

## **Asaithamby Aroumougame, M.Phil., Ph.D.**

**Prepared:** August 22, 2018

**Address:** University of Texas Southwestern Medical Center at Dallas, 2201 Inwood Road, NC7.126A, Dallas, TX 75390.

**Phone:** (214) 648-5175

**E-mail:** Asaithamby.Aroumougame@UTsouthwestern.edu

**Citizenship:** United States

### **Education:**

1999 Ph.D., Banaras Hindu University, India; Cellular and Molecular Biology.

1993 M.Phil., Pondicherry University, India; Reproductive Endocrinology.

1992 M.S., Pondicherry University, India; Life Sciences.

1990 B.S., Pondicherry University, India; Life Sciences.

### **Postdoctoral Training:**

01/00-08/04: Department of Life Sciences, Lawrence Berkeley National Laboratory, Berkeley, California.

### **Faculty Academic Appointments:**

9/13-Present: Assistant Professor (Tenure-accruing), Department of Radiation Oncology, University of Texas Southwestern Medical Center, Dallas, TX.

9/09-8/13: Assistant Professor (Research track), Department of Radiation Oncology, University of Texas Southwestern Medical Center, Dallas, TX.

9/04-8/09: Instructor, Department of Radiation Oncology, University of Texas Southwestern Medical Center, Dallas, TX.

### **Awards and Honors:**

2014 Young Investigator travel award, IWRDD, MIT.

2007 NASA young investigator award

2007 International Congress on Radiation Research Travel award

2006 Radiation Research Society Scholar in Training Award

1994 Junior/Senior Research Fellowship, University Grants Commission, India.

1993 Distinction in Master of Philosophy

1992 University Second in Master of Science

1992 Distinction in Master of Science

### **Professional Societies:**

2002-Present: Radiation Research Society, Member.

2004-Present: American Association for Advancement of Science, Member.

## Report of Funded, Pending and Completed Projects

### Current:

**Funding period:** 03/01/2016-02/28/2021

**Funding agency:** R01AG053341, National Institute on Aging

**PI:** Asaithamby Aroumougame

**Title:** Molecular Roles for Werner Syndrome Protein in Replication Fork Maintenance

**Goal of the project:** The main objective of this project is to understand how post-translational modification of WRN as well as its interacting partners in the processing of replication forks following replication stress.

**Role:** PI

**Funding period:** 01/01/2017-12/31/2019

**Funding agency:** CPRIT

**PI:** Gabriel O. Sawakuchi

**Title:** Exploiting DNA repair defects using intensity modulated proton therapy

**Goal of the project:** The goal of this proposal is to study the effect of radiotherapy on the growth and renewal of the heart muscle and to investigate how preventing DNA damage in the heart can protect against the deleterious effects of radiotherapy.

**Role:** Co-PI/Institutional PI

**Funding period:** 03/01/2016-02/28/2019; (total direct cost \$359,000)

**Funding agency:** RP160520, CPRIT

**PI:** Hesham A. Sadek

**Title:** Effect of Chest Radiation Therapy on Cardiomyocyte Turnover

**Goal of the project:** The goal of this proposal is to study the effect of radiotherapy on the growth and renewal of the heart muscle and to investigate how preventing DNA damage in the heart can protect against the deleterious effects of radiotherapy.

**Role:** Co-PI

**Funding period:** 05/01/2016-04/30/2018

**Funding agency:** Seed Grants in Particle Therapy, UT Southwestern Medical Center

**PI:** Gabriel O. Sawakuchi

**Title:** Exploiting hadron therapy differential DNA damage for radioprotection and radiosensitization

**Goal of the project:** The goal is to exploit DNA repair mechanism induced by hadrons beams for combination of radioprotectors and radiosensitizers.

**Role:** Co-investigator

**Funding period:** 08/01/2018-07/31/2022

**Submitted to:** NHLBI (**Score: 3 Percentile**)

**PI:** Hesham A. Sadek, Internal Medicine, UTSW

**Title:** Metabolic shift and Heart regeneration

**Role:** Co-I

### Completed

**Funding period:** 03/01/2015-02/28/2018

**Funding agency:** NNX15AE06G, NASA

**PI:** Hesham A. Sadek

**Title:** Long-Term Effect of Space Radiation on Cardiomyocyte Turnover

**Goal of the project:** In this pilot study we will explore the role of high LET iron particles in the development of heart failure.

**Role:** Co-PI

**Funding period:** 01/01/2012-12/31/2017

**Funding agency:** NNX07AU42G, NASA

**PI:** Asaithamby Aroumougame

**Title:** Mechanism of Clustered DNA Double-strand Break Repair in Response to HZE Particles in Human Cells

**Goal of the project:** The goal of this proposal is to develop new approaches to determine the types of DNA lesions formed and their relationship along the dense ionizing track induced by space radiation in human cells.

