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| **Fiscal Year:** | FY 2012 | **Task Last Updated:** | FY 02/08/2012 |
| **PI Name:** | Li, Chuan-Yuan Ph.D. | | |
| **Project Title:** | A mechanistic investigation of space radiation-induced carcinogenesis | | |
| **Division Name:** | Human Research | | |
| **Program/Discipline:** | HUMAN RESEARCH | | |
| **Program/Discipline--Element/Subdiscipline:** | HUMAN RESEARCH--Radiation Biology | | |
| **Joint Agency Name:** | | **TechPort:** | No |
| **Human Research Program Elements:** | (1) **SR**:Space Radiation | | |
| **Human Research Program Risks:** | (1) **Cancer**:Risk of Radiation Carcinogenesis | | |
| **Space Biology Element:** | None | | |
| **Space Biology Cross-Element Discipline:** | None | | |
| **Space Biology Special Category:** | None | | |
| **PI Email:** | chuan.li@duke.edu | **Fax:** | FY |
| **PI Organization Type:** | UNIVERSITY | **Phone:** | 919 613 8754 |
| **Organization Name:** | Duke University | | |
| **PI Address 1:** | Box 3135, DUMC C303A/LSRC | | |
| **PI Address 2:** | | | |
| **PI Web Page:** | | | |
| **City:** | Durham | **State:** | NC |
| **Zip Code:** | 27710 | **Congressional District:** | 4 |
| **Comments:** | PI moved to Duke University in December 2011. Formerly at University of Colorado Denver (Ed., 2/8/2012) | | |
| **Project Type:** | GROUND | **Solicitation / Funding Source:** | 2008 Space Radiobiology NNJ08ZSA001N |
| **Start Date:** | 01/01/2012 | **End Date:** | 12/31/2012 |
| **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 ARC |
| **Contact Monitor:** | Bhattacharya, Sharmila | **Contact Phone:** | |
| **Contact Email:** | Sharmila.Bhattacharya@nasa.gov | | |
| **Flight Program:** | | | |
| **Flight Assignment:** | | | |
| **Key Personnel Changes/Previous PI:** | | | |
| **COI Name (Institution):** | Li, Fang ( Duke University ) | | |
| **Grant/Contract No.:** | NNX12AB88G | | |
| **Performance Goal No.:** | | | |
| **Performance Goal Text:** | | | |
| **Task Description:** | One of major concerns for manned space missions of NASA is exposure to galactic cosmic rays (GCRs) or highly charged energetic (HZE) particles, which carries distinct health risks. The major goal of the NASA Bioastroanautics Roadmap and NASA ground-based studies in radiation biology is to assess potential risks of human exposure to HZE particles and to generate knowledge that can be used to mitigate the health risks of HZE particle exposure eventually. In this project, we will two specific aims to study HZE particle-induced mutagenesis and carcinogenesis in mammalian cells. These are: 1. To determine the potential interactions of reactive oxygen/nitrogen species and apoptosis in regulating HZE radiation-induced mutagenesis in mammalian cells. 2) to determine the roles of program cell death in HZE radiation induced mutagenesis/carcinogenesis. | | |

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| **Rationale for HRP Directed Research:** | |
| **Research Impact/Earth Benefits:** | Our research will have the following potential benefit for life on earth: 1) we will develop a state-of-art techniques to monitor radiation induced DNA damage, which will facility a better understanding radiation induced carcinogenesis in humans. 2) Our study may lead to fundamental insights into how cells deal with DNA damage. 3) we hope to achieve novel, mechanistic insights into the carcinogenic risks of radiation, which is universally present on earth. |
| **Task Progress:** | New project for FY2012, established when PI moved from University of Colorado Denver back to Duke University in December 2011. See project with same title (A mechanistic investigation of space radiation-induced carcinogenesis) for previous reports. |
| **Bibliography Type:** | Description: (Last Updated: 10/30/2019) |