Task Book Report Generated on: 04/27/2024

| Primery Davis, Catherine M. Ph.D. Project Title: VNSCOR, Mechanisms of Radiation-Induced Changes in Sustained Attention and Social Processing (SOSSC22RO02) Division Name: Iluman Research Program/Discipline- Program/Discipline- Program/Discipline- Program/Discipline- Program/Discipline- Program/Discipline- Program/Discipline- Program/Discipline- Human Research Program Elements None 1 (1) ImpP-Human Factors & Behavioral Performance (RP Rev. IV) Imman Research Program Elements None Space Biology Element None Program/Discipline- Program/Discipline- Space Biology Element None Program/Discipline- Program/Disci | Fiscal Year: | FY 2023 | Task Last Updated: | FY 10/15/2022 |
|--|--|---|-----------------------------|---|
| Division Name: Human Research Program/Discipline: Program/Discipline- Flements/Subdiscipline- Elements/Subdiscipline- None Space Biology Teams Identify None Plemail: Space Biology Teams Elements None Space Biology Special Category: None Plemail: Elemis of Plemail: Elemis of Plemail: Elemis of Plemail: Elemis of Plemail: Elemy M. Jackson Foundation Flemail: Elemis of Plemail: Elemis of P | PI Name: | Davis, Catherine M. Ph.D. | • | |
| Program/Discipline: | Project Title: | | nges in Sustained Attention | and Social Processing |
| Program/Discipline- Remembals of plant Agency Amate TechPort: No No No No No No No | Division Name: | Human Research | | |
| Element/Subdiscipline: Joint Agency Name: Ioint Agency Name: Itemana Research Program Risks: None Space Biology Element: Space Biology Cross-Element Discipline: Space Biology Cross-Element Discipline: None Space Biology Cross-Element Discipline: Space Biology Special Category: None Space Biology Special Category: None Pl Email: Pl Carpanization Type: NoN-PROFIT Phone: 301-295-5826 Organization Name: Henry M. Jackson Foundation Pl Address 1: Pl Address 2: Pl Vaddress 2: Pl Vaddress 2: Pl Vaddress 3: City: Berbesda State: City: Berbesda State: City: Berbesda State: Carpan såddess (Jan 2023): Department of Pharmacology and Molecular Thompsuries, University of the Health's Gancies, Adult Junes, Broid, All 2018/ADVIN-EP. Princety of Johns Hopkins. University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Health's Gancies, Adult Junes, Broidge Road, Recheed, M. 2018/ADVIN-EP. Princety of Johns Hopkins. University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Health's Gancies, Adult Junes, Broidge Road, Recheed, M. 2018/ADVIN-EP. Princety of Johns Hopkins. University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Foundation for the Advancement of Military Medicine in hill 2020. Value of the Henry M. Jackson Found | Program/Discipline: | | | |
| Human Research Program Elements: (1) HFBP-Human Factors & Behavioral Performance (IRP Rev II) Human Research Program Risks: None Space Biology Cross-Element None Space Biology Cross-Element None Space Biology Special Category: None PI Email: entherine davis-takens@usushs.edu PI Organization Type: NON-PROFIT Pl Email: Phone: 301-295-5826 Organization Type: NON-PROFIT PI Email: Phone: 301-295-5826 Organization Type: Henry M. Jackson Foundation PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesdu State: MD Congressional Bistrict: City: Bethesdu State: MD Congressional Bistrict: Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 2081A, NOTE: If Bromerly at Johns Hopkins University: moved to Henry M. Jackson Foundation for the Advancement of Whitany Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NNILESSAMOIN-SRHHIC. Appendix E: Source: Specialobiology and Illuman Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Does: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master's Candidates: 1 No. of Master's Candidates: 1 No. of Master's Candidates: 3 No. of Master's Candidates: 3 No. of Master's Candidates: 3 No. of Bachelor's Candidates: 3 No. of Master's Candidates: 3 No. of Bachelor's Candidates: 3 No. of Bachelor's Candidates: 3 No. of Bachelor's Candidates: 4 No. of Bachelor's Can | Program/Discipline Element/Subdiscipline: | | | |
| Human Research Program Risks: None Space Biology Element: None Space Biology Cross-Element blockpline: None Space Biology Special Category: None PI Email: catherine davis-takacs@itsushs.edu Fax: FY 301-400-4023 PI Comail: Phone: 301-295-5826 PI Comments: Pi Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: Clity: Bethesda State: MD Congressional & State: MD Congressional & District: Comments: Phone: 301-201-301-301-301-301-301-301-301-301-301-3 | Joint Agency Name: | | TechPort: | No |