**Role:** PI

**Funding period:** 02/01/09-01/31/15

**Source:** NIH/NCI

**Title:** Functions of WRN in Response to DNA Double-Strand Breaks

**Project Aim:** In his proposal we proposed to determine the mechanism by which WRN is recruited to the sites of DNA damage in vivo and to identify kinases that are responsible for WRN phosphorylation in the process of DNA double strand break repair.

**Principal investigator:** David J. Chen

**Role:** Co-Investigator

**Funding period:** 01/01/11 – 12/31/15:

**Source:** NNJ05HD36G\_NASA Specialized Center of Research (NSCOR)

**Title:** Lung cancer pathogenesis and HZE particle exposure

**Project Aim:** The goal of this project is to determine risk estimates for lung carcinogenesis in astronauts after exposure to radiations found in the space environment.

**Principal Investigator:** John Minna

**Role:** Co-Investigator

## Report of Scientific Publications

*Original, Peer-Reviewed Research Articles (\*co-corresponding; \*\*equal contribution)*

1. Bhattacharya S, Srinivasan K, Abdisalaam S, Su F, Raj P, Dozmorov I., Mishra R, Wakeland EK., Ghose S, Mukherjee S. and Asaithamby A. RAD51 interconnects between DNA replication, DNA repair and immunity. **Nucleic Acids Res.**, 45 (8): 4590-4605.
2. Nakada Y, Canseco DC, Thet S, Abdisalaam S, Asaithamby A, Santos CX, Shah A, Zhang H, Faber JE, Kinter MT, Szweda LI, Xing C, Deberardinis R, Oz O, Lu A, Zhang CC, Kimura W and Sadek HA. Hypoxemia Induces Adult Mammalian Heart Regeneration. **Nature**. 2017 Jan 12;541(7636):222-227.
3. McFadden CH, Hallacy TM, Flint DB, Granville DA, Asaithamby A, Sahoo N, Akselrod MS, Sawakuchi GO. Time-lapse monitoring of DNA damage colocalized with particle tracks in single living cells. **Int J Radiat Oncol Biol Phys**. 2016 Sep 1;96(1):221-7.
4. Yu L, Shang ZF, Abdisalaam S, Lee KJ, Gupta A, Hsieh JT, Asaithamby A, Chen BP, Saha D. Tumor suppressor protein DAB2IP participates in chromosomal stability maintenance through activating spindle assembly checkpoint and stabilizing kinetochore-microtubule attachments. **Nucleic Acids Res**. 2016 Oct 14;44(18):8842-8854.
5. Shukla AA, Jha M, Birchfield T, Mukherjee S, Gleason K, Abdisalaam S, Asaithamby A, Adams-Huet B, Tamminga CA, Ghose S. COMT val158met polymorphism and

molecular alterations in the human dorsolateral prefrontal cortex: Differences in controls and in schizophrenia. **Schizophr Res.** 2016 May;173(1-2):94-100.

