

Wayne State University

Professional Record

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NAME: Ahmad R. Heydari

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DEPARTMENT/COLLEGE:

Nutrition & Food Science / College of Liberal Arts
and Sciences
Karmanos Cancer Institute / School of Medicine

PRESENT RANK & DATE OF RANK:

Professor and Chair, 2014

WSU APPOINTMENT HISTORY:

Year Appointed/Rank

1997-2003	Assistant Professor
2003-2009	Associate Professor
2009-Present	Professor
2013-2014	Professor and Interim Chair
2014-Present	Professor and Chair

EDUCATION:

High School:

Carbondale Community High School
Carbondale, Illinois (1980)

Baccalaureate:

Microbiology
Southern Illinois University
Carbondale, Illinois (1984)



- Graduate:** M.S. Biological Sciences
Illinois State University
Normal, Illinois (1988)
Ph.D., Biological Sciences
Illinois State University
Normal, Illinois (1990)
- Postgraduate (postdoctoral):** Department of Medicine
University of Texas Health Science Center
At San Antonio, and Geriatrics, Research,
Education and Clinical Center (GRECC),
South Texas Veterans Health Care System
San Antonio, Texas (1990-1992)
- Certification and Training:** Summer Training Course in Experimental
Aging Research, Sponsored by National
Institute of Aging and The Geriatrics Center,
University of Michigan, (summer, 1995)

FACULTY APPOINTMENT AT OTHER INSTITUTIONS (Years and Rank):
(Not administrative appointments)

- 1992-94: **Instructor of Medicine**
Department of Medicine
University of Texas Health Science Center
San Antonio, Texas
- 1994-95: **Research Assistant Professor**
Department of Medicine
University of Texas Health Science Center
San Antonio, Texas
- 1995-97: **Research Assistant Professor**
Department of Physiology
University of Texas Health Science Center
San Antonio, Texas

PROFESSIONAL SOCIETY MEMBERSHIP(S):

Gerontological Society of America
American Aging Association
American Federation for Aging Research
American Association for the Advancement

of Science
The American Society for Biochemistry
and Molecular Biology
American Society for Nutritional Sciences

HONORS/AWARDS:

- 1981-83: Undergraduate Scholastic Award,
Southern Illinois University
- 1988: Outstanding Master Student Award,
Phi Sigma Honor Society,
Department of Biological Sciences,
Illinois State University.
- 1988: Sigma Xi, The Scientific Research Society
Award, Illinois State University
- 1989: First Place, Student Presentation Award,
Gordon Conference on the Biology of
Aging, New Hampshire.
- 1989: Sigma Xi, The Scientific Research Society
Award, Illinois State University
- 1990: First Place, Graduate Student Research
Forum and Competition Award,
Graduate School, Illinois State University.
- 1990: Outstanding Ph.D. Student Award,
Department of Biological Sciences,
Illinois State University.
- 1992: Geriatric Leadership Academic Award,
Aging Research and Education Center,
UTHSC-San Antonio.
- 1993: Geriatric Leadership Academic Award,
Aging Research and Education Center,
UTHSC-San Antonio.
- 1995: American Aging Association, Post-Doctoral
Research Competition Award,
- 1998: The Gerontological Society of America,
Nathan Shock Young investigator Award,

- 2001: College of Science Teaching Award
Wayne State University
- 2006: Career Development Chair Award,
Wayne State University
- 2007: Illinois State University, Herman Brockman
Alumni Award in Genetics
- 2008: Barshop Institute for Longevity and Aging,
Studies University of Texas Health Science
Center at S.A., Edward Masoro Alumni
Award

BIOGRAPHICAL CITATIONS (National/Regional or Professional Directories):

Community of Science (COS) Expertise Database-2007

I. TEACHING

- A. Years at Wayne State** 17 years
- B. Years at Other Colleges/Universities (Please list)**
 - Dept. of Physiology, UTHSC-San Antonio 2 years
- C. Courses Taught at Wayne State in Last Five Years** (List course and number of time offered)
 - 1. Undergraduate**
 - 2. Graduate**
 - NFS 7060 – Research Problems in Nutrition & Food Science
(Offered 8 times)
 - NFS 6000 – Nutritional Biochemistry (Team Taught, offered with
Drs. Jen and Khosla offered 5 times)
 - NFS 6020 – Nutrient-Gene Interactions (5 times)
 - NFS 7140 – Advanced Lab Techniques (5 times)
 - NFS 7850 - NFS Seminar/Journal Club (10 times)

4 hours lecture to first year medical students on “**Clinical Nutrition**”

2 hours lecture (Pharmacology, PSC 7020) on “**Xenobiotic-induced DNA Damage**” to pharmacy students

3 hours lecture (Environmental Health Sciences, MTX 7010) on “**Nutrition, toxicity and Carcinogenesis**”.

2 hours lecture (Cancer Biology, CB 7210) on “**Cancer Prevention**”.

D. Essays/Theses/Dissertations Directed

1. Students by Name, Level, Title of Project, Year

Julian J. Raffoul (M.S.), “Nutrition Intervention Modulates the Age-Related Decline in the Genomic Expression of DNA Polymerase Beta in F344 Rats” under my direction in Summer, 2000.