| Space Biology Cross-Element Space Biology Cross-Element Space Biology Cross-Element Space Biology Special Category: None PI Email: catherine.davis-takacs@usubs.edu PI Organization Type: NON-PROFIT PI Organization Type: NON-PROFIT PI Organization Name: Henry M. Jackson Foundation PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesda State: MD Congressional District: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeuties, Uniformed Services University of the Health Sciences, 4901 Jones Bridge Road, Bethesda MD 2014 NOTE: PI Formed ya Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NNICESADOIN-SRIHC. Appendix E. Source: Space Radiobiology and Iluman Health Countermeasures Topies Start Date: 12/14/2021 Bethesda 12/14/2021 Beth Date: 12/14/2021 Bethesda No. of Phot Degrees: 0 No. of Phot Candidates: 1 1 No. of Phot Degrees: 0 No. of Master' o Degrees: 1 No. of Master' Degrees: 1 No. of Master' Degrees: 1 No. of Master' Degrees: 1 No. of Bachelor's Candidates: 1 No. of Bachelor's Candidates: 1 No. of Bachelor's Candidates: 2 No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Email: Elight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Ilienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobban Ph.D. (Hamilton College) Performance Goal No.: | Human Research Program Elements: | (1) HFBP :Human Factors & Behavioral Performan | nce (IRP Rev H) | |
| Space Biology Cross-Element Discipline: Space Biology Cross-Element Discipline: None PI Email: satherine-davis-takes@usuhs.edu Fax: FY 301-400-4023 Pl Organization Type: NON-PROFIT Phone: 301-295-5826 Organization Name: Henry M. Jackson Foundation PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesda State: MD Congressional Bolistrict: City: Campus address (Jan 2022): Department of Pharmacology and Molecular Theraporties. Uniformed Services University of the Health Sciences, 4801 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Milliary Medicine in full 2020. Project Type: GROUND Solicitation / Funding NN11625A001N-SRIHE. Appendix E: Source: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Does: 0 No. of PhD Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backelor's Candidates: 1 No. of Backelor's Degrees: No. of Backe | Human Research Program Risks: | None | | |
| Discipline: " None Space Biology Special Category: None PI Email: entherine davisatalese@usuhe.edn | Space Biology Element: | None | | |
| PI Email: catherine davis-fileaes@aushs.edu Fax: FY 301-400-4023 PI Organization Type: NON-PROFIT Phone: 301-295-5826 Organization Name: Henry M. Jackson Foundation PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesda State: MD Congressional State: MD Zip Code: 20817-1891 Congressional State: MD Comments: Office Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814-NOTE: PI formerly at Johns Hopkins University moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NN16/2SA001N-SRHHC. Appendix E: Space Radioblooding and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Does: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Obgrees: 0 No. of Master's Candidates: 1 No. of Master' Obgrees: 1 No. of Master's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whimire, Alexandra Contact Phone: Contact Email: alexandra m.whimire@inasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Heinz, Robert Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | Space Biology Cross-Element Discipline: | None | | |
| Pl Organization Type: NON-PROFIT Phone: 301-295-5826 Organization Name: Henry M. Jackson Foundation Pl Address 1: 6720-A Rockledge Dr. Pl Address 2: Pl Web Page: City: Bethesda State: MD Zip Code: 20817-1891 Congressional District: 8 Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTIE: Pl formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NNI IoZSA001N-SRHHC. Appendix E: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: 0 No. of Master's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: alexandra m. whitmire@nasa.gov. Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Bienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | Space Biology Special Category: | None | | |
| Organization Name: Henry M. Jackson Foundation PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesda State: MD Zip Code: 20817-1891 Congressional District: 8 Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NN1162SA001N-SRHHC. Appendix E: Source: Source: No. of Post Does: 0 No. of PhD Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Candidates: 1 No. of Bachelor's Candidates: 3 No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra m. whitmire@nasa.gov. Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Heinz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | PI Email: | catherine.davis-takacs@usuhs.edu | Fax: | FY 301-400-4023 |
| PI Address 1: 6720-A Rockledge Dr. PI Address 2: PI Web Page: City: Bethesda State: MD Zip Code: 20817-1891 Congressional District: 8 Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement in fall 2020. Project Type: GROUND Solicitation / Funding Space Radiobiology and Human Health Countremeasures Topies Start Date: 12/14/2021 End Date: 12/18/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra machitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | PI Organization Type: | NON-PROFIT | Phone: | 301-295-5826 |