6. Su F, Bhattacharya S, Abdisalaam S, Mukherjee S, Yajima H, Yang Y, Mishra R, Srinivasan K, Ghose S, Chen DJ, Yannone SM, Asaithamby A. Replication stress induced site-specific phosphorylation targets WRN to the ubiquitin-proteasome pathway. **Oncotarget**, 2016; 7(1):46-65.
7. Bunch H, Lawney BP, Lin YF, Asaithamby A, Murshid A, Wang YE, Chen BP, Calderwood SK. Transcriptional elongation requires DNA break-induced signaling. **Nat Commun.** 2015; 16;6:10191.
8. Kimura W, Xiao F, Canseco DC, Muralidhar S, Thet S, Chen R, Garcia J, Shelton J, Richardson AJ, Asaithamby A, Liang H, Xing C, lu Z, Zhang C and Sadek HA. Hypoxia Fate Mapping Identifies Cycling Cardiomyocytes in the Adult Heart. **Nature**, 2015; 523: 226-230.
9. Zhu J, Su F, Mukherjee S, Mori E, Hu., B and Asaithamby A. FANCD2 influences replication fork processes and genome stability maintenance in response to clustered DSBs. **Cell Cycle**, 2015; 14; 12, 1809-1822.
10. Gerelchuluun A, Manabe E, Ishikawa T, Sun L, Itoh K, Sakae T, Suzuki K, Hirayama R, Asaithamby A, Chen DJ, Tsuboi K. The major DNA repair pathway after both proton and carbon-ion radiation is NHEJ, but the HR pathway is more relevant in carbon ions. **Radiation Research**, 2015, 183(3):345-356.
11. Canseco DC, Kimura W, Garg S, Mukherjee S, Bhattacharya S, Abdisalaam S, Das S, Asaithamby A, Mammen PP, Sadek HA. Human Ventricular Unloading Induces Cardiomyocyte Proliferation. **J Am Coll Cardiol.** 2015; 65(9):892-900.
12. Wang J, Aroumougame A, Loblrich M, Li Y, Chen D, Chen J, Gong Z. PTIP associates with Artemis to dictate DNA repair pathway choice. **Genes Dev.** 2014; 28(24):2693-8.
13. Su F., Mukherjee S., Yang Y., Mori E., Souparno., Kobayashi J., Yannone SM, Chen DJ and Asaithamby A. Non-enzymatic role for WRN in preserving nascent DNA strands after replication stress. **Cell Rep.** 2014; 9(4):1387-401.
14. Gupta A, Hunt CR, Hedge ML, Chakraborty S, Udayakumar D, Horikoshi N, Singh M, Ramnarain DF, Hittelman WN, Namjoshi S, Asaithamby A, Hazra TK, Ludwig T, Pandita RK, Tyler JK and Pandita TK. MOF Phosphorylation by ATM Regulates 53BP1-Mediated Double-Strand Break Repair Pathway Choice. **Cell Rep**, 2014; 8(1):177-89
15. Puente B, Kimura W, Muralidhar SA, Moon J, Amatruda JF, Phelps KL, Grinsfelder D, Rothermel BA, Chen R, Garcia JA, Santos CX, Thet S, Kinter MT, Rindler PM, Zacchigna S, Mukherjee S, Mori E, Chen DJ, Giacca M, Rabinovitch PS, *Asaithamby A*, Shah AM, Szweda LI, and Sadek HA (2014). The Oxygen Rich Postnatal Environment Induces Cell Cycle Arrest of Cardiomyocytes Through DNA Damage Response. **Cell**, 2014; 24;157(3):565–579.
16. Zhang Y., Uhlemeyer J., Hada M., Asaithamby A., Chen DJ and Wu H (2014). Proximity within interphase chromosome contributes to the breakpoint distribution in radiation-induced intrachromosomal exchanges. **Life Sci Space Res (Amst)**, 2014; 2: 23-28.
17. Gerelchulum A, Zhu J, Su F, Asaithamby A, Chen DJ and Tsuboi K (2014). Homologous recombination pathway may play a major role in high-LET radiation induced DNA double-strand breaks. **J. Radiation Research**, 2014; 55 Suppl. 1:i83-i85.

18. Neumaier T, Swenson J, Pham C, Polyzos A, Lo AT, Yang P, Dyball J, Asaithamby A, Chen DJ, Bissell MJ, Thalhammer S, Costes SV. Evidence for formation of DNA repair centers and dose-response non-linearity in human cells. **Proc. Natl. Acad. Sci. U S A.**, 2012; 109(2):443-8.
19. Asaithamby, A\*, B. Hu, and D.J. Chen\*. Unrepaired clustered DNA lesions induce chromosome breakage in human cells. **Proc Natl Acad Sci U S A**, 2011; 108(20): 8293-8.
20. Asaithamby A\*, Hu B, Delgado O, Ding LH, Story MD, Minna JD, Shay JW, Chen DJ\*. Irreparable complex DNA double-strand breaks induce chromosome breakage in organotypic three-dimensional human lung epithelial cell culture. **Nucleic Acids Res.**, 2011; 1;39(13):5474-5488.
21. Perry JJ\*\*, Asaithamby A\*\*, Barnebey A, Kiamanesch F, Chen DJ, Han S, Tainer JA, Yannone SM. Identification of a coiled coil in werner syndrome protein that facilitates multimerization and promotes exonuclease processivity. **J Biol Chem.** 2010; 13;285(33):25699-707.
22. Kobayashi J, Okui M, Asaithamby A, Burma S, Chen BP, Tanimoto K, Matsuura S, Komatsu K and Chen DJ. WRN participates in translesion synthesis pathway through interaction with NBS1. **Mech Ageing Dev.** 2010; 131(6):436-44.
23. Mukherjee S, Coque L, Cao JL, Kumar J, Chakravarty S, Asaithamby A, Graham A, Gordon E, Enwright JF 3rd, DiLeone RJ, Birnbaum SG, Cooper DC, McClung CA. Knockdown of Clock in the Ventral tegmental area through RNA interference results in a mixed state of mania and depression-like behavior. **Biol. Psychiatry**, 2010; 68(6):503-11.
24. Asaithamby A and Chen DJ. Cellular Responses to DNA double-strand breaks after low-dose g-irradiation. **Nucleic Acids Research**, 2009; 37(12):3912-23.
25. Fleisch MC, Chou YC, Cardiff RD, Asaithambi A, Shyamala G. Overexpression of progesterone receptor A isoform in mice leads to endometrial hyperproliferation, hyperplasia and atypia. **Mol Hum Reprod**, 2009; 15(4):241-9.
26. Asaithamby A, Uematsu N., Chatterjee A, Story MD, Burma S and Chen DJ. Repair of HZE-Particle-Induced DNA Double-Strand Breaks in Normal Human Fibroblasts. **Radiat. Res.** 2008; 169(4):437-46.
27. Yano K, Yano K., Wang S, Uematsu N, Lee KJ, Asaithamby A, Weterings E and Chen DJ. Ku recruits XLF to DNA double-strand breaks. **EMBO reports**, 2008; 9(1):91-6.
28. Ramnarain D., Paulmurugan, Park S., Mickey B, Asaithamby A, Saha D., Kelliher MA., -- Habib A. RIP1 links inflammatory and growth factor signaling pathways by regulating expression of EGFR. **Cell death and differentiation**, 2008; 15(2):344-53.
29. Perry JJ, Yannone SM, Holden LG, Hitomi C, Asaithamby A, Han S, Cooper PK, Chen DJ, Tainer JA. WRN exonuclease structure and molecular mechanism imply an editing role in DNA end processing. **Nat Struct Mol Biol.**, 2006; 3(5):414-22.
30. Chen BP, Chan DW, Kobayashi J, Burma S, Asaithamby A, Morotomi-Yano K, Botvinick E, Qin J, Chen DJ. Cell cycle dependence of DNA-dependent protein kinase phosphorylation in response to DNA double strand breaks. **J Biol Chem.**, 2005; 280(15):1470 9-15.