Diane C. Cabelof (Ph.D.), completed her dissertation entitled “DNA Damage Accumulation in Aging and Cancer: A role for modulation of DNA Repair Capacity by Caloric Restriction”, under my direction in winter, 2002.

Julian J. Raffoul (Ph.D.), “Characterization of an Apurinic/Apyrimidinic Endonuclease Heterozygous Knockout Mouse: Identifying Nutrient-Gene and Gene-Environment Interactions on DNA Repair”, Completed in winter, 2004.

Vidya Sharma (M.A.), “Role of the SMN Protein in Neuronal Protection in PC12 Cells”, Completed in winter, 2004.

Asad Mehboob (M.S.), “Role of p53 in Regulation of β -pol Dependent Base Excision Repair Pathway”, completed in summer, 2004

Hala Abdalla (M.S.), “Effect of Folate Deficiency on Base Excision repair Pathway”, completed in fall, 2004

Erin Aivazas (M.S.), “Folate deficiency, DNA methylation and Base Excision Repair pathway”, completed winter 2005.

Njwen Anyangwe (Ph.D.). “Role of p53 in Regulation of β -pol Dependent Base Excision Repair Pathway in vivo”, completed Fall 2005.

Hiral Patel (M.S.), “Impact of Folate Deficiency on Epigenetic Alterations of DNA and Its role in Carcinogenesis”, completed Fall 2006.

Anupama Penmesta (M.A.), “Effect of folate deficiency on expression of p53 and β -pol genes in testis”, completed in fall 2006.

Rasha Bamieh (M.A.), “An overview of the mechanism by which folate deficiency impact diseases: Role of DNA repair”, completed in winter 2006.

Pantea Dadyar (M.S.), “The effect of Folate Deficiency on ACF formation”, completed in winter 2007.

Raweh Khasawneh (M.S.), “The impact of folate deficiency and oxidative stress on the expression/stability of housekeeping genes, and their role as an internal control for quantitative real-time PCR”, completed in summer 2008.

Deepa Kushwaha (Ph.D.), “Role of uracil DNA glycosylase (UDG) in BER under oxidative stress and folate deficiency”, Completed fall 2009.

Lisa Lucente (Ph.D.), “Folate Deficiency and Colon Carcinogenesis”, winter 2010.

Faten Awada (M.A.), “The Effect of Folate Deficiency and β -POL haploinsufficiency on Hepatic mTOR and RAPTOR Levels”, winter 2010.

Lamis Rifaat Jabri (M.A.), “Anorexia and Eating Behavior”, Summer 2011.

Archana Unnikrishnan (Ph.D.), “Folate Deficiency, Base Excision repair and Cancer”, fall 2011.

Amanda Pilling (Ph.D.), “The Impact of Folate Deficiency on the Base Excision Repair Pathway: Analysis of Enzyme coordination in response to DNA Damage and Imbalance Repair”, summer 2011.

Sukayna Adnan Ismail (M.S.), “Folate Restriction as a Potential Interventional Means to Decrease Cellular Oxidative Stress and Enhance Repair Activity”, summer 2011.

Michael Williams (M.A.), “HIV, AIDS and Nutrition in Sub-Saharan Africa”, Winter 2011.

Lyla Ibrahim (Smiley) (M.A.), “An Overview of Cancer and Ageing in View of Mammalian Target of Rapamycin (mTOR)”, winter 2011.

Emily Beckerman (M.A.), “The Role of Plant Based Diet on Reduction of Cancer Risk”, winter 2013.

Zahra Parsinezhad (M.A.), “Eating Behavior and Obesity”, winter 2013

Rula Hendriksen (M.A.), “Effects of Nutrition on Colon Cancer”, winter 2013

- Mahbuba E. Chowdhury** (M.A.), “Folate Deficiency Regulates Expression of DNA polymerase beta Gene”, winter 2013.
- Raweh Khasawneh** (Ph.D.), “Desensitization of Basal Cell Carcinoma to Anti-Tumor Effect of Vitamin D”, winter 2013.
- John Anthony Sorge** (M.S.), “Effect of Long Term Rapamycin Treatment on mTOR signaling Network in Colon and Liver of Young and Old C57BL/6 Mice”, summer 2014.
- Essra Moussawi** (M.S.), “Effect of Folate Deficiency on mTOR Signaling Network in the Liver of mice”, winter 2014.
- Nikita Patel** (M.S.), “Effect of Folate Deficiency on Expression of Proteins on the mTOR Signaling Pathway in the Brain of C57BL/6 Mice”, fall 2014.
- Safa Beydoun** (Ph.D.), “The Impact of Folate Restriction on Cancer and Aging: A Mechanistic Analysis”, winter 2016.

E. Course or Curriculum Development

1. Laboratory Techniques in Nutrition and Food Science
2. Molecular Biology with Emphasis in Nutrition and Food Science
3. Advanced workshop: micronutrients
4. Research Problems in Nutrition and Food Science
5. Nutrient gene interaction

F. Course Materials (Unpublished)

1. Laboratory Manual for Laboratory Techniques in Nutrition and Food Science (Course # 5140)
2. Course Materials for Research problems in Nutrition & food Science (Course # NFS 7060)
3. Laboratory Manual for Laboratory Techniques in Nutrition and Food Science (Course # 7140)

II. RESEARCH

A. Research in Progress

- 1) Effect of age and caloric restriction on transcriptional regulation of heat shock proteins (Alterations in HSF1 transcription factor and its effect on transcriptional regulation of HSP70 gene in aged animals).
- 2) Use of transgenic animal models to study the effect of age and diet on DNA repair capacity of animals, and to study the effect of alterations in DNA

repair on aging process (es) and to directly test the somatic mutation theory of aging.

