

# **CURRICULUM VITAE**

**Name:** Tadahide Izumi

**Business Address:**

533 Bolivar St.

New Orleans, LA 70112 USA

**Business Telephone and Telefax:** T: (504) 568-4785; F: (504) 568-4460

**Business email Address:** tizumi@lsuhsc.edu

**Education:**

**Undergraduate**

Faculty of Science, Kyoto University, 1987

**Graduate (Ph.D.)**

Graduate School of Science, Kyoto University, 1993

**Post-Doctoral Fellowships**

University of Texas Medical Branch, 1993-1998

**Academic, Professional, and Research Appointments:**

Research-track Assistant Professor, 1998-2004 Nov

Department of Human Biological Chemistry & Genetics

University of Texas Medical Branch, Galveston TX 77555

Tenure-track Assistant Professor, 2004 Dec -

Department of Otorhinolaryngology

LSU Health Sciences Center, New Orleans LA 70112

**Membership in Professional Organizations:**

American Society of Microbiology (1993-2002)

American Association for Cancer Research (2004 -)

**Awards and Honors: (include sabbaticals)**

Japan Ministry of Education Fellowship, 1987-1992

NCI director's award, 2008

**Teaching Experience/Responsibilities:**

Mentor in NCI Summer Research Program, 2007- 2008

Mentor in Summer Cancer Research Program, 2009

These annual, two months-programs provide graduate/undergraduate students a basic cancer research opportunity. The students learn leading cancer research and technology by working in the laboratories for full-time. In the past three years, Izumi has hosted three graduate/undergraduate students in LA.

Medical Biochemistry (Department: Biochemistry and Molecular Biology, 2006-2008)

Polymorphisms/disease

PCR/Microarrays

Molecular Biology (INTER 122) 2006-

DNA repair

Homologous recombination

Cancer biology (Department of Biochemistry and Molecular Biology, 2006) Head & Neck cancer

At UTMB, Galveston:

Facilitator in Biochemistry course (2003-2004, UTMB)

Helping a group session by Ph.D. students solve biochemistry problems and discuss related complex issues

**Graduate Students Trained:**

Jeff W. Hill, Ph.D. (UTMB)

Lee Wiederhold, M.D./Ph.D. (UTMB)

Dora Bocangel, Ph.D. (UTMB)

Elias Jackson, Ph.D. (UTMB)

**Thesis and Dissertation Committees:**

Elias Jackson, University of Texas Medical Branch (2005, Ph.D.)

Scott Ditch, Genetics, LSU HSC (Ph.D., current)

**Post-Doctoral or Post-Residency Fellows Trained:**

Trained more than twenty post-doctoral fellows for advanced techniques including protein purification, gene cloning, and other advanced molecular biological techniques. Also helped junior post-doctoral fellows develop skills of scientific discussion and strategies.

**Grants and Contracts: (note role on grant; i.e. PI, co PI, consultant, etc)**

**Funded**

NCI, R01CA098664, 7/1/09 - 6/30/14 (projected)

"Repair of oxidative DNA damage in mammalian cells"

**Role: PI**

NIH Director's Award, 7/1/08 - 6/30/09

"Repair of oxidative DNA damage in mammalian cells"

**Role: PI**

NCI, R01CA098664, 03/10/03 – 02/29/08

"Repair of oxidative DNA damage in mammalian cells"

**Role: PI**

NCI, R01CA098664-04S2, 03/07/06 – 02/29/08

"Repair of oxidative DNA damage in mammalian cells" (supplement)

**Role: PI**

NCI, R01CA098664-04S1, 03/06/06 – 02/29/08

"Repair of oxidative DNA damage in mammalian cells" (supplement)

**Role: PI**

LSUHSC Research Enhancement Fund (Laboratory Supplement, Award No. 2)

5R01ES008457-06 (S. Mitra, UTMB) 12/1/96-11/30/03

"Regulation of radiation/oxidative damage repair in DNA"