31. Lou Z, Chen BP, Asaithamby A, Minter-Dykhouse K, Chen DJ, Chen J. MDC1 regulates DNA-PK autophosphorylation in response to DNA damage. **J Biol Chem.**, 2004; 279(45): 46359-62.
32. Helguero LA, Viegas M, Asaithamby A, Shyamala G, Lanari C, Molinolo AA. Progesterone receptor expression in medroxyprogesterone acetate-induced murine mammary carcinomas and response to endocrine treatment. **Breast Cancer Res Treat.** 2003; 79(3): 379-90.
33. Thakur M. K., Asaithambi A., Mukherjee S.. Amplification of exons 4 and 5 of androgen receptor gene by testosterone in the brain cortex of aged female mice. **Biogerontology**, 2000; 1(4):329-34.
34. Thakur M. K., Asaithambi A, Mukherjee S. Synthesis and Phosphorylation of Androgen Receptor of the mouse brain cortex and their Regulation by Sex Steroids during aging. **Molecular and Cellular Biochemistry**, 2000; 203: 95-101.
35. Asaithambi A., Mukherjee S. and Thakur M. K. Age-dependent degradation of Amyloid precursor protein in the post-mortem mice brain cortex. **Molecular Biology Reports** 1999; 26 (3): 179-184.
36. Mukherjee S., Asaithambi A. and Thakur M.K. Sex steroids modulate the synthesis and phosphorylation of specific proteins in the brain cortex of aging mice. **Mechanism Aging Development**, 1999;111 (1): 13-22.
37. Thakur M. K., Asaithambi A. and Mukherjee S. (1999) Sex-specific alterations in chromatin conformation of the brain of aging mouse. **Mol. Biology Reports**, 26: 239-247.
38. Asaithambi A, Mukherjee S., Thakur M. K. Expression of 112kD estrogen receptor in mouse brain cortex and its auto regulation with age. **Biochem. Biophys. Res. Commun.** 1997; 231: 683-685.
39. Mukherjee S., Asaithambi A., Thakur M. K. Androgen treatment protects mouse liver chromatin from cleavage by endogenous nucleases during aging. **Molecular Biology Reports**, 1996; 22:59-61.

