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| BIOGRAPHICAL SKETCH |
|  |
| **NAME**Li Lan | **POSITION TITLE**Assistant professor, Department of Microbiology and Molecular Genetics, University of Pittsburgh School of Medicine |
| **eRA COMMONS USER NAME**LANLI7725 |
| **EDUCATION/TRAINING**  |
| **INSTITUTION AND LOCATION** | **DEGREE*****(if applicable)*** | **YEAR(s)** | **FIELD OF STUDY** |

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| --- | --- | --- | --- |
| North China Medical University, China | M.D. | 1994-1999 | [Clinical medicine] |
| Tohoku University, Japan | Ph.D. | 2001-2005 | [Medical Science] |
| Institute of Development, Aging and Cancer Tohoku University, Japan | Postdoctoral | 2005-2009 | [DNA repair processes of strand breaks *in situ*] |
| Department of Microbiology and Molecular Genetics, University of Pittsburgh, Pittsburgh, PA | Postdoctoral | 2009-2011 | [Role of histone H2A ubiquitination] |

1. **Position and Honors**

**Employment:**

2011-current Assistant Professor (tenure track), UPCI, Department of Microbiology and Molecular Genetics, University of Pittsburgh, Pittsburgh, PA

**Honors:**

2004 Luxun Memorial Award of Tohoku University

2005 Tohoku University President’s Award;

2005 Takahashi Memorial Award;

2006 Research Award of Institute of Development, Aging and Cancer;

2006 Inoue Research Award For Young Researchers

2008 Miyagi [Prefectural Governor](http://ejje.weblio.jp/content/prefectural%2Bgovernor) Award

2010 Director’s Award for Scientific Excellence, University of Pittsburgh Cancer Institute Scientific Retreat

2014 Young investigator award, the 13th International Workshop on Radiation Damage to DNA, Massachusetts Institute of Technology

