Task Book Report Generated on: 04/19/2024

Fixed   Verif   PY 2013				
Project Title: Detection & Prevention of Neurobehavioral Vulnerability to Space Radiation  Bivision Name: Human Research  Program/Discipline: NSBRI  Program/Discipline: NSBRI—Neurobehavioral and Psychosocial Factors Team  Element/Subdictipline: NSBRI—Neurobehavioral and Psychosocial Factors Team  Element/Subdictipline: NSBRI—Neurobehavioral and Psychosocial Factors Team  Element/Subdictipline: No.  Idmana Research Program Risks: (1) BHP-Behavioral Health & Performance (archival in 2017)  Human Research Program Risks: (1) BMed/Risk of Advense Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Element: None  Space Biology Special Category: None  Pl Email: Shienz@ahmi.edu Fax: FY 410-550-2780  Pl Email: Shienz@ahmi.edu Fax: FY 410-550-2780  Pl Email: Pl Organization Type: UNIVERSITY Phone: 410-550-2788  Pl Address 1: Department of Psychiatry & Behavioral Sciences  Pl Address 2: Department of Psychiatry & Behavioral Sciences  Pl Address 2: Stote MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Cew Health NVII1ZSA002NA  Sart Date: 0701/2012 Find Date: 06-300-2015  No. of Post Does: 1 No. of PhD Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of PhD Candidates: 0 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates: 0 No. of Master's Degrees: 0  No. of Master's Candidates:	Fiscal Year:	FY 2013	Task Last Updated:	FY 07/12/2013
Division Name: Human Research Program/Discipline: NSBRI Program/Discipline- Element/Subdiscipline: NSBRI—Neurobehavioral and Psychosocial Factors Team Element/Subdiscipline: NSBRI—Neurobehavioral and Psychosocial Factors Team Element/Subdiscipline: No International Agency Name: TechPort: No Human Research Program Elements: (1) BHP-Behavioral Health & Performance (archival in 2017) Human Research Program Risks: (1) BHOdi-Risk of Advence Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Element: None Space Biology Element: None Space Biology Special Cuttegory: None PI Paralli: Phane Behavioral Health & Performance (archival in 2017) Human Research Program Risks: (1) BNed-Risk of Advence Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Special Cuttegory: None PI Paralli: Phane Behavioral Sciences PI Paralli: Phane Behavioral Sciences PI Paralli: Phane: Hopkins University School of Medicine PI Address I: Department of Psychiatry & Behavioral Sciences PI Address I: Department of Psychiatry & Behavioral Sciences PI Address I: Department of Psychiatry & Behavioral Sciences PI Address I: Department of Psychiatry & Behavioral Sciences PI Address I: State: MD  City: Baldimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments: Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NVIIIZSA002NA  Start Date: 07001/2012 End Date: 0630/2015 No. of Psa Docs: No. of Master' Degrees: 0 No. of Master' Degrees: 0 No. of Master' Degrees: 0 No. of Master' Candidates: 0 No. of Master' Candidates: 0 No. of Bachelor's Candidates: 0 No of Bache	PI Name:	Hienz, Robert D. Ph.D.		
Program/Discipline: Program/Discipline- Element/Subdiscipline- Element/Subdiscipline- Element/Subdiscipline- Joint Agency Name:  None  Space Biology Element:  None  Space Biology Cross-Element  Discipline:  None  Pl Email:  Joint Agency Name:  None  Pl Email:  Joint Agency Name:  None  Pl Email:  Joint Agency Name:  None  Space Biology Steint Cattegory:  None  Pl Email:  Joint Agency Name:  None  Space Biology Steint Cattegory:  None  Joint Agency Name:  Joint A	Project Title:	Detection & Prevention of Neurobehav	rioral Vulnerability to Space Radiatio	on
Program/Discipline- Element/Subdiscipline- Element/Subdiscipline- Element/Subdiscipline- Element/Subdiscipline- Element/Subdiscipline- Joint Agency Name:  (I) BIIP-Behavioral Health & Performance (archived in 2017)  Human Research Program Elements: (I) BIIIP-Behavioral Health & Performance (archived in 2017)  Human Research Program Risks: (I) BMed-Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Element: None  Space Biology Special Category: None  PI Email: bhero-Zibmi-edu PI Organization Type: UNIVERSITY None PI Cognization Name: The Johns Hopkins University School of Medicine PI Address 1: Department of Psychiatry & Behavioral Sciences  PI Address 2: S10 Nathan Shock Drive PI Web Page: City: Ballimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07:01/2012 Fand Date: 06:302015  No. of Pbst Does: 1 No. of Pbst Does: 1 No. of Pbst Does: 1 No. of Pbst Does: 0 No. of Master' Degrees: 0 No. of Master' Candidates: 0 No. of Master' Candidates: 0 No. of Master' Candidates: 0 No. of Master' Scandidates: 0 No. of Monitoring Center: NSBRI  Contact Contact Chonitor: Contact Contact Chonitor: Contact Contact Phone:  Contact Changes' Previous PI:  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  NCC 9-58-NBPF02802  Performance Goal No.:	Division Name:	Human Research		
Element/Subdiscipline: No.  Joint Agency Name: (1) BHP-Behavioral Health & Performance (archival in 2017)  Human Research Program Risks: (1) BMcd-Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Cross-Felment None  Space Biology Special Category: None  PI Email: Space Biology Special Category: Phone: 410-550-2780  PI Address 1: Department of Psychiatry & Behavioral Sciences  PI Address 2: Space Biology Special Category: Phone: 410-550-2780  PI Address 2: Space Biology Special Category: Phone: 410-550-2780  PI Address 2: State MD  Congressional District: 7  Comments:  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: Of No. of Post Docs: 1 No. of Post Doc; 1 No. of Post Docs: 0 No. of Post Doc; 1 No. of Post Docs: 0 No. of Master' Degrees: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0 No. of Bache	Program/Discipline:	NSBRI		