*Peer-Reviewed Review Articles (\*co-corresponding).*

1. Bhattacharya S and Asaithamby A. Repurposing DNA repair factors to eradicate tumor cells upon radiotherapy. **Translational Cancer Research**, 2017, 6 (S5), S822-S839.
2. Bhattacharya S and Asaithamby A. Ionizing Radiation and heart Risks. **Seminars in Cell Dev Biol.** 2016, Oct; 58: 14-25.
3. Sridharan DM, Asaithamby A, Blattnig SR, Costes SV, Doetsch PW, Dynan WS, Hahnfeldt P, Hlatky L, Kidane Y, Kronenberg A, et al. Evaluating biomarkers to model cancer risk post cosmic ray exposure. **Life Sci Space Res (Amst).** 2016 Jun;9:19-47.
4. Sridharan DM, Asaithamby A, Bailey SM, Costes SV, Doetsch PW, Dynan WS, Kronenberg A, Rithidech KN, Saha J, Snijders AM, Werner E, Wiese C, Cucinotta FA, Pluth JM Understanding Cancer Development Processes after HZE-Particle Exposure: Roles of ROS, DNA Damage Repair and Inflammation. **Rad. Res.** 2015; 183(1):1-26.
5. Chen BP, Li M, Asaithamby A (2012). New Insights into the Roles of ATM and DNA-PKcs in the Cellular Response to Oxidative Stress. **Cancer Lett.** 2012; 327(1-2):103-10.

6. Asaithamby, A\* and D.J. Chen\*. Mechanism of cluster DNA damage repair in response to high-atomic number and energy particles radiation. **Mutat Res**, 2011; 711(1-2): p. 87-99.

## **Report of Regional, National and International Invited Talks and Presentations**

### Invited and Oral Presentations

1. Asaithamby A (2017). A novel role for RAD51, a DNA double-strand break repair factor, in innate immune signaling suppression. Hamon Center for Therapeutic Oncology Research and Simmons Cancer Center Experimental Therapeutics Program, UT Southwestern Medical Center, Dallas, December 14, Dallas, Texas (Invited speaker).
2. Asaithamby A (2017). Mechanistic Link between DNA Repair Factors and Immune signaling. International Symposium on Ion Therapy, November 2-3, Dallas, Texas (Invited speaker).
3. Asaithamby A (2017). RAD51 as a regulator of innate immunity. Presented at the "Mechanistic Links between the DNA-damage response network and immunogenic toxicity in transformed cells". August 16-17, National Cancer Institute, Bethesda (Invited speaker).
4. Asaithamby A (2017). RAD51 suppresses innate immune response signaling upon charged particle irradiation. 5<sup>th</sup> International Symposium on Space Radiation and Particle Therapy, May 24-26, Suzhou, China (Invited speaker).
5. Asaithamby A (2017). Molecular Understanding of Charged Particles Biology MD Anderson Cancer Center, January 30, Houston, Texas (Invited speaker).
6. Asaithamby A (2017). Space radiation triggers innate immune response in the absence of a DNA repair protein, RAD51. 28<sup>th</sup> Annual Space Radiation Investigators' Workshop, January 23-26, Galveston, Texas (Invited speaker).
7. Asaithamby A and Hesham A Sadek (2017). Space radiation triggers Cardiac Hypertrophy. 28<sup>th</sup> Annual Space Radiation Investigators' Workshop, January 23-26, Galveston, Texas (Invited speaker).
8. Asaithamby A (2016). RAD51 Interconnects between DNA replication, DNA repair and immunity. 62<sup>nd</sup> Radiation Research Society Meeting, October 15-18, Kona, Hawaii (Invited speaker).
9. Asaithamby A (2015). Carbon Particle therapy and combined modality. International Symposium on Ion therapy, October 15-16, 2015, Dallas, Texas (Oral presentation).
10. Mori E., Su F. and Asaithamby A (2015). Multiple Roles for Rad51 in cellular response to space radiation. Human Research Program Investigators' Workshop, Jan 12-15, 2015, Galveston, Texas (Oral presentation).
11. Asaithamby A and Sadek HA (2015). Effect of space radiation on cardiomyocyte turnover. Human Research Program Investigators' Workshop, Jan 12-15, 2015, Galveston, Texas (Oral presentation).
12. Asaithamby A and Chen DJ (2014). Mechanism of clustered DNA-double-strand break repair. The 40<sup>th</sup> COSPAR Scientific Assembly, August 2-10, 2014, Moscow, Russia. (Oral presentation).
13. Zhu J, Su F and Asaithamby A (2014). Mechanism of clustered DNA lesions repair. IWRDD, MIT, Boston, June 14-18 (Invited speaker).