**Role: Co-I**

5R01CA081063-03 (Mitra, Sankar) 4/1/99 –7/31/02 NCI  
"Repair of mutagenic 8-oxoguanine in mammalian genomes "  
**Role: Co-I**

DE-FG 03-00ER63041 (Braun, Werner) 11/1/00 –10/30/03  
DOE  
"Molecular recognition of DNA damage sites by apurinic/aprimidinic endonucleases"  
**Role: Co-PI**

Seed money grant, Sealy Center on Aging in UTMB (1999-2000)  
"Construction of transgenic mice over-expressing APE1 and its effect on Aging" total  
\$10,000

**Non-funded applications (last three years):**

R01CA127959, NCI/NIH  
"Modulation of DNA base excision repair in mammalian cells"  
Role: PI

**Research Review Committee: (NIH study section, etc)**

NIH-NIA Review Committee, ZAG1 ZIJ-5 O6, P01, "DNA repair, Mutations and Cellular Aging", 2008  
NIH-NCI Review Committee, AI-04-045, "Centers for Medical Countermeasures against Radiation," 2005.  
NIH-NIA review, RFA-AG-04-006 "Proteomics in aging and age-related disorders", 2004  
NIH-NIA Review Committee, P01, "DNA repair, Mutations and Cellular Aging", 2003

**Inventions and Patents:**

**Papers Presented: (include, and ideally segregate, scientific presentations, plenary lectures, refresher courses, CME or society lectures, etc)**

**Seminars and Invited Presentations: (include visiting professorships)**

Presentation (2005- )  
Friday Encounter Series

- 11/14/2008 "Ubiquitination of DNA repair proteins, a study with molecular biological approaches"
- 7/20/2007 "APE1/Ref1 ubiquitylation and its implication in tumor cell resistance against DNA damaging reagents"
- 7/7/2006 "A link between two DNA repair pathways, BER and DSB repair"

**Others**

- 4/11/07 "Toward controlling DNA repair in cells; key roles of APE1 for repairing oxidative DNA damage", Gene Therapy seminar series, LSU New Orleans
- 9/6/06 "Requirement of the multifunctional enzyme APE1 in mammalian DNA base excision repair", Sapporo, Japan, Japan Radiation Biology Society (Invited)
- 5/11/2006 "A new link between DNA base excision repair and HNC", Cancer Center Retreat

- 6/2/2005 "DNA Base Excision Repair" LCRC seminar series
- 5/27/2005 "Mechanisms of mammalian DNA repair", Biochemistry & Molecular Biology

**Plenary lectureships at professional meetings/symposia**  
**Visiting professorships or seminars**  
**CME lectures**

**Editorial Posts and Activities:**

**Reviewer status**

Have reviewed more than 20 research articles in peer-review journal, including Journal of Biological Chemistry, Nucleic Acids Research, Molecular and Cellular Biology, Clinical Cancer Research, etc.

**University/Institutional Service: (note leadership responsibilities)**

Leader for Genome Maintenance and Signaling Pathways of the Cell (GMSPC) Journal Club, 2006-2007

**Administrative Responsibilities: (must include some narrative description)**

**Community Service Activities:**

2006-2007, supervising a Benjamin Franklin High School student for his cancer biology study necessary for his science presentation.

**Book Chapters:**

Yonei, S., and T. Izumi. 1988. [Mechanism of the induction of adaptive response against oxygen stresses]. Tanpakushitsu Kakusan Koso S 33:3169-3177.

Mitra, S., T. Izumi, I. Boldogh, C. V. Ramana, C. C. Hsieh, H. Saito, J. Lock, and J. Papaconstantinou. 1999. Repair of oxidative DNA damage and aging: central role of AP-endonuclease. p. 295-311. (eds.), Proc. NATO Asi. Monograph. Plenum Press, New York.