Human Research Program Elements: (1) BHP/Behavioral Health & Performance (archival in 2017) Human Research Program Risks: (1) BMed:Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders  Space Biology Cross-Element Discipline: Space Biology Special Category: None PI Email: Discipline: The Johns Hopkins University School of Medicine PI Capanization Type: UNIVERSITY Phone: 410-550-2788  Programization Name: The Johns Hopkins University School of Medicine PI Address 1: Department of Psychiatry & Behavioral Sciences PI Address 2: S510 Nathan Shock Drive PI Web Page: City: Ballimore State: MD  Zip Code: City: Special		NSBRINeurobehavioral and Psychos	ocial Factors Team	
Human Research Program Risks: (I) BMed:Risk of Adverse Cognitive of Behavioral Conditions and Psychiatric Disorders  Space Biology Cross-Element Disocipline: None Space Biology Special Category: None PI Email: blienzi@ihmi.edu Fax: FY 410-550-2780  PI Organization Type: UNIVERSITY Phone: 410-550-2788  Organization Name: The Johns Hopkins University School of Medicine PI Address 1: Department of Psychiatry & Behavioral Sciences PI Address 2: S10 Nathun Shock Drive PI Web Page: City: Baltimore Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments: Project Type: GROUND Solicitation / Funding Source: 0630/2015  No. of Phot Does: 1 No. of Phot Does: 1 No. of Phot Does: 0 No. of Phot Doeses: 0 No. of Master's Candidates: 0 No. of Master's Candidates: 0 No. of Bachelor's Candidates: NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI: COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.) Grant/Contract No.: NCC 9-58-NBPF02802 Performance Goal No.:	Joint Agency Name:		TechPort:	No
Space Biology Element:  Space Biology Cross-Element Disciplina:  None  PI Email:  Microgradium colu  PI Organization Type:  UNIVERSITY  Phone: 410-550-2780  PI Organization Type:  UNIVERSITY  Phone: 410-550-2788  Organization Name:  PI Address 1:  Department of Psychiatry & Behavioral Sciences  PI Address 2:  5510 Nathan Shock Drive  PI Web Page:  City:  Baltimore  State: MD  Zip Code:  21224-6823  Congressional District: 7  Comments:  Project Type:  GROUND  Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date:  07/01/2012  End Date: 06/30/2015  No. of Post Docs:  1  No. of Phot Degrees: 0  No. of Master' Degrees: 0  No. of Master' Degrees: 0  No. of Master's Candidates:  0  No. of Master's Candidates:  0  No. of Bachelor's Candidates:  0  No. of Bachelor's Candidates:  0  No. of Bachelor's Candidates:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: dange in period of performance per July 2013 NSBR1 report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBR1 (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution):  Roma, Peter (Institutes for Behavior Resources, Inc.)  NCC 9-58-NBPF02802  Performance Goal No.:	<b>Human Research Program Elements:</b>	(1) <b>BHP</b> :Behavioral Health & Perform	ance (archival in 2017)	
Space Biology Cross-Element Discipline:  Space Biology Special Category:  None  PI Email:  Pi Email:  Pi More  Pi Coganization Type:  UNIVERSITY  Phone: 410-550-2788  Organization Name:  The Johns Hopkins University School of Medicine  PI Address 1:  Department of Psychiatry & Behavioral Sciences  PI Address 2:  5510 Nathan Shock Drive  PI Web Page:  City:  Baltimore  State: MD  Zip Code:  21224-6823  Congressional District:  7  Comments:  Project Type:  GROUND  Solicitation / Funding Source:  2011 Crew Health NNJ11ZSA002NA  Start Date:  07/01/2012  End Date:  06/30/2015  No. of Pob Decres:  1  No. of PhD Degrees:  0  No. of Master' Degrees:  0  No. of Master' Degrees:  0  No. of Master' Scandidates:  0  No. of Master' Scandidates:  0  No. of Bachelor's Candidates:  Contact Honitor:  Contact Honitor:  Contact Honitor:  Contact Honitor:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution):  Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.:  NCC 9-58-NBPF02802	Human Research Program Risks:	(1) <b>BMed</b> :Risk of Adverse Cognitive of	or Behavioral Conditions and Psychia	tric Disorders
Discipline:   None   Space Biology Special Category:   None	Space Biology Element:	None		
PI Email: bhien/dihmicdu Fax: FY 410-550-2780  PI Organization Type: UNIVERSITY Phone: 410-550-2788  Organization Name: The Johns Hopkins University School of Medicine  PI Address 1: Department of Psychiatry & Behavioral Sciences  PI Address 2: 5510 Nathan Shock Drive  PI Web Page:  City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ112SA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Does: 1 No. of Abaster' Degrees: 0  No. of PhD Candidates: 0 No. of Master' Degrees: 0  No. of Master's Candidates: 0 No. of Master' Degrees: 0  No. of Bachelor's Candidates: 0 No. of Bachelor's Degrees: 0  No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802		None		
PI Organization Type: UNIVERSITY Phone: 410-550-2788 Organization Name: The Johns Hopkins University School of Medicine PI Address 1: Department of Psychiatry & Behavioral Sciences PI Address 2: 5510 Nathan Shock Drive PI Web Page: City: Baltimore State: MD Zip Code: 21224-6823 Congressional District: 7 Comments: Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA Start Date: 07/01/2012 End Date: 06/30/2015 No. of Pbat Daces: 1 No. of Pha Degrees: 0 No. of Pba Candidates: 0 No. of Master' Degrees: 0 No. of Master's Candidates: 0 No. of Master' Degrees: 0 No. of Bachelor's Degrees: 0 No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI Contact Monitor: Contact Honitor: Contact Email: Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to \$/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI: COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.) Grant/Contract No.: NCC 9-58-NBPF02802 Performance Goal No.:	Space Biology Special Category:	None		