| PI Address 2: PI Web Page: City: Bethesda State: MD Zip Code: 20817-1891 Congressional 8 District: MD Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NNJ16ZSA001N-SRHHC. Appendix E: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' and Date: 12/13/2023 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Monitor: Whitmire, Alexandra Contact Phone: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hierz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | Organization Name: | Henry M. Jackson Foundation | | |
| PI Web Page: City: Bethesda State: MD Zip Code: 20817-1891 Congressional District: Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NN1625A001N-SRIHIC. Appendix E: Space Radiobiology and Human Health Countermeasures Topies Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Alexandra Monitoring Center: NASA JSC Contact Email: Alexandra Milmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No:: 80NSSC22K0022 | PI Address 1: | 6720-A Rockledge Dr. | | |
| City: Bethesda State: MD Zip Code: 20817-1891 Congressional Bistrict: MD Comments: Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding NN16ZSA001N-SRHHC. Appendix E: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: 0 No. of Master's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra m. whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | PI Address 2: | | | |
| Zip Code: 20817-1891 Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. 2016-2017 HERO NTIGSZA001N-SRHHC: Appendix E: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: 1 No. of Bachelor's Candidates: 1 No. of Bachelor's Candidates: 2 No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | PI Web Page: | | | |
| Campus address (Jan 2022): Department of Pharmacology and Molecular Therapeutics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814, NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding Source: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Does: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | City: | Bethesda | State: | MD |
| of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814. NOTE: PI formerly at Johns Hopkins University; moved to Henry M. Jackson Foundation for the Advancement of Military Medicine in fall 2020. Project Type: GROUND Solicitation / Funding Solicitation / Funding Source: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master' Degrees: 0 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: NASA JSC Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Zip Code: | 20817-1891 | Congressional District: | 8 |
| Project Type: GROUND Solicitation / Funding Source: Space Radiobiology and Human Health Countermeasures Topics Start Date: 12/14/2021 End Date: 12/13/2023 No. of Post Docs: 0 No. of PhD Degrees: 0 No. of PhD Candidates: 1 No. of Master's Candidates: 1 No. of Master's Candidates: 1 No. of Bachelor's Degrees: No. of Bachelor's Candidates: 3 Monitoring Center: No. of Bachelor's Candidates: Withmire, Alexandra Contact Monitor: Whitmire, Alexandra Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 | Comments: | of the Health Sciences, 4301 Jones Bridge Road, B | Bethesda, MD 20814. NOTE | E: PI formerly at Johns Hopkins |
| No. of Post Docs: 1 | Project Type: | GROUND | | NNJ16ZSA001N-SRHHC. Appendix E: Space Radiobiology and Human Health |
| No. of PhD Candidates: 1 | Start Date: | 12/14/2021 | End Date: | 12/13/2023 |
| No. of Master's Candidates: 1 | No. of Post Docs: | 0 | No. of PhD Degrees: | 0 |
| No. of Master's Candidates: No. of Bachelor's Candidates: No. of Bachelor's Candidates: Whitmire, Alexandra Contact Monitor: Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | No. of PhD Candidates: | 1 | No. of Master' Degrees: | 0 |
| Contact Monitor: Whitmire, Alexandra Contact Phone: Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | No. of Master's Candidates: | 1 | | |
| Contact Email: alexandra.m.whitmire@nasa.gov Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | No. of Bachelor's Candidates: | 3 | Monitoring Center: | NASA JSC |
| Flight Program: Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Contact Monitor: | Whitmire, Alexandra | Contact Phone: | |
| Flight Assignment: Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Contact Email: | alexandra.m.whitmire@nasa.gov | | |
| Key Personnel Changes/Previous PI: COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Flight Program: | | | |
| COI Name (Institution): Hienz, Robert Ph.D. (Johns Hopkins University) Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Flight Assignment: | | | |
| Robinson, Siobhan Ph.D. (Hamilton College) Grant/Contract No.: 80NSSC22K0022 Performance Goal No.: | Key Personnel Changes/Previous PI: | | | |
| Performance Goal No.: | COI Name (Institution): | | | |
| | Grant/Contract No.: | 80NSSC22K0022 | | |
| Performance Goal Text: | Performance Goal No.: | | | |
| | Performance Goal Text: | | | |