1. **Selected Peer Reviewed Publications**
2. Okano S, **Lan L**, Caldecott KW, Mori T, Yasui A. “Spatial and temporal cellular responses to single-strand breaks in human cells.” *Mol. Cell. Biol.* (2003) Jun; 23(11): 3974-81. PMID: 12748298
3. **Lan L**, Hayashi T, Rabeya RM, Nakajima S, Kanno S, Takao M, Matsunaga T, Yoshino M, Ichikawa M, Riele H, Tsuchiya S, Tanaka K, Yasui A. “Functional and physical interactions between ERCC1 and MSH2 complexes for resistance to cis-diamminedichloroplatinum (II) in mammalian cells.” *DNA Repair* (Amst). (2004) Feb 3; 3(2): 135-43. PMID: 14706347
4. Nakajima S, **Lan L**, Kanno S, Takao M, Yamamoto K, Eker AP, Yasui A. “UV light-induced DNA damage and tolerance for the survival of nucleotide excision repair-deficient human cells.” *J. Biol. Chem.* (2004) Nov 5; 279(45): 46674-7. PMID: 15342631
5. **Lan L**, Nakajima S, Oohata Y, Takao M, Okano S, Masutani M, Wilson SH, Yasui A. “In situ analysis of repair processes for oxidative DNA damage in mammalian cells.” *Proc. Natl. Acad. Sci.* U S A. (2004) Sep 21; 101(38):13738-43. PMID: 15365186
6. Okano S, **Lan L**, Tomkinson AE, Yasui A. “Translocation of XRCC1 and DNA ligase IIIalpha from centrosomes to chromosomes in response to DNA damage in mitotic human cells.” *Nucleic Acids Res.* (2005) Jan 14; 33(1): 422-9. PMID: 15653642
7. Wilson TM, Vaisman A, Martomo SA, Sullivan P, **Lan L**, Hanaoka F, Yasui A, Woodgate R, Gearhart PJ. “MSH2-MSH6 stimulates DNA polymerase eta, suggesting a role for A:T mutations in antibody genes.” *J. Exp. Med.* (2005) Feb 21; 201(4): 637-45. PMID: 15710654
8. Braithwaite EK, Kedar PS, **Lan L**, Polosina YY, Asagoshi K, Poltoratsky VP, Horton JK, Miller H, Teebor GW, Yasui A, Wilson SH. “DNA polymerase lambda protects mouse fibroblasts against oxidative DNA damage and is recruited to sites of DNA damage/repair.” *J. Biol. Chem.* (2005) Sep 9; 280(36): 31641-7. PMID: 16002405
9. **Lan L**, Nakajima S, Komatsu K, Nussenzweig A, Shimamoto A, Oshima J, Yasui A. “Accumulation of Werner protein at DNA double-strand breaks in human cells.” *J. Cell Sci.* (2005) Sep 15; 118(Pt 18): 4153-62. PMID: 16141234
10. Karmakar P, Seki M, Kanamori M, Hashiguchi K, Ohtsuki M, Murata E, Inoue E, Tada S, **Lan L**, Yasui A, Enomoto T. “BLM is an early responder to DNA double-strand breaks.” *Biochem. Biophys. Res. Commun.* (2006) Sep 15; 348(1): 62-9. PMID: 16876111
11. Nakajima S, **Lan L**, Kanno S, Usami N, Kobayashi K, Mori M, Shiomi T, Yasui A. “Replication-dependent and -independent responses of RAD18 to DNA damage in human cells.” *J. Biol. Chem.* (2006)Nov 10; 281(45): 34687-95. PMID: 16980296
12. Yoshimura M, Kohzaki M, Nakamura J, Asagoshi K, Sonoda E, Hou E, Prasad R, Wilson SH, Tano K, Yasui A, **Lan L**, Seki M, Wood RD, Arakawa H, Buerstedde JM, Hochegger H, Okada T, Hiraoka M, Takeda S. “Vertebrate POLQ and POLbeta cooperate in base excision repair of oxidative DNA damage.” *Mol. Cell.* (2006) Oct 6; 24(1): 115-25. PMID: 17018297
13. Saberi A, Hochegger H, Szuts D, **Lan L**, Yasui A, Sale JE, Taniguchi Y, Murakawa Y, Zeng W, Yokomori K, Helleday T, Teraoka H, Arakawa H, Buerstedde JM, Takeda S. “RAD18 and poly(ADP-ribose) polymerase independently suppress the access of nonhomologous end joining to double-strand breaks and facilitate homologous recombination-mediated repair*.*” *Mol. Cell. Biol.* (2007) Apr; 27(7): 2562-71. PMID: 17242200
14. Hirano M, Yamamoto A, Mori T, **Lan L**, Iwamoto TA, Aoki M, Shimada K, Furiya Y, Kariya S, Asai H, Yasui A, Nishiwaki T, Imoto K, Kobayashi N, Kiriyama T, Nagata T, Konishi N, Itoyama Y, Ueno S. “DNA single-strand break repair is impaired in aprataxin-related ataxia.” *Ann. Neurol.* (2007) Feb; 61(2): 162-74. PMID: 17315206
15. Kanno S, Kuzuoka H, Sasao S, Hong Z, **Lan L**, Nakajima S, Yasui A. “A novel human AP endonuclease with conserved zinc-finger-like motifs involved in DNA strand break responses.” *EMBO J.*(2007) Apr 18; 26(8):2094-103. PMID: 17396150