- 3) Role of Base Excision Repair Pathway in susceptibility to gastrointestinal disease in response to folate deficiency.
- 4) Folate deficiency, Methionine restriction and redox function and their impact of colon cancer
- 5) Use of exfoliated colonocytes for early “non-invasive” detection of colon cancer
- 6) Impact of Vitamin D on onset and progression of non-melanoma skin cancer

Pending grant applications:

- 1) **In Process of submitting an R21 in response to an RFA # PA-08-031 entitled “Exfoliate cells, Bioactive Food Components, and Cancer.”**
- 2) **In Process of resubmitting an R01 as co-PI with Drs. Pile, Alcedo and Tainsky entitled “The Role of One Carbon Metabolism in the Etiology of Cancer as a Function of Age.” (Scored 45)**

B. Funded Research (List in Chronological order)

Granting Agency Title of Grants Start/End Date Amount
Indicate if amount is TOTAL or DIRECT COSTS ONLY.

- 1) **2014-2016:** **Granting Agency:** American Dermatological Society
Role: Co-PI (Dr. Iltefat Hamzavi, HFH)
Project title: “Vitamin D and BCC”
Start/End Date: 1/1/14 –1/1/16
Amount: \$50,000
- 2) **2012-2013:** **Granting Agency:** WSU Bridge Fund (VP and CLAS Dean)
Role: PI
Project title: “Folate Deficiency and Cancer”
Start/End Date: 1/1/12 –1/1/13
Amount: \$53,000
- 3) **2011-2012:** **Granting Agency:** WSU Bridge Fund (VP and CLAS Dean)
Role: PI

- Project title:** "Folate Deficiency and Cancer"
Start/End Date: 1/1/10 –1/1/11
Amount: \$83,000
- 4) **2009-2010:** **Granting Agency:** WSU (Research Stimulation Program for Tenured Faculty)
Role: co-PI (with Dr. Arking, Biol Sci.)
Project title: "Molecular genetic analysis of a complex polycomb-dependent cascade regulating longevity in *Drosophila*"
Start/End Date: 4/1/09 –3/31/10
Amount: \$47,000
- 5) **2009-2010:** **Granting Agency:** SIRG, Pilot Project, KCI
Role: co-PI (with Dr. Pile, Biol Sci.)
Project title: "A systematic biology approach to identify novel mechanism linking epigenetic regulation, cell proliferation, tumor progression and aging"
Start/End Date: 9/1/09 –8/31/10
Amount: \$27,000
- 6) **2007-2010:** **Granting Agency:** NIH/NCI (Comprehensive Minority Biomedical Branch)
Role: PI (for Dr. Bonita Leavell)
Project title: "Base excision repair deficiency, folate and GI cancer, Research supplements to promote diversity in health –related research"
Start/End Date: 1/1/07 –12/31/10
Amount: \$246,000
- 7) **2006-2010:** **Granting Agency:** NIH/NCI
Role: PI
Project title: "Base excision repair deficiency, folate and GI cancer"
Start/End Date: 1/1/06 –12/31/10
Amount: \$800,660.00
- 8) **2003-2006:** **Granting Agency:** American Institute for Cancer Research
Role: PI
Project title: "Folate, DNA Repair and Cancer"
Start/End Date: 7/31/03 –7/30/05
Amount: \$160,000.00 (Direct Cost)
- 9) **2002-2006:** **Granting Agency:** The Ellison Medical Foundation

Role: Co-PI (PI: Dr. Ari Gafni, Univ. of Michigan)
Project title: "Single Molecule Studies of Age-Related Alterations in Heat Shock Factor 1"
Start/End Date: 11/01/02 –10/30/06
Amount: \$600,000.00 (Direct Cost)

- 10) **2002-2005:** **Granting Agency:** National Institutes on Health/NIDDK
Role: PI
Project title: "Folate Deficiency and Susceptibility to Gastrointestinal Disease"
Start/End Date: 9/01/02 -8/30/04
Amount: \$298,000.00 (TOTAL)
- 11) **2000-2002:** **Granting Agency:** The Institute of Envir. Health Sci. (WSU)
Role: PI
Project title: "DNA Repair and Anti-tumor Action of Caloric Restriction"
Start/End Date: 5/1/00 -4/30/02
Amount: \$20,000.00 (Direct Cost)
- 12) **2000-2000:** **Granting Agency:** Office of Research and Sponsored Program Services (University Research Grant Program Award)
Role: PI
Project title: "DNA Repair, Caloric Restriction and Cancer"
Start/End Date: 5/1/00 -8/30/00
Amount: \$7,000.00 (Direct Cost)
- 13) **1997-2000:** **Granting Agency:** American Institute for Cancer Research
Role: PI
Project title: "The Use of Transgenic Models to Elucidate The Molecular Mechanism by Which Dietary Restriction Reduces the Occurrence of Cancer"
Start/End Date: 7/1/97 -6/30/00
Amount: \$164,155.00 (TOTAL)