Task Book Report Generated on: 04/27/2024

[Ed. note Jan 2022: Continuation with same Principal Investigator (PI) Dr. Catherine Davis, of "VNSCOR: Mechanisms of Radiation-Induced Changes in Sustained Attention and Social Processing," grant #80NSSC18K1080 when PI was at Johns Hopkins University. See also project, "VNSCOR: Responses of the Nervous System to Chronic, Low Dose Charged Particle Irradiation" (Principal Investigator (PI): Greg Nelson)]

NELSON/DAVIS VIRTUAL NASA Specialized Center of Research (NSCOR): The project is organized as 5 large experimental campaigns to quantify responses for an interrelated set of central nervous system (CNS) outcome measures in mice to acute and protracted exposures to protons at a dose of 0.5 Gy and sham controls; acute and protracted exposures to 0.25 and 0.5 Gy of charged particles; and acute and protracted exposures to 0.5 and 1.5 Gy of gamma rays. This research builds on previous studies that demonstrated that proton and HZE (high charge energy) exposures result in individual differences in deficits in sustained attention, but more general deficits in recognition memory. This current project is combined with "Responses to the Nervous System to Chronic, Low Dosed Charged Particle Irradiation" (PI: Nelson) in order to explore if these effects are LET (linear energy transfer)-dependent for 16O ions, add a relatively understudied, but important, ion (4He), and examine CNS effects in whole animals following fractionated exposures, and the interaction of other space flight factors (e.g., sleep fragmentation).

Revised Specific Aims:

Aim 1a: Effects of protracted exposure to five-ion GCR [galactic cosmic rays] sim (1H, 4He, 28Si, 16O, 56Fe)

Aim 1b: Effects of protracted exposure to GCR sim without protons (4He, 28Si, 16O, 56Fe)

Aim 1c: Effects of protracted exposure to protons only

Aim 1d: Acute exposure to 4He (250 MeV/n)

Aim 2a: Neuronal activation and molecular markers following radiation

Aim 2b: Chemogenetic silencing of mPFC subregions

Specific Aims:

- 1) Determine the effects of acute, single 16O and 4He ion exposures on sustained attention, social odor recognition memory, and social dominance. (This aim has been modified in order to integrate with Nelson project);
- 2) Determine the effects of a fractionated exposure on sustained attention and recognition memory in comparison to the effects of single ion exposures on these measures;
- 3) Determine the effects of circadian disruptions and sleep fragmentation on sustained attention and recognition memory following radiation exposure (This aim has been modified in order to integrate with Nelson project);
- 4) Examine the underlying mechanisms of these deficits using immunohistochemical and pharmacogenetic procedures.

ORIGINAL PROPOSAL DESCRIPTION: 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 proposal addresses this need via the application of an animal model to 1) determine the effects of acute, single 160 and 4He ion exposures on sustained attention, social odor recognition memory, and social dominance; 2) determine the effects of a fractionated exposure on sustained attention and recognition memory in comparison to the effects of single ion exposures on these measures; 3) determine the effects of circadian disruptions and sleep fragmentation on sustained attention and recognition memory following radiation exposure; and 4) examine the underlying mechanisms of these deficits using immunohistochemical and pharmacogenetic procedures.

Prior research has 1) identified rats that are sensitive to radiation-induced deficits in sustained attention and 2) shown that acute, single ion exposures alter social motivation and social odor recognition memory. The current proposal will determine how the immediate effects of irradiation impact subsequent neurobehavioral deficits by assessing various behavioral, physiological, and neurobiological markers of radiation exposure at early and later time points post-exposure. Groups of animals will be trained on a rodent version of the human psychomotor vigilance test, exposed to radiation, and then tested for both social processing and sustained attention deficits following exposure; subsets of rats will be implanted with biotelemetry devices to measure fluctuations in spontaneous locomotor activity and body temperatures following radiation exposure and changes in sleep or circadian disruptions. Individual variations in these behavioral, physiological, or neurobiological responses following radiation will be assessed. Likely mechanisms of damage to the CNS following radiation exposure will be examined using brain tissue, in addition to a pharmacogenetic technique to determine the severity of radiation-induced neurobehavioral deficits.