Mitra, S., T. K. Hazra, and T. Izumi. 2002. Nucleic Acid Synthesis. Encyclopedia of Physical Science and Technology

Mitra, S., L. R. Wiederhold, H. Dou, T. Izumi, and T. K. Hazra. 2005. New Paradigms for DNA Base Excision Repair in Mammals. DNA Damage Recognition

**Journal Publications:**

**Refereed (bold face your own name)**

1. **Izumi, T.**, Ishizaki, K., Ikenaga, M., Yonei, S. (1992) A mutant endonuclease IV of E. coli loses the ability to repair lethal DNA damage induced by hydrogen peroxide but not that induced by methyl methanesulfonate. **J. Bacteriol.** 174: 7711-7716.
2. Tatsuka, M., Ibeanu, G.C., **Izumi, T.**, Narayan, S. Ramana, C. V., Kim, N. K., Kang, W., Roy, G., and Mitra, S. (1995) Structural organization of the mouse

- DNA repair gene, N-methylpurine-DNA glycosylase. *DNA and Cell Biology* 14: 37-45.
3. **Izumi, T.**, Henner, W. D., and Mitra, S. (1996) Negative regulation of the major human AP-endonuclease, a multifunctional protein. *Biochemistry* 35: 14679-14683.
  4. Mitra, S., Hazra, T. K., Roy, R., Ikeda, S., Biswas, T., Lock, J., Boldogh, I., and **Izumi, T.** (1997) Complexities of DNA base excision repair in mammalian cells. *Mol. Cells* 7: 305-312.
  5. **Izumi, T.**, Tatsuka, M., Tano, K., Asano, M., and Mitra, S. (1997) Molecular cloning and characterization of the promoter of the human N-methylpurine-DNA glycosylase (MPG) gene. *Carcinogenesis* 18: 1837-1839.
  6. Roy, R., Biswas, T., Hazra, T. K., Roy, G., Grabowski, D. T., **Izumi, T.**, Srinivasan, G., and Mitra, S. (1998) Specific Interaction of wild type and truncated mouse N-methylpurine-DNA glycosylase with ethenoadenine-containing DNA. *Biochemistry* 37: 580-589.
  7. **Izumi, T.** and Mitra, S. (1998) Deletion analysis of human AP-endonuclease: Minimum sequence required for the endonuclease activity. *Carcinogenesis* 19: 525-527.
  8. Ramana, C. V., Boldogh, **Izumi, T.**, and Mitra, S. (1998) Activation of apurinic/aprimidinic endonuclease in human cells by reactive oxygen species and its correlation with their adaptive response to genotoxicity of free radicals. *Proc. Natl. Acad. Sci. USA* 95: 5061-5066.
  9. Takemoto, T., Zhang, Q.M., Matsumoto, Y., Mito, S., **Izumi, T.**, Ikehata, H., and Yonei, S. (1998) 3'-Blocking damage of DNA as a mutagenic lesion caused by hydrogen peroxide in Escherichia coli. *J. Radiat. Res.* 39: 137-144.
  10. Ikeda, S., Biswas, T., Roy, R., **Izumi, T.**, Boldogh, I., Kurosky, A., Sarker A. H., Seki, S., and Mitra, S. (1998) Purification and characterization of a human homolog (hNTH1) of Escherichia coli endonuclease III: Direct identification of Lys-212 as the nucleophilic active site. *J. Biol. Chem.* 273: 21585-21593
  11. Johnson, R. E., Torres-Ramos, C. A., **Izumi, T.**, Mitra, S., Prakash, S., and Prakash, L. (1998) Identification of APN2, the Saccharomyces cerevisiae homolog of the major human AP endonuclease HAP1, and its role in the repair of abasic sites *Gene. Dev.* 12: 3137-3143.
  12. Edwards, M., Rassin, D. K., **Izumi, T.**, Mitra, S., and Perez-Polo, J. R. (1998) APE/Ref-1 responses to oxidative stress in aged rats. *J. Neurosci. Res.* 54: 635-638.
  13. Edwards, M., Kent, T. A., Rea, H. C., Wei, J., Quast, M., **Izumi, T.**, Mitra, S., and Perez-Polo, J. R. 1998 APE/Ref-1 Responses to Ischemia in Rat Brain. *Neuroreport* 9: 4015-4018.
  14. Hazra, T. K., **Izumi, T.**, Maitt, L., Floyd, R. A., and Mitra, S. (1998) The presence of two distinct 8-oxoguanine repair enzymes in human cells: their potential complementary roles in preventing mutation. *Nucleic Acids Res.* 26: 5116-5122.
  15. **Izumi, T.**, Malecki, J., Chaudhry, M. A., Hill, J. W., Weinfeld, M., Lee, J. C., and Mitra, S. (1999) Intragenic suppression of an active site mutation in the human apurinic/aprimidinic endonuclease. *J. Mol. Biol.* 287: 47-57.
  16. Mol, C.D., **Izumi, T.**, Mitra, S., and Tainer, J.A. (2000) Human APE1:DNA structures and mutants reveal abasic DNA binding to stage DNA repair. *Nature* 403: 451-456.
  17. **Izumi, T.**, Hazra, T.K., Bolodogh, I., Park, M.S., Tomkinson, A., Park, M.S.,