C. Fellowships/Grants/Special Awards

- 1) **2006-2007:** **Granting Agency:** Wayne State University
Role: PI
Project title: "Career Development Chair Award, 2006/07"
Start/End Date: 7/1/06 -8/30/07
Amount: \$19,000
- 1) **1996-1997:** **Granting Agency:** Howard Hughes Medical Institute Award
Role: PI

Project title: "Development of a Transgenic Animal Model to Study the Somatic Mutation Theory of Aging"

Start/End Date: 6/1/96 -5/30/97

Amount: \$39,329.00 (DIRECT COSTS ONLY)

2) **1995-1996: Granting Agency:** American Cancer Society

Role: PI

Project title: "Development of a Unique DNA Repair Deficient Mouse to Study Mechanism of Cancer"

Start/End Date: 10/1/95 -9/30/96

Amount: \$14,950.00 (DIRECT COSTS ONLY)

PUBLICATIONS*

A. Journal Articles Published

1. Refereed Journals (Selected)

1. **Heydari, A.R.**, J.A. Butler, S.M. Waggoner, and A. Richardson (1989). Age-Related Changes in Protein Phosphorylation by Rat Hepatocytes. *Mech. Age. Dev.*, **50**:227-248.

2. Butler, J.A., **A.R. Heydari**, and A. Richardson (1989). Analysis of Effect of Age on Synthesis of Specific Proteins by Hepatocytes. *J. Cell. Physiol.*, **141**: 400-410.

3. **Heydari, A.R.**, and A. Richardson (1990). "The Effect of Aging and Dietary Restriction on Protein Synthesis." In **Aging and Protein Metabolism** (H.L. Segal, M. Rothstein and E. Bergamini, eds.) Alan R. Liss, Inc., New York, pp. 277-289.

4. Ghassemi, M., **A.R. Heydari**, and A. Richardson (1991). The induction of heat shock proteins in lymphocytes increases with mitogen stimulation. *Immunology Letters*, **30**:333-338.

5. Wu, B., M.J. Gu, **A.R. Heydari**, and A. Richardson (1993). The effect of age on the synthesis of two heat shock proteins in the HSP70 family. *J. Gerontol.*, **48**:B50-B56.

6. **Heydari, A.R.**, B. Wu, R. Takahashi, and A. Richardson (1993). The expression of heat shock protein 70 is altered by age and diet at the level of transcription. *Mol. Cell. Biol.*, **13**:2909-2918.

7. Takahashi, R., **A.R. Heydari**, and A. Richardson (1993). Age-related decrease in induction of heat-shock protein 70: Alteration of heat shock factor with age. *Biomedical Gerontol.*, **17**:118-119.

8. Wimonwatwatee, T., **A.R. Heydari**, W. Wu, and A. Richardson (1994). Effect of age on the expression of phosphoenolpyruvate carboxykinase in rat liver. *Am. J. Phys.*, **267** (Gasterointest. Liver Physiol. 30): G201-G206.
9. Takahashi, R, **A.R. Heydari**, A. Gutschmann, M. Sabia, and A. Richardson (1994). The heat shock transcription factor in liver exists in a form that has DNA binding activity but no transcriptional activity. *Biochem. Biophys. Res. Commun.*, **201**:552-558.
10. Xia, E., G. Rao, H. Van Remmen, **A.R. Heydari**, and A. Richardson (1995). Effect of dietary restriction on antioxidant enzymes in various tissues of male Fischer 344 rats. *J. Nutr.*, **125**:195-201.
11. **Heydari, A.R.**, C. Conrad, and A. Richardson (1995). Changes in the expression of heat shock genes by age and dietary restriction in rat hepatocytes. *J. Nutr.*, **125**:410-418
12. Van Remmen, H., M.D. Williams, **A.R. Heydari**, R. Takahashi, B.P. Yu, and A. Richardson (1996). Expression of genes coding antioxidant enzymes and heat shock proteins in primary cultures of rat hepatocytes. *J. Cell. Physiol.*, **166**:453-460
13. Guo, Z.M., **A.R. Heydari**, S. You, W. Wu, M. Sabia, and A. Richardson (1998). Characterization of gene specific DNA repair by primary cultures of rat hepatocytes. *Journal of Cell. Physiol.*, **176**:314-22.
14. Gutschmann-Conrad, A., **A.R. Heydari**, S. You, A. Richardson (1998). The Expression of HSF1 Protein Decreases with Cellular Senescence in vitro and in cells derived from young and old human subjects. *Exp. Cell Res.*, **241**:404-13.
15. Timchenko, N.A., M. Wilde, K.-I. Kosai, **A. Heydari**, T. A. Bilyeu, M.J. Finegold, K. Mohamedali, A. Richardson, G.J. Darlington (1998). Regenerating livers of old rats contain high levels of C/EBPa and have altered expression of a number of cell cycle associated proteins. *Nucleic Acids Res.*, **26**:3293-99.
16. Holt P.R., S.F. Moss, **A.R. Heydari**, A. Richardson (1998). Diet restriction increases apoptosis in the gut of aging rats. *J. Gerontol.*, **53**:B168-B172.
17. Guo, Z., **A.R. Heydari**, and A. Richardson (1998). Nucleotide Excision repair of Actively Transcribed versus Non-Transcribed DNA in Rat Hepatocytes: Effect of Age and Dietary restriction. *Exp. Cell Res.*, **245**:228-38.
18. Gutschmann-Conrad, A., Pahlavani, M.A., **Heydari, A.R.**, and A. Richardson (1999). The Expression of Heat Shock Protein 70 Decreases with Age in

Hepatocytes and Splenocytes from Female Rats. *Mech. Age. Dev.*, **107**(3):255-70.