Organization Name: The Johns Hopkins University School of Medicine  PI Address 1: Department of Psychiatry & Behavioral Sciences  PI Address 2: 5510 Nathan Shock Drive  PI Web Page:  City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 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 Master's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Honitor:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	PI Email:	bhienz@jhmi.edu	Fax:	FY 410-550-2780
PI Address 1: Department of Psychiatry & Behavioral Sciences  PI Address 2: 5510 Nathan Shock Drive  PI Web Page:  City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 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 Master's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	PI Organization Type:	UNIVERSITY	Phone:	410-550-2788
PI Address 2: 5510 Nathan Shock Drive  PI Web Page:  City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Does: 1 No. of PhD Degrees: 0  No. of PbD 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: NSBRI  Contact Monitor: Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Organization Name:	The Johns Hopkins University School of Medicine		
PI Web Page:  City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 No. of PhD Degrees: 0  No. of PhD Candidates: 0 No. of Master' begrees: 0  No. of Master's Candidates: 0 No. of Master' begrees: 0  No. of Master's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	PI Address 1:	Department of Psychiatry & Behavioral Sciences		
City: Baltimore State: MD  Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 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: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	PI Address 2:	5510 Nathan Shock Drive		
Zip Code: 21224-6823 Congressional District: 7  Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 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: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	PI Web Page:			
Comments:  Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Does: 1 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: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Project Type: 2011 Crew Health NNJ11ZSA002NA  Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA  No. of PhD Date: 06/30/2015  No. of Master' Date: 0	City:	Baltimore	State:	MD
Project Type: GROUND Solicitation / Funding Source: 2011 Crew Health NNJ11ZSA002NA Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 No. of PhD Degrees: 0 No. of PhD Candidates: 0 No. of Master' Degrees: 0 No. of Master's Candidates: 0 No. of Master's Degrees: 0 No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  ROTE: Sensorimotor Resources, Inc.)  ROTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)	Zip Code:	21224-6823	<b>Congressional District:</b>	7
Start Date: 07/01/2012 End Date: 06/30/2015  No. of Post Docs: 1 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: NSBRI  Contact Monitor: Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14)  NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Comments:			
No. of Post Docs:  1	Project Type:	GROUND	Solicitation / Funding Source:	2011 Crew Health NNJ11ZSA002NA
No. of PhD Candidates:  0	Start Date:	07/01/2012	End Date:	06/30/2015
No. of Master's Candidates:  No. of Bachelor's Degrees:  No. of Bachelor's Candidates:  No. of Bachelor's Candidates:  Contact Monitor:  Contact Monitor:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution):  Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.:  NCC 9-58-NBPF02802  Performance Goal No.:	No. of Post Docs:	1	No. of PhD Degrees:	0
No. of Bachelor's Candidates:  Contact Monitor:  Contact Phone:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution):  Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.:  NCC 9-58-NBPF02802  Performance Goal No.:	No. of PhD Candidates:	0	No. of Master' Degrees:	0
Contact Monitor:  Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution):  Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.:  NCC 9-58-NBPF02802  Performance Goal No.:	No. of Master's Candidates:	0	No. of Bachelor's Degrees:	0
Contact Email:  Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	No. of Bachelor's Candidates:	0	Monitoring Center:	NSBRI
Flight Program:  NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Contact Monitor:		Contact Phone:	
NOTE: Sensorimotor Risk added per IRP Rev E (Ed., 3/19/14) NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13) NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Contact Email:			
NOTE: change in period of performance per July 2013 NSBRI report submission (Ed., 7/12/13)  NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)  Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Flight Program:			
Key Personnel Changes/Previous PI:  COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:	Flight Assignment:			
COI Name (Institution): Roma, Peter (Institutes for Behavior Resources, Inc.)  Grant/Contract No.: NCC 9-58-NBPF02802  Performance Goal No.:		NOTE: End date change to 5/31/2015 per NSBRI (Ed., 8/23/2012)		
Grant/Contract No.: NCC 9-58-NBPF02802 Performance Goal No.:	Key Personnel Changes/Previous PI:			
Performance Goal No.:	COI Name (Institution):	Roma, Peter (Institutes for Behavior	Resources, Inc. )	
	Grant/Contract No.:	NCC 9-58-NBPF02802		
Performance Goal Text:	Performance Goal No.:			
	Performance Goal Text:			

