun) Key Personnel Changes/Previous PI: Raymond Stowe replaced Alan Barrett as PI, effective July 2004 (per info from S. McCollum/M. Anderson, 12/2006). See also Barrett for FY02-04 information/reports. COI Name (Institution): Pierson, Duane L (NASA Johnson Space Center) Grant/Contract No.: NNJ06HB73A Performance Goal No.:	No. of Post Docs:	1	No. of PhD Degrees:	
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Flight Assignment: STS-108, -109, -110, -111, -113, -114; ISS-5, -6 In flight development phase (data collection has begun) Key Personnel Changes/Previous PI: Raymond Stowe replaced Alan Barrett as PI, effective July 2004 (per info from S. McCollum/M. Anderson, 12/2006). See also Barrett for FY02-04 information/reports. COI Name (Institution): Pierson, Duane L (NASA Johnson Space Center) Grant/Contract No.: NNJ06HB73A Performance Goal No.:	Contact Email:	suzanne.g.mccollum@nasa.gov		
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Performance Goal No.:	COI Name (Institution):	Pierson, Duane L (NASA Johnson Space Center)		
	Grant/Contract No.:	NNJ06HB73A		
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Task Book Report Generated on: 03/29/2024

Task Description:

The majority of humans are infected with Epstein-Barr virus (EBV) early in life and thereafter carry the virus in a latent form. Reactivation of latent EBV may be an important threat to crew health during extended space missions. EBV is the causative agent of infectious mononucleosis as well as nasopharyngeal carcinoma, Burkitt's lymphoma, and different kinds of B-lymphocyte lymphomas in immunosuppressed individuals. Control of replication in vivo is mediated primarily by EBV- specific cytotoxic T-lymphocytes, and severe clinical symptoms have been associated with reactivation of latent viruses in patients with defective cellular immunity. Decreased cellular immune function has been reported both during and after space flight. Preliminary studies have demonstrated increased EBV shedding in saliva as well as increased antibody titers to EBV lytic proteins. Based on these observations, we hypothesize that the combined effects of microgravity along with associated physical and psychological stress will decrease EBV-specific T-cell immunity and reactivate latent EBV in infected B- lymphocytes. The specific aims to test this hypothesis are: (1) determine if antibody titers to EBV-specific autologous T-cell killing assay; (3) characterize the viral burden and gene expression in peripheral blood cells using PCR/RT-PCR; and (4) measure stress hormones in plasma and urine. To determine the mechanisms underlying altered virus-specific T cell immunity and reactivation of latent EBV in B lymphocytes.

Rationale for HRP Directed Research:

Research Impact/Earth Benefits:

This experiment will address fundamental questions on spaceflight and virus-specific immunity. One potential concern is the development of a virally associated disease or lymphoma within an infected individual. In addition, reinfection or transmission to a previously uninfected individual (resulting in primary infection) may be another concern. Thus, spaceflight may result in an increased frequency and/or severity of both primary and reactivated disease. If increased reactivation and clonal expansion of infected B- lymphocytes is detected, then pharmacological measures can be developed and instituted prior to onset of overt clinical disease.

Task Progress:

See FY2007 report.

Bibliography Type:

Description: (Last Updated: 03/07/2019)