16. Kamath-Loeb AS, **Lan L**, Nakajima S, Yasui A, Loeb LA. “Werner syndrome protein interacts functionally with translesion DNA polymerases.” *Proc. Natl. Acad. Sci. USA.* (2007) Jun 19; 104(25): 10394-9. PMID: 17563354; PMCID: PMC1965524
17. Hong Z, Jiang J, **Lan L**, Nakajima S, Kanno S, Koseki H, and Yasui A. “A polycomb group protein, PHF1, is involved in the response to DNA double-strand breaks in human cell.” *Nucleic Acids Res.* (2008) 36, 2939-2947, PMID: 18385154 PMCID: PMC2396414
18. Hong Z, Jiang J, Hashiguchi K, Hoshi M, **Lan L**, and Yasui A, “Recruitment of mismatch repair proteins to the site of DNA damage in human cells.” *J. Cell Sci.*(2008) Oct 1; 121(Pt 19): 3146-54 PMID: 18765568
19. Wei L, **Lan L**, Hong Z, Yasui A, Ishioka C, Chiba N. “Rapid recruitment of BRCA1 to DNA double-strand breaks is dependent on its association with Ku80.” *Mol. Cell. Biol.* (2008) Dec; 28(24): 7380-93. PMID: 18936166; PMCID: PMC2593434
20. Asagoshi K, Liu Y, Masaoka A, **Lan L**, Prasad R, Horton JK, Brown AR, Wang XH, Bdour HM, Sobol RW, Taylor JS, Yasui A, Wilson SH. “DNA polymerase beta-dependent long patch base excision repair in living cells.” *DNA Repair (Amst).* (2010) Feb 4; 9(2): 109-19. PMID: 20006562 PMCID: PMC2819632
21. Horibata K, Saijo M, Bay MN, **Lan L**, Kuraoka I, Brooks PJ, Honma M, Nohmi T, Yasui A, Tanaka K. “Mutant Cockayne syndrome group B protein inhibits repair of DNA topoisomerase I-DNA covalent complex.” *Genes Cells.* (2010) Dec 9. 16, 101-14 PMID: 21143350
22. **Lan L**, Ui A, Nakajima S, Hatakeyama K, Hoshi M, Watanabe R, Janicki SM, Ogiwara H, Kohno T, Kanno S and Yasui A. “The ACF1 complex is required for DNA double-strand break repair in human cells.” *Mol. Cell.* (2010) Dec 22; 40(6): 976-87. PMID: 21172662
23. Wei, L. **Lan L**, Yasui A, Tanaka K, Saijo M, Matsuzawa A, Kashiwagi R, Maseki E, Hu Y, Parvin JD, Ishioka C, and Chiba N. “BRCA1 contributes to transcription-coupled repair of DNA damage through polyubiquitination and degradation of Cockayne syndrome B protein.” *Cancer Sci.* (2011),Oct.102(10): 1840-7 PMID: 21756275
24. **Lan L**, Nakajima S, Kapetanaki MG, Hsieh CL, Fagerburg M, Thickman K, Rodriguez-Collazo P, Leuba SH, Levine AS, Rapic-Otrin V. Monoubiquitinated histone H2A destabilizes photolesion-containing nucleosomes with concomitant release of UV-damaged DNA-binding protein E3 ligase. **J. Biol. Chem.** **(2012)** 287(15): 12036-49 PMID: 22334663; PMCID: PMC3320950
25. Wei L,Nakajima S, Hsieh CL, Kanno S, Masutani M, Levine AS, Yasui A, **Lan L (corresponding author) “**Damage response of XRCC1 at sites of DNA single strand breaks is regulated by phosphorylation and ubiquitination after degradation of poly (ADP) ribose.” *J. Cell Sci.* (2013) Oct 1; 126 (Pt 19): 4414-4423. PMID: 23868975
26. Xu L, Chen YC, NakajimaS,Chong J, Wang L, **Lan L**, Zhang C, and Wang D. “A Chemical Probe Targets DNA 5-Formylcytosine Sites and Inhibits TDG Excision, Polymerases Bypass, and Gene Expression.” *Chemical Science* (2014); [5: 567-574. doi: 10.1039/C3SC51849C](http://pubs.rsc.org/en/content/articlelanding/2014/sc/c3sc51849c%22%20%5Cl%20%22%21divAbstract)
27. Benitez A, Yuan F, Nakajima S, Wei L, Qian L, Myers R, Hu J, **Lan L,** Zhang Y. “Damage-Dependent Regulation of MUS81-EME1 by Fanconi Anemia Complementation Group A Protein.” *Nucleic Acid Res.*(2014); 2014 Feb; 42(3):1671-83. PMID: 24170812
28. Satoshi Nakajima, **Li Lan (co-corresponding)**, Leizhen Wei, Ching-Lung Hsieh, Vesna Rapic-Otrin, Akira Yasui, Arthur S. Levine Ubiquitin-specific protease 5 is required for the efficient repair of DNA double-strand breaks. *Plos one (2014)*; Jan 14; 9(1): e84899 PMID: 24454762
29. **Li Lan (corresponding author)**, Satoshi Nakajima, Leizhen Wei, Luxi Sun, Ching-Lung Hsieh, Robert W. Sobol, Marcel Bruchez, Bennett Van Houten, Akira Yasui, Arthur S. Levine. Novel method for site-specific induction of oxidative DNA damage reveals differences in recruitment of repair proteins to heterochromatin and euchromatin. *Nucleic Acid Res.*(2014); 2014 Feb 1; 42(4): 2330-45. PMID: 24293652