Task Book Report Generated on: 04/19/2024

Assessing the biological consequences of living in the space radiation environment represents one of the highest priority areas of NASA research. Of critical importance is the need for an assessment of the vulnerabilities of the central nervous system (CNS) leading to functional neurobehavioral changes during long-term space missions, and the development of effective countermeasures to such risks. The present research addresses this need via the application of an innovative animal model to determine 1) the short- and long-term effects of radiation exposure on cognitive neurobehavioral function; and 2) the likely mechanisms of damage to the CNS following radiation exposure.

Cognitive neurobehavioral functions relevant to astronaut mission performance effectiveness are being assessed with a rodent analog of the human Psychomotor Vigilance Test (PVT) currently used in space analog environments and by astronauts aboard ISS, which includes assessments of general motor function and speed, vigilance, inhibitory control ('impulsivity'), timing, motivation, and basic sensory function. Animals trained on the rodent version of the PVT (the rPVT) are subsequently exposed to protons and high-energy particle radiation and then tested for up to 12 months post-exposure to assess potential short- and long-term performance deficits. Likely mechanisms of damage to the CNS following radiation exposure are examined via pre-radiation behavioral pharmacology studies as well as post-radiation behavioral pharmacology studies and neurochemical assessments of CNS proteins relevant to neurotransmitter function and inflammation.