19. **Heydari, A.R.**, S. You, R. Takahashi, A. Gutschmann, K.D. Sarge, and A. Richardson (2001). The age-related alterations in activation of heat shock transcription factor I. *Exp. Cell Research*. **256**:83-93.
20. Cabelof D.C., Raffoul J.J., Yanamadala S., Ganir C., Guo Z. and **A.R. Heydari** (2002). Attenuation in DNA polymerase β -dependent base excision repair pathway and increased DMS induced mutagenicity in aged mice. *Mutation Research*, **500**:135-145.
21. Cabelof D.C., Raffoul J.J., Yanamadala S., Guo Z. and **A.R. Heydari** (2002) Role of DNA polymerase β -dependent base excision repair in response to 2-nitropropane. *Carcinogenesis*, **23**:1419-1425.
22. Cabelof D.C., Yanamadala S., Raffoul J.J., Soofi A.S., Guo Z. and **A.R. Heydari** (2003) Caloric restriction promotes genetic stability by induction of base excision repair and reversal of its age-related decline. *DNA Repair* **3**:295-307.
23. Cabelof D.C., Guo Z. , Raffoul J.J., Sobol, R.W., Wilson, S.H., Richardson A. and **A.R. Heydari** (2003). BER deficiency caused by β -pol haploinsufficiency: accelerated DNA damage and increased mutational response to carcinogens. *Cancer Research* **63**:5799-5807.
24. Raffoul J.J., Cabelof D.C., Nakamura J., Meira L.B., Friedberg E.C., and **A.R. Heydari** (2004). Apurinic/aprimidinic endonuclease (APE/ref-1) haploinsufficient mice display tissue-specific differences in DNA polymerase β -dependent base excision repair. *J. Biol. Chem.* 279:18425-33.
25. Cabelof D.C., Raffoul J.J., Nakamura J., Kapoor D., Abdalla H., and **A.R. Heydari** (2004). Imbalanced base excision repair in response to folate deficiency is accelerated by β -pol haploinsufficiency. *J. Biol. Chem* 279:36504-13.
26. Liu, M., Ge, Y., Cabelof, D.C., Aboukameel, A., **Heydari, A.R.**, Mohammad, R., Matherly, L.H. (2005): Structure and regulation of the murine reduced folate carrier gene: identification of 4 non-coding exons and promoters and regulation by dietary folates, *J. Biol. Chem.* 280: 5588-5597.
27. Cabelof, D.C. Nakamura J., and **Heydari, A.R.** (2006) Development of a sensitive biochemical assay for the detection of uracil in DNA. *Environmental and Molecular Mutagenesis*. 47:31-7.

29. Cabelof, D.C., Raffoul, J.J., Ge, Y., Van Remmen, H., Matherly, L.H. and **Heydari, A.R.** (2006). Age-related loss of the DNA repair response following exposure to oxidative stress. *J Gerontology, A Biol Sci. Med. Sci.* 61:427-434.
30. Cabelof, D.C., Ikeno, Y., Nyska, A., Busuttill, R.A., Anyanagwe, N., Vijg, J., Matherly, L.H., Tucker, J.D., Wilson, S.H., Richardson, A., and **Heydari A.R.** (2006) Haploinsufficiency in DNA polymerase β increases cancer risk with age and alters mortality rate. *Cancer Research* 66:7460-7465.
31. Rathod, M. Vangipuram, S.D., Krishnan, B., **Heydari, A.R.** Holland, T.C., and Dhurandhar N.V. (2007). Viral mRNA expression but not DNA replication is required for lipogenic effect of human adenovirus Ad-36 in preadipocytes. *Int. Journal of Obesity*, 31:78-86
32. Vangipuram, S.D., Yu M., Tian J., Stanhope, K.L., Pasarica, Havel, P.J., **Heydari, A.R.** and Dhurandhar N.V. (2007). Adipogenic human adenovirus-36 reduces leptin expression and secretion and increases glucose uptake by fat cells. *Int. Journal of Obesity*, 31:87-96
33. **Heydari, A.R.**, Unnikrishnan, A., Lucente, L.V., Richardson, A. (2007). Caloric restriction and genomic stability. *Nucleic Acids Res.* , 35:7485-96.
34. Unnikrishnan, A., Raffoul J.J., Patel, H.V., Prychitko, T.M., Anyangwe, N., Meira, L.B., Friedberg, E.C., Cabelof, D.C., **Heydari A.R.** (2009). Oxidative stress alters base excision repair pathway and increases apoptotic response in Apurinic/aprimidinic endonuclease 1/Redox factor-1 haploinsufficient mice. *Free Radic Biol Med.* 2009 Mar 3. [Epub ahead of print]
35. Lucente, L.V., Unnikrishnan, A., Pilling, A.B., Patel, H.V., Kushwaha, D., Dombkowski, A.A., Schmelz, E.M., Cabelof, D.C., **Heydari, A.R.** (2010). Folate deficiency provides protection against colon carcinogenesis in DNA polymerase β haploinsufficient mice. *J. Biol. Chem* 285:19246-58.
36. Unnikrishnan, A., Prychitko, T.M., Patel, H.V., Chowdhury, M.E., Pilling, A.B., Ventrella-Lucente, L.F., Papakonstantinou, E.V., Cabelof, D.C., **Heydari A.R.** (2011). Folate deficiency regulates expression of DNA polymerase β in response to oxidative stress. *Free Radic Biol Med.* 50(2):270-280.
37. Raffoul, J.J., **A. R. Heydari**, G. G. Hillman. (2012) DNA Repair and Cancer Therapy: Targeting APE1/Ref-1 Using Dietary Agents. *J Oncol.* 2012; 2012:370481.
38. Soh, J.W., Marowsky, N., Nichols, T.J., Rahman, A.M., Miah, T., Sarao, P., Khasawneh, R., Unnikrishnan, A., **Heydari, A.R.**, Silver, R.B., Arking, R. (2013). Curcumin is an early-acting stage-specific inducer of extended functional longevity in *Drosophila*. *Exp Gerontol.* 48:229-39.