Reviews, Book Chapters:

1. **Lan L**, “In situ analysis of Repair processes for single strand breaks in mammalian cells.” Tohoku Igaku Zasshi Vol. 117:91-93, 2005.
2. **Lan L**, Nakajima S, Yasui A. “Cellular response to DNA damage being revealed by in situ analysis.” Experimental Medicine Vol. 24 No3, 364-370, 2006.
3. **Lan L**, Yasui A. DNA damage response of WRN protein characterized by in situ analysis. Seikagaku. Vol. 78 (3):175-80. Review. 2006 PMID: 16634561.
4. Nakajima S, **Lan L**, “Handbook of Cell culture & Medium” Chapter 8, 84-101, 2008
5. Yasui A, **Lan L**, Nakajima S, Hatakeyama K, Zehui H, and Kanno SI. “Repair of DNA strand breaks in living human cells and implications for cancer therapy.” In *Extended Abstracts for the 40th International Symposium of the Princess Takamatsu Cancer Research Fund*, 68-73, 2010.
6. [Wei](http://www.bio-protocol.org/zhuanjia.aspx?id=1385) L, [Nakajima](http://www.bio-protocol.org/zhuanjia.aspx?id=1386) S, [Levine](http://www.bio-protocol.org/zhuanjia.aspx?id=1387) AS, **[Lan](http://www.bio-protocol.org/zhuanjia.aspx?id=1388)****[L](http://www.bio-protocol.org/zhuanjia.aspx?id=1388)**[,](http://www.bio-protocol.org/zhuanjia.aspx?id=1388) **[\*](http://www.bio-protocol.org/zhuanjia.aspx?id=1388)** “Novel Method for Site-specific Induction of Oxidative DNA Damage to Study Recruitment of Repair Proteins to Heterochromatin and Euchromatin.” 2014, **Bioprotocol**, [http://www.bio-protocol.org/wenzhang.aspx?id=1140#.U5POShZ3-fQ](http://www.bio-protocol.org/wenzhang.aspx?id=1140" \l ".U5POShZ3-fQ)