14. Asaithamby A (2013). Role of Fanconi Anemia pathway in the processing of DSBs induced by high-LET IR. GSK Student retreat, organized by Technische Universität Darmstadt, June 3-7, 2013, Kleinwalsertal, Germany (invited guest speaker).
15. Asaithamby A and Chen DJ (2013). Cellular response to HZE particles irradiation is dependent on cell culture models. International Symposium on Radiation Science 2013 (Proton and Heavy ion effects in relationship to risk and cancer treatment) and The 24<sup>th</sup> Annual NASA Space Radiation Health Investigators' workshop satellite meeting, May 20-21, 2013, Taipei, Taiwan (Oral presentation).
16. Asaithamby, May 16, 2013, Role of Fanconi Anemia pathway in cellular responses to high-LET irradiation, Proton Medical Research Center, University of Tsukuba, Japan (invited speaker).
17. Jiayun Zhu, Fengtao Su, Gerelchuluun A, Chen DJ and Asaithamby A (2013). Fanconi anemia pathway function in genome stability maintenance in response to HZE particles irradiation. Heavy Ion in Therapy and Space Radiation Symposium 2013 May 15-18, 2013, Chiba, Japan (Oral presentation).
18. Asaithamby A and Chen DJ (2012). Biological consequences of unrepaired clustered DNA lesions in response to high-atomic number and energy particles in monolayer and organotypic cell cultures. 39th Annual Meeting of the European Radiation Research Society, October 15-19, 2012, Vietri sul Mare, Italy (Oral presentation).
19. Asaithamby A and Chen DJ (2012). Unrepaired clustered DNA lesions together with defective G2/M checkpoint induce chromosome instability in human cells. The 10th International Symposium on Chromosomal Aberrations, October 19-21, 2012, Amalfi, Italy (Oral presentation).
20. Asaithamby A and Chen DJ (2012). Mechanism Of HZE Particles Induced Chromosome Instability. Presented at the 23<sup>rd</sup> Annual NASA Space Radiation Investigators' Workshop, July 8-11, 2012, Durham, North Carolina (Oral presentation).
21. Asaithamby A, and Chen DJ (2011). Induction and Repair of Clustered DNA lesions repair in three-dimensional cell culture. Presented at Darmstadt University of Technology, Radiation Biology and DNA Repair, Darmstadt, Germany, August 26, Darmstadt, Germany. (Oral presentation).
22. Asaithamby A, and Chen DJ (2011). Visualization of Spatio-temporal Dynamics of Ionizing Radiation Induced Clustered DNA Lesions. Presented at the International Congress on Radiation Research, August 28-September 1 Warsaw, Poland. (Oral presentation)
23. Asaithamby A, and Chen DJ (2011). Unrepaired clustered DNA lesions induce chromosome breakage in human cells. Presented at the International Symposium for Radiation Research and Medical Physics, May 30-June 2, Shanghai, China. (Invited speaker)
24. Asaithamby A, Hu B and Chen DJ (2010). Cellular Responses to DNA damages induced by high energy and high-Z particles irradiation. Presented at the NASA human research program Investigators' workshop, February 3-5, Houston, Texas. (Oral presentation)
25. Asaithamby A, Hu B and Chen DJ (2009). Cellular Responses to DNA damages induced by low- and high-linear energy transfer irradiation in monolayer and three-dimensional cell cultures. Invited presentation at the International Workshop on Radiation Biology and Radiation Protection, October 14-16, Fudan University, Shanghai, China. (Invited speaker)



26. Asaithamby A and Chen DJ. (2009). Live cell imaging approach to directly monitor induction and repair of DNA damages generated by low- and high-linear energy transfer irradiation. Invited presented at the 55<sup>th</sup> Annual Radiation Research Society meeting, October 4-7, Savannah, Georgia. (Oral presentation)
27. Asaithamby A and Chen DJ (2009). Spatial and temporal characterization of DNA damage response to high and low-LET radiation in living cells. Presented at the NASA human research program investigators' workshop, February 2-4, League City, Texas. (Oral Presentation)