39. Barnes, V.L., A. Bhat, A. Unnikrishnan, A.R. Heydari, R. Arking, L.A. Pile. (2014) SIN3 is critical for stress resistance and modulates adult lifespan. *Aging*. 6:645-60.
40. Pilling, A.B., D. Kushwaha, A. Unnikrishnan, L. F. Ventrella-Lucente, H. V. Patel, D. C. Cabelof, **Ahmad R. Heydari**. (2016) Dietary folate and epigenetic regulation of genes in base excision repair pathway. *J. Nutrition. Revision*.

(Five manuscripts in preparation on folate restriction and vitamin D, with Drs. Unnikrishnan, Khasawneh and Beydown)

30. Invited Review Articles

1. **Heydari, A.R.**, R. Takahashi, A. Gutschmann, S. You, and A. Richardson (1994). HSP70 and aging. *Experientia*, **50**: 1092-1098.
2. **Heydari, A.R.**, S. You, R. Takahashi, A. Gutschmann, K.D. Sarge, and A. Richardson (1996). Effect of caloric restriction on the expression of heat shock protein 70 and the activation of heat shock transcription factor 1. *Develop. Genetics*, **18**: 114-124.
3. Raffoul, J.J., Z. Guo, A. Soofi, and **A.R. Heydari** (1999). Caloric Restriction and genomic stability. *J. Nutr. Health and Aging*, **3**(2): 100-109.
4. **Heydari, A.R.**, Unnikrishnan, A., Lucente, L.V., Richardson, A. (2007). Caloric restriction and genomic stability. *Nucleic Acids Res.*, 35:7485-96.

31. Non-refereed Journals

1. Richardson, A., **A.R. Heydari**, W.W. Morgan, J.F. Nelson, Z.D. Sharp, and C.A. Walter (1997). The use of transgenic mice in aging research. *ILAR Journal*, 38(3): 124-136.

B. Papers Published in Conference Proceedings

1. Refereed Papers

1. **Heydari, A.R.**, and A. Richardson (1990). "The Effect of Aging and Dietary Restriction on Protein Synthesis." *In Aging and Protein Metabolism* (H.L. Segal, M. Rothstein and E. Bergamini, eds.) Alan R. Liss, Inc., New York, pp. 277-289.
2. Wu, B., **A.R. Heydari**, C.C. Conrad, and A. Richardson (1990). "The Age-Related Decline in the Induction of a Heat Shock Protein is Reversed by

Life Long Dietary Restriction." *In Liver and Aging 1990* (K. Kitani, ed.) Elsevier Biomedical Press, Amsterdam, The Netherlands, pp. 197-210.

3. **Heydari, A.R.**, and A. Richardson (1992). "Does Gene Expression Play any Role in the Mechanism of Antiaging Effect of Dietary Restriction?" *In Aging and Cellular Defense Mechanisms* (C. Franceschi, G. Crepaldi, V. J. Cristofalo, and J. Vijg, eds.) The New York Academy of Sciences, New York, pp. 384-395.

2. Non-refereed Papers

4. **Heydari, A.R.**, A. Gutschmann, S.H. You, R. Takahashi, and A. Richardson (1995). "Effect of dietary restriction on the genome function of cells; Alteration in the transcriptional apparatus of cells." *In Dietary Restriction: Implication for the Design and Interpretation of Toxicity and Carcinogenicity Studies*. (R. W. Hart, D.A. Neumann, and R.T. Robertson, eds.) International Life Sciences Institute Press, Washington, D.C. pp. 213-228.