- Ikedo, S., and Mitra, S. (2000) Requirement of human AP-endonuclease in repair of DNA single-strand breaks by reactive oxygen species. *Carcinogenesis* 21: 1329-1334
18. Hazra, T.K., **Izumi, T.**, Venkataraman, R., Kow, Y. W., Dizdaroglu, M., and Mitra, S. (2000) Characterization of a novel 8-oxoguanine-DNA glycosylase in *E. coli* and its identification as endonuclease VIII. *J. Biol. Chem.* ; 275:27762-27767
  19. Hill, J.W., Hazra, T.K., **Izumi, T.** and Mitra, S. (2001) Stimulation of human 8-oxoguanine-DNA glycosylase by AP-endonuclease: potential co-ordination of the initial steps in base excision repair. *Nucleic Acids Res.* 29:430-438.
  20. Hazra TK, Hill JW, **Izumi T**, Mitra S. (2001) Multiple DNA glycosylases for repair of 8-oxoguanine and their potential in vivo functions. "Base Excision Repair 2001", Progress in *Nucleic Acid Res. Mol. Biol.*, Academic Press, Moldave K, Mitra S, McCullough AK, Lloyd RS, Wilson SH., 68: 193-205
  21. Kuninger, D.K., **Izumi, T.**, Papaconstantinou, J., and Mitra, S. (2002) Human AP-endonuclease 1 and hnRNP-L interact with a nCaRE-like repressor element in the AP-endonuclease-1 promoter, *Nucleic Acids Res.*, 30:823-829.
  22. Hazra, T.K., **Izumi, T.**, Boldogh, T., Imhoff, B., Kow, Y.W., Jaruga, P., Dizdaroglu, M., and Mitra, S. (2002) Identification and characterization of a human DNA glycosylase for repair of modified bases in oxidatively damaged DNA, *Pro. Natl Acad Sci USA*, 99:3523-3528
  23. Hazra, T.K., Kow, Y.W., Hatahet, Z., Imhoff, B., Boldogh, I., Mokkaapati, S.K., Mitra, S., and **Izumi, T.** (2002) Identification and characterization of a novel human DNA glycosylase for repair of cytosine-derived lesions., *J. Biol. Chem.* 277: 30417-30420.
  24. Schein, C.H., Ozgun, N., **Izumi T.**, and Braun, W. (2002) Total sequence decomposition distinguishes functional modules, "molegos" in apurinic/apyrimidinic endonucleases. *BMC Bioinformatics*, 3: 37-51.
  25. Hazra TK, **Izumi T**, Kow YW, Mitra S. (2003) The discovery of a new family of mammalian enzymes for repair of oxidatively damaged DNA, and its physiological implications. *Carcinogenesis*, 24:155-157.
  26. **Izumi. T.**, Wiederhold, L.R., Roy, G., Roy, R., Jaiswal, A., Bhakat, K.K., Mitra, S., Hazra, T.K. (2003) Mammalian DNA base excision repair proteins: their interactions and role in repair of oxidative DNA damage. *Toxicology*, 193: 43-65.
  27. Bhakat, K., **Izumi, T.**, Yang, S., Hazra, T., and Mitra, S. (2003) Role of acetylated human AP-endonuclease (APE1/Ref1) in regulation of the parathyroid hormone gene. *EMBO J*, 22: 6299-6309.
  28. Balazs, R., **Izumi, T.**, Mitra, S. (2004) The Major Role of Human AP-endonuclease Homologue Apn2 in Repair of Abasic Sites in *Schizosaccharomyces pombe*. *Nucleic Acids Res.*, 32: 1-12.
  29. **Izumi, T.**, Schein, C.H., Oezguen, N., Feng, Y., Braun, W. (2004) Effects of backbone contacts 3' to the abasic site on the cleavage and the product binding by human apurinic/apyrimidinic endonuclease (APE1). *Biochemistry*, 43: 684-689.
  30. Wiederhold, L., Leppard, J.B., Kedar, P., Karimi-Busheri, F., Rasouli-Nia, A., Weinfeld, M., Tomkinson, A.E., **Izumi, T.**, Prasad, R., Wilson, S.H., Mitra, S., Hazra, T.K. (2004) AP endonuclease-independent DNA base excision repair in human cells. *Mol. Cell*, 15, 209-220.
  31. Ding SZ, O'hara AM, Denning TL, Dirden-Kramer B, Mifflin RC, Reyes VE, Ryan KA, Elliott SN, **Izumi T**, Boldogh I, Mitra S, Ernst PB, Crowe SE. (2004) *Helicobacter pylori* and H<sub>2</sub>O<sub>2</sub> increase AP endonuclease-1/redox factor-1