### Abstracts and Posters

1. Asaithamby A (2017). Molecular Role for Werner Syndrome Protein in DNA replication. 11<sup>th</sup> Annual Division of Aging Biology New Investigators Forum, July 6-7, National Institute of Ageing, Bethesda.
2. Minna JD., Story MD., Girard L., Batten K., Asaithamby A., Chen DJ. and Shay JW. Human Research Program Investigators' Workshop, Jan 12-15, 2015, Galveston, Texas.
3. Sridharan DM, Asaithamby A, Bailey SM, Costes SV, Doetsch PW, Dynan WS, Kronenberg A, Rithidech KN, Saha J, Snijders AM, Werner E, Wiese C, Cucinotta FA, Pluth JM. Human Research Program Investigators' Workshop, Jan 12-15, 2015, Galveston, Texas.
4. Mori E., Su F., Chen DJ and Asaithamby A (2014). A novel role for Rad51 in cellular response to clustered DNA lesions. Radiation Research Society, 60<sup>th</sup> Annual International meeting, September 21-24, 2014, Las Vegas, NV.
5. Zhu J, Su F and Asaithamby A (2014). Suppression of Genome Instability in Response to Space Radiation is mediated by Fanconi Anemia pathway NASA Human Research Program Investigators' Workshop, Feb 12-13, 2014, Galveston.
6. Asaithamby A, Hu B and Chen DJ (2010).  $\gamma$ -Radiation Induces Distinct DNA Damage Responses in a Human Lung Epithelial Cell Three-Dimensional Culture Model. Presented at Low-Dose Radiation Research Investigators' workshop IX, Washington, DC, April 12-14.
7. Asaithamby A, Hu B, Delgado D, Minna JD, Shay JW and Chen DJ (2010). DNA double-strand break repair is attenuated in three-dimensional human lung epithelial cell culture exposed to ionizing radiation. Presented at the 21<sup>st</sup> Annual NASA Space Radiation Investigators' workshop, May 16-19, Port J(werner5)efferson, New York.
8. Asaithamby A and Chen DJ. (2009). Cellular responses to DNA double-strand breaks after low-dose  $\gamma$ -irradiation. Presented at the Low-dose radiation research investigator's workshop VIII, April 6-8, Bethesda, Maryland.
9. Asaithamby A, Oskar Gonzalez and Chen DJ. Visualization of DNA damage and repair following HZE particles radiation in living, NASA Human Research Program Investigator's workshop, Feb 4-6, 2008, League City, TX.
10. Asaithamby A, Oskar Gonzalez and Chen DJ (2008). Direct Visualization of Repair of DNA Double-Strand Breaks Induced by Low-Dose  $\alpha$ -rays in Living Human Cell. Presented at the 19<sup>th</sup> Annual NASA Space Radiation Investigators' Workshop, June 30-July 2, Philadelphia, Pennsylvania.

11. Asaithamby A, Gonzales O and Chen DJ (2008). Visualization of low dose radiation induced DNA damage and repair in living cells. DOE low dose workshop, January 21-23, Washington DC.
12. Asaithamby A, Gonzalez O and Chen DJ (2008). Visualization of HZE particles induced DNA damage and repair in living cells. NASA investigators workshop, February 4-6. League City, Texas.
13. Asaithamby A, Uematsu N. and Chen D. J (2007). Visualization of HZE particles induced DNA double strand break repair in living cells. 18<sup>th</sup> NASA investigators workshop, July 13-15, Sanoma County, CA.
14. Asaithamby A, Yannone S. M. and Chen D. J (2007). Phosphorylation of Werner Syndrome Protein by DNA-dependent protein kinase catalytic subunit is critical for its function in DNA repair. 13<sup>th</sup> International Congress on Radiation Research, July 8-12, San Francisco, CA.
15. Asaithamby A, Yannone S. M., Qin J and Chen D. J (2006). Phosphorylation of Werner Syndrome Protein is critical for its function in DNA repair. Radiation Research Society, November 5-8, Philadelphia, PA.
16. Asaithamby A, Yannone S. M., Porteus M, Qin J and Chen D. J (2005). Phosphorylation of Werner Syndrome Protein is critical for its function in DNA repair. Cold Spring Harbor Laboratory meeting on Telomere and Telomerase, May 4-8, Cold Spring Harbor, NY.
17. Asaithamby A, Yannone S. M., and Chen D. J. (2004). Mapping of phosphorylation sites in the exonuclease domain of Werner syndrome protein. In Lawrence Berkeley National Laboratory, Life Sciences Division Postdoctoral Day, February 11, Berkeley, CA.
18. Asaithamby A, Yannone S. M., Campisi J and Chen D. J. (2003). Involvement of Werner syndrome protein in Non-homologous end joining (NHEJ) and DNA-PK dependent phosphorylation of its exonuclease domain. In Lawrence Berkeley National Laboratory, Life Sciences Division Postdoctoral Day, February 4, Berkeley, CA.
19. Asaithamby A, Callow M and Shyamala G (2002). Analysis of Gene expression pattern (by Microarray) in progesterone receptor (PR) A transgenic mice. In Lawrence Berkeley National Laboratory, Life Sciences Division Postdoctoral Day, February 5, Berkeley, CA.
20. Asaithamby A, Chou YC and Shyamala G (2001). Uterine cell proliferation and progesterone receptor (PR) gene expression is altered in PR-A transgenic mice. In: The endocrine Society's 83<sup>rd</sup> Annual meeting, June 20-23, Denver, Colorado.
21. Asaithambi A, Mukherjee S., & Thakur M. K. (1998). Molecular regulation of androgen receptor in the brain cortex of aging mice. EMBO workshop of nuclear hormone receptors, May 29-June 3, Nice, France.

## **Additional Professional Activities**

### **Mentoring**

#### Pre-doctoral

- 2000-2001: Katurah Spike, Berkeley Biotechnology Education, Inc. (BBEI).
- 2002-2003: Peng Wei, University of California Berkeley.
- 2005-2006: Foad Kiamanesh, University of Texas Dallas.