Task Description:

Rationale for HRP Directed Research:

Research Impact/Earth Benefits:

The results of the current project will be used to understand how radiation exposure affects the central nervous system to induce deficits in neurobehavioral function.

During the reporting period, we exposed male and female rats to the simplified galactic cosmic radiation (GCR) simulation, either a single acute dose (50 cGy) or chronic dosing (2.08 cGy per day/6 days per week for 4 total weeks; 50 cGy total dose). This was a replicate of the same dose rate study we ran in 2019. This replicate was previously canceled due to the COVID-19 pandemic.

60 rats (30 male and 30 female) were shipped to Brookhaven National Laboratory and irradiated with the GCR simulation. Some of the rats were previously trained on the rPVT. [Ed. Note: The rPVT is a sustained attention test that requires subjects to monitor the location of a stimulus that occurs infrequently.] Following exposure, all rats were tested for social odor recognition memory (SORM) at 7 days, 30 days, 90 days, and 6 months following radiation exposure. A subset of animals completed rPVT testing following radiation, from approximately 30 days to 6 months following exposure. Following the 6-month time point, all animals were sacrificed to collect brain and blood samples. In preliminary analyses of the data, radiation exposure significantly impaired social odor recognition memory; but limited sex differences were found for the early time points. For the rPVT, results suggest that both acute and chronic GCR sim

Task Book Report Generated on: 04/27/2024

| | exposure can impair performance, and these effects could be more robust in female animals. | |
|------------------------------------|---|--|
| Task Progress: | We also completed statistical analysis of the rPVT data from 4He exposed male rats. Using a fully saturated ANCOVA-type linear mixed effects model, we found significant dose-dependent changes in rPVT performance parameters. More specifically, exposure to 25 cGy significantly decreased accuracy (percent correct responding), increased false alarms (impulsive responding), and increased in several different reaction time measures. Interestingly, exposure to 5 cGy only induced changes in a few reaction time measures, but had no significant effect on other measures, including accuracy, false alarms, and lapses in attention. | |
| | Blood samples from both 4He-exposed and GCR sim-exposed rats are being analyzed for the presence of specific miRNAs that have previously been shown to be associated with exposure to various spaceflight factors, including radiation and microgravity. Our study seeks to determine if any of these miRNAs can be used as biomarkers of these behavioral deficits. | |
| | We are currently preparing for an acute proton exposure in NASA Space Radiation Laboratory (NSRL) run 22C, where we will expose groups of male and female rats to 50 cGy protons for comparison to our GCR sim studies. | |
| Bibliography Type: | Description: (Last Updated: 10/27/2023) | |
| Articles in Peer-reviewed Journals | Thomas PK, Sullivan LK, Dickinson GH, Davis CM, Lau AG. "The effect of helium ion radiation on the material properties of bone." Calcif Tis Int. 2021 Jan 30;108:808-18. https://doi.org/10.1007 s00223-021-00806-7; PMID: 33517470 , Jan-2021 | |
| Articles in Peer-reviewed Journals | Davis CM, Allen AR, Bowles DE. "Consequences of space radiation on the brain and cardiovascular system." J Environ Sci Health C Toxicol Carcinog. 2021 Apr 27;39(2):180-218. https://doi.org/10.1080/26896583.2021.1891825 ; PMID: 33902387 , Apr-2021 | |
| Articles in Peer-reviewed Journals | Boerma M, Davis CM, Jackson IL, Schaue D, Williams JP. "All for one, though not one for all: team players in normal tissue radiobiology." Int J Radiat Biol. 2021 Jul 198(3):346-66. https://doi.org/10.1080/09553002.2021.1941383 ; PMID: 34129427 . , Jul-2021 | |
| Articles in Peer-reviewed Journals | Jones CB, Peiffer LB, Davis CM, Sfanos KS. "Examining the effects of 4He exposure on the gut-brain axis." Radiat Res. 2021 Mar 1;197(3):242-52. https://doi.org/10.1667/RADE-20-00285.1 ; PMID: 34752622 , Mar-2022 | |
| Awards | Davis C. "American Society for Pharmacology and Experimental Therapeutics JH Woods Early Career Award in Behavioral Pharmacology" Apr-2022 | |