**PROFESSIONAL ACTIVITIES (2012-)**

1. 13th International Workshop on Radiation Damage to DNA, MIT, June 14-18, 2014, talk, A novel method for site-specific induction of oxidative DNA damage at specific genome loci.
2. Eighth annual Division of aging biology New Investigators Forum, Natcher building, room A, June 9 – 10, 2014, talk, telomere oxidative DNA damage induces cell senescence
3. DNA Damage, Mutation & Cancer March 16th-21st, 2014, Ventura, CA Gordon conference A novel method for site-specific induction of oxidative DNA damage at specific genome loci
4. DNA Damage, Mutation & Cancer March 16th-21st, 2014, Ventura, CA Chromatin State Affects the Damage Response Induced by Site-specific KillerRed
5. DNA Damage, Mutation & Cancer March 16th-21st, 2014, Ventura, CA The role of WRN in maintaining telomere integrity in the face of oxidative DNA damage
6. Dynamic Structures in DNA Damage Responses and Cancer Conference, February 12th, 2014, Cancun, Mexico, talk, Recruitment of Repair Proteins to Heterochromatin and Euchromatin
7. Pittsburgh Chromatin Club Minisymposium, talk, Dec. 6th 2013 Chromatin state affects the damage response induced by site-specific KillerRed
8. Tongji University, Shanghai China, Oct 21st 2013, invited lecture, DNA repair, chromatin remodeling and their relationship to genome instability: in situ analysis of DNA damage response
9. Jiaotong University, Shanghai China, Oct 22st 2013, invited lecture, In situ analysis of DNA damage response
10. The 4th International Symposium on DNA Damage Response & Human Disease (isDDRHD) Beijing, Oct. 19-20th, 2013, Dynamic damage response of XRCC1 regulated by polyADP‐ribosylation, phosphorylation, and ubiquitination
11. The 14th SCBA international Symposium, satellite meeting in Nanjing July 27th 2013, China invited talk, Visualization of the damage response to oxidative damage by KillerRed
12. Peiking Union University, July 18th 2013 invited lecture, Beijing China, DNA repair and chromatin remodeling and their relationship to genome instability
13. Tohoku University, Japan, July 5th 2013, invited lecture, Chromatin remodeling and repair factors responding to genome-specific oxidative damage by KillerRed
14. Magee Women’s Research Institute, university of Pittsburgh, Mar. 7th 2013 invited talk, DNA damage response of BRCA1 to double strand breaks
15. Gordon Conference for Mammalian DNA repair, Feb. 10-15th 2013 Ventura CA, Dynamic damage response of XRCC1 regulated by polyADP‐ribosylation, phosphorylation, and ubiquitination at sites of single strand breaks.
16. The 8th 3R symposium, Nov. 25th 2012 invited short talk, Awajishima, Japan Ubiquitin specific protease 5 facilitates homologous recombination by eliminating free ubiquitins.
17. Microbiology and Molecular genetics late night chalk talk Nov. 15th 2012 DNA damage response in live cells
18. PROSTATE & UROLOGIC CANCER PROGRAM (PUCP) Nov. 11th 2012 invited talk "DNA repair and chromatin remodeling and their relationship to genome instability: in situ analysis of DNA damage responses".
19. NIH DNA repair videoconferences Oct. 16th 2012 invited talk Chromatin remodeling and repair factors responding to genome-specific oxidative damage by KillerRed
20. Pittsburgh Ubiquitin-Proteasome Meeting May 11, 2012. Role of ubiquitination of core histone H2A in DNA repair in human cells.
21. DNA Mutation, Repair and Cancer; Gordon Conference; CA USA Mar 25 2012. Monoubiquitinated H2A destabilizes photolesion-containing nucleosomes with the concomitant release of the UV-damaged DNA-binding protein E3 ligase.

**D. Research Support**

# ACTIVE:

R21 AG045545-01 (PI) 07/01/13 – 06/30/15

NIH/NIA

*Oxidative DNA base damage and repair at telomeres and the relevance to cell senescence*

R01 ES022944-01 (Co-In) 07/01/13 – 06/30/18

NIH/NIEHS *Mechanisms of Telomere Resistance to DNA Lesion Removal*

**Completed:**

2004-2006: Grant-in-Aid for JSPS Fellows 2,000,000 JPY

2006-2008: Grant-in-Aid for JSPS Foreign Researchers 2,400,000 JPY

2006-2008: Hayashi Memorial Foundation for Female Natural Scientists 900,000 JPY

2008-2009: Grant from Tohoku University for promoting young scientists 1,000,000 JPY

2012-2013 CMRF 2013: 07/01/12 – 06/30/13 UPMC Competitive Medical Research Fund $25,000 *In situ* Analysis of DNA Damage Responses: DNA Repair and Chromatin Remodeling and their Relationship to Genome Instability