C. Abstracts Published in Academic Journals and Conference Proceedings

1. Butler, J.A., **A.R. Heydari**, and A. Richardson (1986). Age-related changes in the synthesis and phosphorylation of proteins. *Fed. Proc.*, **45**(3):402.
2. Rao, G., **A.R. Heydari**, M. Z. Gu, S. Waggoner, and A. Richardson (1988). Effect of dietary restriction on gene expression in rodents. *FASEB J.*, **2**(6):A1209.
3. **Heydari, A. R.**, M. Ghassemi, B. Wu, L. N. Brosnahan, H. T. Cheung, and A. Richardson (1988). Induction of heat-shock proteins in cultures of rat hepatocytes and lymphocytes. *J. Cell. Biol.*, **107**(6):539a.
4. **Heydari, A. R.**, B. Wu, M. Ghassemi, and A. Richardson (1988). Effect of age on the induction of heat shock proteins in rat hepatocytes. *J. Cell Biochem. Suppl.*, **0** (12 Part D):239-297.
5. **Heydari, A.R.**, B.Wu, C.C. Conrad, and A. Richardson (1990). Age-related changes in induction of heat shock proteins by rat hepatocytes. *Gerontologist*, **30**:200A.
6. **Heydari, A.R.**, B.Wu, C.C. Conrad, and A. Richardson (1991). The effect of age and diet on expression of heat shock protein 70 gene family. *Gerontologist*, **31**:256A.

7. **Heydari, A.R.**, R. Takahashi, and A. Richardson (1992). Effect of Dietary Restriction on Age-Related Changes in Gene Expression. Proceedings of The 4th International Serling Symposium on Biology of Aging, Rehovot, Israel.
8. Richardson, A., R. Takahashi, M. Pahlavani, and **A.R. Heydari** (1993). The expression of heat shock genes is compromised with age because of transcriptional deficit. Proceedings of The XVth International Congress of Gerontology, Budapest, Hungary.
9. Takahashi, R., **A.R. Heydari**, and A. Richardson (1993). Age-related changes in induction of hsp70 transcription and activation of heat shock factor, HSF. Proceedings of The 46th Congress of Cell Biology, Japan Society for Cell Biology, Maebashi, Japan.
10. Takahashi, R., **A.R. Heydari**, and A. Richardson (1993). Induction of hsp70 transcription and heat shock factor (HSF) activity in rat hepatocytes. Proceedings of The 66th Congress of Biochemistry, The Japanese Biochemical Society, Tokyo, Japan.
11. Chauduri, J.K., A. Richardson, and **A.R. Heydari** (1995). The age-related decline in the induction of hsp70 expression in rat hepatocytes is reversed by partial hepatectomy. Clinical Research, American Federation for Clinical Research, New Orleans, LA, USA.
12. Moss, S.F., N. Arber, R. Guan., **A.R. Heydari**, S. Karjewski, J.C. Reed, and P.R. Holt (1995). Differences in epithelial apoptosis and apoptosis-related gene expression between the rat small and large intestine. *Gastroenterology* 108: (4) A741.
13. Richardson, A., and **A.R. Heydari** (1995). The decrease in hsp70 transcription with age occurs because of a defect in HSF. *J. Cell Biochem. Suppl.*, **19B**:204.
14. Guo, Z.M., **Heydari, A.R.**, and A. Richardson (1996). Effects of aging on the differential repair of DNA in the rat hepatocytes. *Gerontologist*, **36**:204.
15. Jin, W., **Heydari, A.R.**, and M.S. Katz (1997). Age-related increase of β_1 adrenergic receptor gene expression in rat liver: A potential mechanism contributing to increased β adrenergic responsiveness during aging. *79th Annual Meeting of the Endocrine Society*.
16. Richardson, A., and **A.R. Heydari** (1997). Mammals: Aging and response to stress. *FASEB Journal.*, **11**:2527.

17. Yanamadala, S., Raffoul, J.J., Soofi, A. Ganir, C., and **A.R. Heydari** (1999) Effect of age and caloric restriction on base excision repair pathway in mice and rats. *FASEB Journal.*, **13**:A234.
18. Haque, R.S., **A.R. Heydari**, and D.M. Klurfeld (2000) Altered gene expression in mammary tumors by caloric restriction detected with microarray analysis. *FASEB Journal*, **14**:A171.
19. Cabelof, DC., Yanamadala, S., Ganir, C., Soofi, A., Raffoul, J.J. and **A.R. Heydari** (2000). Up-regulation of base excision repair in response to oxidative damage. *FASEB Journal.*, **14**:A516.
20. **Haque, R.S.**, A.R. Heydari, and D.M. Klurfeld (2001) Effect of caloric restriction on gene expression in NMU-induced mammary tumors. *FASEB Journal*, **15**:A618.
21. Cabelof D.C., Guo Z.M., Raffoul J.J., Ganir C. and **A.R. Heydari** (2001). Role of β -pol-dependent base excision repair in the in vivo processing of damage induced by oxidative and alkylating agents. *FASEB Journal.*, **15**: A401.
22. Raffoul J.J., Cabelof D.C., Mehboob A., **Heydari A.R.** (2002). Effect of Age on the Upregulation of Base Excision Repair (BER) in Response to 2-Nitropropane (2-NP)-Induced Oxidative Stress. *FASEB Journal.*, **16**:A233.
23. Cabelof D.C., Raffoul J.J., Mehboob A., **Heydari A.R.** (2002) Role of p53 in the Base Excision Repair (BER) Pathway. *FASEB Journal.*, **16**:A233.
24. Cabelof D.C., Raffoul J.J., Kapoor, D., Abdalla, H., Richardson A., A.R. Heydari (2004). Failure of BER to fully respond to folate deficiency predisposes to cancer. *FASEB J.* **18**: A300
25. Anyangwe, J., Cabelof D.C., Raffoul J.J., Van Remmen, H., **A.R. Heydari** (2005). Role of p53 in regulating BER pathway. *FASEB J.* **19**: A1506.