Key aims of the study are to determine 1) whether pre-existing individual differences in neurotransmitter function may be predictive of the observed differential neurobehavioral susceptibility of individuals following proton radiation; 2) whether the observed neurotransmitter changes are restricted to specific brain regions, and 3) whether differential neurobehavioral susceptibility occurs following exposure to other ion species.

Key Findings: Results from the project have demonstrated the reliability and validity of the neurobehavioral procedures in detecting behavioral changes following radiation over extended intervals following radiation exposure. Head-only exposure to radiation (protons, 56Fe, 28Si) has been shown to significantly impair neurobehavioral function (e.g., decrease accuracy, increase impulsivity, increase lapses in attention) and slow motor function. These findings support the success of the rPVT as a rodent model for studying the risks of living in the space radiation environment due to changes in neurobehavioral function.

Specific findings from the past year include: 1. Demonstrating that exposure to 28Si ions produces highly specific effects on vigilance that are similar to the effects previously observed with both proton and 56Fe exposures, and include an individual differences effect in that only a subset of irradiated animals show neurobehavioral deficits (i.e., are radiation sensitive). In contrast to both proton and 56Fe radiation, 28Si radiation produced deficits in only about 9% of the exposed animals, suggesting a lower level of CNS-related dysfunction associated with 28Si radiation exposure.

- 2. Determining the degree to which behavioral responses to dopaminergic drugs differ as a function of radiation sensitivity. Radiation-sensitive and –insensitive rats were pharmacologically challenged with quinpirole (a D2 receptor agonist) and amisulpride (D2 receptor antagonist), with their behavior assessed via rate-decreasing effects of the drugs on fixed-ratio responding (a widely-used in vivo method for determining possible neurochemical differences). Results indicate 1) a likely increase in D2 receptor availability in insensitive rats, suggestive of a possible protective mechanism following radiation exposure, 2) that radiation-sensitive rats likely have decreased DA neurotransmission, and 3) that amisulpride administration may be a possible mitigation strategy to alleviate radiation-induced deficits on rPVT performance in sensitive rats.
- 3. Determining the radioprotective effects of a 10% flax seed diet for mitigating proton-induced neurobehavioral deficits (part of Dr. Catherine Davis' NSBRI Postdoctoral Fellowship PF02602). While the flax seed did not affect the proportion of animals developing neurocognitive deficits, there was a trend indicating that the animals receiving flax seed may show signs of early recovery from these deficits, a trend not evident in the irradiated rats not on flax seed.
- 4. Determining the degree to which radiation-induced deficits in neurobehavioral function differ as a function of basal dopaminergic function (supported by this grant and part of Dr. Catherine Davis's NSBRI Postdoctoral Fellowship PF02602). Brain tissue of both F344 and LEW rats displaying long-term deficits in rPVT performance were examined to determine if chronic inflammatory changes were evident. Significant changes in frontal cortex cytokine levels were found only in those F344 rats displaying a radiation-induced behavioral deficit in the rPVT, suggesting a chronic inflammatory state in the brain could damage numerous areas important for sustained attention and impulsive behavior.

Plans for the Coming Year: Plans include 1) behavioral pharmacology studies to determine the degree to which pre-existing individual differences in neurotransmitter function may be predictive of the observed differential neurobehavioral susceptibility of individuals following radiation, 2) neurotransmitter protein level studies to determine the degree to which the observed neurotransmitter changes are restricted to specific brain regions, and 3) continued support of Dr. Catherine Davis' NSBRI Postdoctoral Fellowship studies designed to assess neurochemical changes in the brain following radiation.

## Rationale for HRP Directed Research:

**Task Description:** 

The critically needed research on the effects of ionizing radiation on cognitive/behavioral functions will provide the basis for extrapolating the effects of the space radiation environment on human cognitive function and performance. Earth-based applications of this research will extend to comparing the effects of other types of radiation exposures (e.g., from the workplace, medical environment, home) on neurobehavioral functions. Knowledge of those neurobehavioral functions and related brain areas affected by acute exposure to space radiation is extremely important in not only the development of a biobehavioral risk assessment model of radiation-induced deficits that could compromise operational performance during long-duration space exploration missions, but also in the development of mitigation strategies, countermeasures, as well as appropriate self-administered tests that astronauts can use to gauge their performance readiness for critical tasks. In addition, the development of a comprehensive and experimentally flexible animal model of neurobehavioral performance provides a useful tool for preclinical research and development in other domains such as sleep/chronobiology, neuropsychiatric disorders, aging, and cognitive enhancement. Moreover, the human Psychomotor Vigilance Test (PVT) is a standardized and widely validated objective measure of neurobehavioral status not only employed by NASA, but also utilized in a variety of settings such as clinical neuropsychiatric assessment, military, shiftwork, and aviation. As such, the present rodent analog of the PVT provides a direct translational link to performance capacity on Earth. Once validated, the rPVT model developed here may be used as a basic and translational research tool to predict performance deficits induced by radiation or other CNS insults while providing an