- expression in human gastric epithelial cells. *Gastroenterology*. 127:845-58.
32. **Izumi, T.**, Brown, D.B., Naidu, C.V., Bhakat K.K., MacInnes M.A., Saito H., Chen, D.J., Mitra, S. (2005) Two essential but distinct functions of the mammalian AP endonuclease 1. *Proc. Natl. Acad. Sci. USA* **102**: 5739-5743.
  33. Jackson, EB, Theriot, C.A., Chattopadhyay, R., Mitra, S., **T. Izumi** (2005) Analysis of nuclear transport signals in the human apurinic/apyrimidinic endonuclease (APE1/Ref1). *Nucleic Acids Res.* **33**:3303-3312.
  34. Chattopadhyay, R., Wiederhold, L., Szczesny, B., Boldogh, I., Hazra, T.K., **Izumi, T.**, Mitra, S. (2006) Identification and characterization of mitochondrial abasic (AP)-endonuclease in mammalian cells. *Nucleic Acids Res.*, **34**, 2067-2076
  35. Peddi, S.R., Chattopadhyay, R., Naidu, C.V., **Izumi, T.** (2006) The Human Apurinic/Apyrimidinic Endonuclease-1 Suppresses Activation of Poly(ADP-ribose) Polymerase-1 Induced By DNA Single Strand Breaks. *Toxicology*, **224**, 44-55
  36. O'Hara, A.M., Bhattacharyya, A., Mifflin, R.C., Smith, M.F., Ryan, K.A., Scott, K.G., Naganuma, M., Casola, A., **Izumi, T.**, Mitra, S., Ernst, P.B., Crowe, S.E. (2006) Interleukin-8 induction by Helicobacter pylori in gastric epithelial cells is dependent on apurinic/apyrimidinic endonuclease-1/redox factor-1. *J Immunol.* **177**:7990-9.
  37. Mitra S, **Izumi T**, Boldogh I, Bhakat KK, Chattopadhyay R, Szczesny B. (2007) Intracellular trafficking and regulation of mammalian AP-endonuclease 1 (APE1), an essential DNA repair protein. *DNA Repair* **6**:461-469.
  38. Oezguen, N., C. H. Schein, S. R. Peddi, T. D. Power, **T. Izumi**, and W. Braun. (2007) A "moving metal mechanism" for substrate cleavage by DNA repair endonuclease APE-1. *Proteins*, **68**:313-323
  39. Mantha, A.K., Oezguen, N., Bhakat, K.K., **Izumi, T.**, Braun, W., Mitra, S. (2008) Unusual Role of a Cysteine Residue in Substrate Binding and Activity of Human AP-Endonuclease 1. *J Mol Biol.* **379**:28-37
  40. Zaky, A., Busso, C., **Izumi, T.**, Chattopadhyay, R., Bassiouny, A., Mitra, S., Bhakat, K.K. (2008) Regulation of the human AP-endonuclease (APE1/Ref-1) expression by the tumor suppressor p53 in response to DNA damage. *Nucleic Acids Res.* **36**:1555-66.
  41. Busso, C.S., Iwakuma, T. & **Izumi, T.**, (2009). Ubiquitination of mammalian AP endonuclease (APE1) regulated by the p53-MDM2 signaling pathway. *Oncogene* (Feb 2009, advance on line publication)
  42. Barnes, T., W. C. Kim, A. K. Mantha, S. E. Kim, **T. Izumi**, S. Mitra, and C. H. Lee. 2009. Identification of Apurinic/apyrimidinic endonuclease 1 (APE1) as the endoribonuclease that cleaves c-myc mRNA. *Nucleic Acids Res*