#### Rotating doctoral students

- 2006-2007: Michael Dodge, UT Southwestern Medical Center at Dallas

2006-2008: Shahed Shakouri, UT Southwestern Medical Center at Dallas

2007-2008: Oskar Gonzalez, UT Southwestern Medical Center at Dallas.

#### Doctoral students

2013-Current: Mr. Souparno Bhattacharya (Cancer Biology Program).

2017-Current: Ms. Debapriya Sinha (Biomedical Engineering Program).

#### International visiting doctoral students

2000-2001 Luisa A Helguero, Instituto de Biología and Medicina Experimental-CONICET, Buenos Aires, Argentina.

2012-2012 Andreas Taubmann, Darmstadt University of Technology, Radiation Biology and DNA Repair, Darmstadt, Germany

2012-2012 Ariungerel Gerelchulum, Proton Medical Research Center, University of Tsukuba, 1-1-1 Tennhodai, Tsukuba, Ibaraki 305-8575, Japan

2011-2013 Jiayun Zhu, Laboratory of Heavy Ion Radiation Biology and Medicine, Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou 730000, P. R. of China.

2014-2015 Yanyong Yang, Department of Radiation Medicine, Second Military Medical University, Shanghai, China.

#### Post-doctoral (Past and Current)

2009-2010 Burong Hu, Professor, Laboratory of Heavy Ion Radiation Biology and Medicine, Institute of Modern Physics, Chinese Academy of Sciences, Lanzhou 730000, P. R. of China UT Southwestern Medical Center

2013-2015: Eiichiro Mori, UT Southwestern Medical Center.

2010-2015: Fengtao Su, Associate Professor, Fudan Cancer Institute, Shanghai, China.

2015-2016: Ritu Mishra, UT Southwestern Medical Center.

2015-Current: Kalayarasan Srinivasan, UT Southwestern Medical Center.

2015-Current: Salim Abdisalaam, UT Southwestern Medical Center.

2016-Current: Subrata Manna, UT Southwestern Medical Center.

#### SURF and STARS Students Mentoring

2017: Ms. Samaya Prattim (STARS) and Mr. Sachin George (SURF)

2016: Ms. Shannon Snell (STARS)

2015: Mr. Chaztin Stigers (STARS)

2014: Mr. Raamis Khwaja (SURF)

#### **Ph.D. Thesis External Examiner**

2005 Ritu Singh, Banaras Hindu University, India.

2010 Sanjay Mukherjee, Bhabha Atomic Research Center, India.

2013 Lim Hui Kheng, National University of Singapore, Singapore.

### **Ph.D. Thesis Committee Member**

1. 2017-present: Mr. Krishna Luitel (candidate)-Dr. Jerry Shay (Mentor), Cancer Biology, UTSW.
2. 2016-present: Mr. David Flint (candidate)-Dr. Gabriel Sawakuchi (Mentor), MD Anderson, Houston].

### **Institutional Activities**

- 2007: Judge, 4<sup>th</sup> Annual Postdoctoral fellows' Poster session, UT Southwestern Medical center, Dallas.
- 2008-2013: Faculty supervisor, post-doctoral fellows' journal club, Department of Radiation Oncology, UT Southwestern Medical Center.
- 2014-present: Co-coordinator of Work-in-progress, Molecular Radiation Biology, Department of Radiation Oncology, UT Southwestern Medical Center.
- 2014-present: Interviewer of Medical School program, UT Southwestern Medical Center
- 2015-present: Interviewer of Graduate School program, UT Southwestern Medical Center.
- 2016-present: Deliver Molecular techniques in Radiobiology lecture to Residents and post-doctoral fellows of Radiation Oncology, UTSW.
- 2016-present: Research Misconduct and Plagiarism Class for First year Basic Science graduate students, UTSW.

### **NIH Study Section**

- 2017 (June): Cancer Etiology Study Section.

### **Journal peer review activities**

- 2004- Aging Cell, Cancer Research, DNA repair, Nature Communications, Nature Protocols, Molecular and Cellular Biology, Circulation, Mutation Research, Nucleic Acids research, Proceeding of National Academy of Sciences, Radiation Research, Stem cells, Molecular Cancer Research and PLOS one, Life Science in Radiation Research; Faculty 1000;

### **Conference Session Chair (date, sponsor, place, role)**

- 2013: 59<sup>th</sup> Radiation Research Society, New Orleans, Louisiana.
- 2012: European Radiation Research Society, Vietri sul Mare, Italy, "Early Biophysical Processes session", Session co-chair.
- 2009: Radiation Research Society (USA), Savannah, GA, "Complex DNA damage: From theory to biological consequences" session, Session co-chair.