innovative experimental platform for exploring the bases of individual vulnerability to performance impairments and

Research Impact/Earth Benefits:

Task Book Report Generated on: 04/19/2024

	evaluating potential prophylactics, countermeasures, and treatments.
	During this year, 110 rats were trained in the rodent version of the PVT (the rPVT) for studies designed to examine the effects of protons and Silicon ions on the neuropharmacology and neurochemistry underlying those neurobehavioral functions previously shown susceptibility to low-dose irradiation from our prior experiments.  1. One study (N=60) examined the effects of 28Si radiation (0, 10, 25, and 50 cGy, 300 MeV/n) on rPVT performance, and showed that 28Si ions produce highly specific effects on vigilance that are similar to the effects previously observed with both proton and 56Fe radiation. 28Si also produces an individual differences effect in that only a subset of irradiated animals show neurobehavioral deficits, with these deficits also being independent of dose. 28Si radiation produced deficits in only about 9% of the exposed animals, suggesting a lower level of CNS-related dysfunction associated with exposure to this ion species.
	2. A second study (N=50, part of Dr. Catherine Davis' NSBRI Postdoctoral Fellowship) determined the radioprotective effects of a 10% flax seed diet for mitigating proton-induced neurobehavioral deficits. While the flax seed did not affect the proportion of animals developing neurocognitive deficits, there was a trend indicating that the animals receiving flax seed may show signs of early recovery from these deficits, a trend not evident in the irradiated rats not on flax seed.
Task Progress:	3. A third study determined the degree to which behavioral responses to dopaminergic drugs differ as a function of radiation sensitivity on the rPVT. Radiation-sensitive and -insensitive rats were pharmacologically challenged with quinpirole (a D2 receptor agonist) and amisulpride (D2 receptor antagonist), with their behavior assessed via rate-decreasing effects of the drugs on fixed-ratio responding (a widely-used in vivo method for determining possible neurochemical differences). Results indicate 1) a likely increase in D2 receptor availability in insensitive rats, suggestive of a possible protective mechanism following radiation exposure, 2) that radiation-sensitive rats likely have decreased DA neurotransmission, and 3) that amisulpride administration may be a possible mitigation strategy to alleviate radiation-induced deficits on rPVT performance in sensitive rats.
	4. A fourth study (part of Catherine Davis' NSBRI Postdoctoral Fellowship) determined the degree to which radiation-induced deficits in neurobehavioral function differ as a function of basal dopaminergic function. Brain tissue of both F344 and LEW rats displaying long-term deficits in rPVT performance were examined to determine if chronic inflammatory changes were evident. Significant changes in frontal cortex cytokine levels were found only in those F344 rats displaying a radiation-induced behavioral deficit in the rPVT, suggesting a chronic inflammatory state in the brain could damage numerous areas important for sustained attention and impulsive behavior.
Bibliography Type:	Description: (Last Updated: 01/12/2021)
Abstracts for Journals and Proceedings	Davis CM, Guida PM, Hienz RD. "Neurobehavioral and neurochemical changes following head-only radiation exposure in the inbred Fischer 344 and Lewis rats." 19th IAA Humans in Space Symposium, Cologne, Germany, July 7-13, 2013.  19th IAA Humans in Space Symposium, Cologne, Germany, July 7-13, 2013. Abstract #359., Jul-2013
Awards	Davis CM. "1st Place Postdoctoral Competition, HRP Meeting, Houston, TX, February 2013." Feb-2013
Awards	Davis CM. "3rd Place, Postdoctoral Poster Competition, NASA Space Radiation Investigators' Workshop, July 2012." Jul-2012
Awards	Davis CM. "ASPET Washington Fellow Travel Award, April 2013." Apr-2013