**Non-refereed (bold face your own name)**

Mitra, S., **T. Izumi**, I. Boldogh, K. K. Bhakat, J. W. Hill, and T. K. Hazra. 2002. Choreography of oxidative damage repair in mammalian genomes. *Free Radic Biol Med* **33**:15-28.

**Abstracts:**

"APE1 Ubiquitination Regulated by the p53-MDM2 Signaling Pathway"

Carlos S. Busso, Tomoo Iwakuma\*, Michael W. Lake, Charles D. Bulkin, Tadahide Izumi  
Source: The 3rd US/EU Conference on Repair of Endogenous Genome Damage,  
2/21/09-2/25/09, Galveston TX

"Spontaneous mutagenesis frequencies correlate with APE1 abundance in murine spermatogenic cells"

Perez M, Hildreth K, Herbert DC, McMahan CA, Izumi T, Mitra S, Walter CA  
Source: Genes and the Environment: From Molecular Mechanisms to Risk, Rio Grande, Puerto Rico, 10/18/08-10/22/08  
Published in Environmental and Molecular Mutagenesis, Volume: 49, Issue: 7, Pages: 553-553 (2008)

"Acetylated APE1 is a repressor in calcium-mediated downregulation of the human renin gene"

Bhakat KK, Chattopadhyay R, Izumi T Mantha AK, Mitra S  
Published in: Circulation, Volume: 114, Issue: 18, Pages: 129-129 (2006)

"Two Essential but Distinct Functions of the Mammalian AP Endonuclease I", T. Izumi, D. Brown, CV Naidu, KK Bhakat, MA MacInnes, H Saito, DJ Chen, S. Mitra  
American Society of Microbiology Intl Conference on DNA Repair and Mutagenesis, Southampton, Bermuda, Nov 14-20, 2004

"Role of acetylated human (APE1/Ref-1) in regulation of the parathyroid hormone gene"

Bhakat KK, Izumi T, Yang SH, Hazra TK, Mitra S  
Published in: FASEB J., Volume: 18, Issue: 8, Pages: C85-C85 (Suppl. S, 2004)

"Helicobacter pylori-mediated regulation of interleukin-8 (IL-8) transcription in gastric epithelial cells: Role of apurinic/apyrimidinic endonuclease-1/redox factor-1 (APE-1/Ref-1)"

O'Hara A, Ding SZ, Ryan K, Mitra S, Izumi T, Mifflin R, Crowe SE  
Published in: Gastroenterology, Volume: 124, Issue: 4, Pages: A44-A44 (Suppl. S, 2003)

"Apurinic/apyrimidinic endonuclease-1 (Ape-1) expression and function in human gastric epithelial cells during Helicobacter pylori infection"

O'Hara AM, Ding SZ, Izumi T, Mitra S, Mifflin RC, Crowe SE  
Published in: GUT, Volume: 51, Pages: A21-A21 (Suppl. 2, 2002)

"Characterization of a newly discovered family of human DNA glycosylases for repair of oxidatively damaged DNA bases"

Hazra TK, Izumi T, Kow YW, Boldogh I, Hatahet Z, Mokkapati S, Dizdaroglu M, Mitra S  
Published in: Free Radical Biology and Medicine, Volume: 33, Pages: S384-S384 (2002)

"Apurinic/apyrimidinic endonuclease-1 (APE-1) regulates activity of transcription factors that modulate gastric epithelial cellular responses to Helicobacter pylori infection"

Crowe SE, Ding SZE, Su B, Izumi T, Mitra S, Mifflin RC  
Published in: Gastroenterology, Volume: 122, Issue: 4, Pages: A223-A223 (Supplement, 2002)



"Antioxidants inhibit nuclear translocation of apurinic/aprimidinic endonuclease-1 induced by Helicobacter pylori and oxidative stress in human gastric epithelial cells"  
Ding SZ, Mitra S, Izumi T, Dirden-Kramer B, Mifflin RC, Crowe SE  
Published in: Gastroenterology, Volume: 120, Issue: 5, Pages: A81-A81 (Supplement, 2001)

"NF kappa B control of APE/Ref-1 promoter activity in PC12 cells"  
Cole K, Izumi T, Mitra S, Perez-Polo JR  
Published in: J. Neurochemistry, Volume: 74, Pages: S71-S71 (Suppl. S, 2000)

"Evidence for an association between AP-endonuclease (APE-1) and heterogeneous nuclear ribonucleoprotein L (hnRNP L) on the APE-1 promoter."  
Kuninger D, Izumi T, Mitra S, Papaconstantinou J  
Published in: FASEB J. Volume: 13 Issue: 7 Pages: A1369-A1369 (1999)

"APE/Ref-1 DNA repair enzyme following middle cerebral artery occlusion/reperfusion."  
Kent TA, Edwards M, Izumi T, Mitra S, Perez-Polo JR  
Published in: Stroke Volume: 30 Issue: 1 Pages: 247-247 (1999)

"Promoter function of the human AP-endonuclease."  
Izumi T, Henner WD, Mitra S, New Orleans, LA June 1996  
Published in: FASEB J. Volume: 10 Issue: 6 Pages: D42-D42 (1996)

"Adaptive response in human cells: Induction of AP-endonuclease by sublethal levels of reactive oxygen-species."  
Ramana CV, Boldogh I, Izumi T, Roy R, Mitra S  
Source: FASEB JOURNAL Volume: 10 Issue: 6 Pages: 711-711 Published: APR 30 1996  
Subject Category: Biochemistry & Molecular Biology; Biology; Cell Biology

"Gene Targeting of the AP-Endonuclease (APE) Gene in a Human Lymphoblastoid Cell-Line"  
Izumi T, Ward JB, Henner WD, Aue W, Tatsuka M, Mitra S  
Keystone Symposium, Mar 1995, Taos, NM  
Published in Journal of Cellular Biochemistry, Pages: 279-279, Suppl. 21A (1995)