D. Invited Seminars or Lectures Presented

- 1997:** "The Characterization of Gene Specific DNA Repair by Primary Culture of Rat Hepatocytes", Biennial Smithville DNA Repair Meeting, The University of Texas MD Anderson Cancer Center, Science Park – Research Division (Invited Speaker), May 1997.
- 1998:** "DNA repair and Cancer", Institute of Chemical Toxicology, Wayne State University (Invited Speaker), September 1998.

- 1998:** “The Use of Transgenic Models to Elucidate the Molecular Mechanism by Which Dietary Restriction Reduces the Occurrence of Cancer”, Department of Pharmaceutical Sciences, College of Pharmacy and Allied Health Professions, Wayne State University (Invited Speaker), November 1998.
- 1998:** “The Use of a DNA repair Deficient Transgenic Animal Model to study Cancer and Aging”, Department of Biochemistry, Beijing Medical University, Beijing China, June 1998.
- 1998:** “Effect of Caloric Restriction on the Expression of Heat Shock Protein 70 and the Activation of Heat Shock Transcription Factor 1, UNIVERSITEIT VAN AMSTERDAM, E.C. SLATER INSTITUUT (ECSI) BIOCENTRUM AMSTERDAM (University of Amsterdam), June 1998.
- 1998:** “The Use of a DNA repair Deficient Transgenic Animal Model to study Cancer and Aging”, The Gerontological Society of America, Philadelphia, PA, November 1998.
- 1999:** “Effect of Age and Caloric Restriction on Base Excision Repair Pathway in Mice and Rats.”, The Gerontological Society of America, San Francisco, CA, November 1999.
- 2000:** “Basic Science Breakthroughs: Update on Biochemistry and Genetics.”, 2000 Winter Workshop for Dietetic Educators in Michigan, Detroit, MI, February 2000.
- 2000:** “Age-Related Alterations in the Activation of Heat Shock Transcription Factor 1 in Rat Hepatocytes” The American Aging Association’s 30th Annual Meeting, Boston, MA, April 2000.
- 2003:** “Caloric Restriction and Carcinogenicity”. Department of Pharmaceutical Sciences. WSU, November 2003.
- 2004:** “Age-related decline in base excision repair as mechanism for decreased genomic stability with age” American Aging Association Annual Meeting, St. Petersburg, Florida.
- 2005:** “Base Excision Repair Pathway, Aging and Genomic Instability.” Nathan Shock Aging Center, Department of Pathology, University of Washington, Seattle, Washington.
- 2006:** “Nutrition intervention and cancer: The impact of base excision repair pathway.” Department of Microbiology, Southern Illinois University, Carbondale, Illinois.

- 2007:** “Nutrition and Cancer” Department of Biological Sciences and College of Liberal arts and Sciences, Illinois State University, Normal, Illinois
- 2008:** “*Nutrition Intervention, Aging and Cancer: The Impact of the Base Excision Repair Pathway*”, Barshop Institute for Longevity and Aging Studies, University of Texas Health Science Center at S.A., Texas Research Park Campus, San Antonio Texas.
- 2013:** “*The Role of Folate Deficiency in the Altered Homeostasis of Base Excision Repair and its Significance for Age-Related Cancers*” American Society of Neurochemistry and International Society of Neurochemistry, Cancun, Mexico.

SERVICE

A. Committee Assignment

1. University Committee Membership

Y2K Compliance Committee (Representative of Dept. of Nutrition & Food Science)
Member of the Scholarships and Fellowship Review Panel (1999, 2000, 2001)
Graduate-Professional Scholarship (2003-5)
Thomas C. Rumble University Graduate Fellowship
Speaker at the November 30th, 2007 seminar entitled “Helpful Tips on Achieving Promotion and Tenure at WSU” hosted by the Office of the Vice President for Research and the Office of the Provost and the Graduate School. The seminar featured advice from chairs and recently tenured or promoted faculty. (2007)
Reviewer for the “Undergraduate Research Grant for Undergraduate Students” (2007-2008)
Wayne State University, Biological Science (life sciences) grants Review Committee (2009, 2010)
Wayne State University, Faculty Research Advisory Committee, Office of Vice President of Research, WSU (2010-2016)

2. College/Department Committee Membership

College of Science Elections Committee, member (2001)
College of Science Elections Committee, member (2002)
College of Science Nominee for The University Research Grant Committee for Biology (2003)
College of Liberal Arts and Sciences Merit/Salary Committee, (2005-2006)
College of Liberal Arts and Sciences Faculty Council's Curriculum Committee (2005-2009)
College of Liberal Arts and Sciences Research and Scholarship Committee (2006-2008)
College of Liberal Arts and Sciences Technology Committee (2006-2007)

Organizer of the **CLAS Grant Writing Workshop** (2007) was held on WSU
Campus/Dean's office in fall 2007.
College of Liberal Arts and Sciences Faculty Council's Curriculum Committee (2007-
2013)
Graduate Officer, Department of Nutrition and Food Science (2008-2011)
Chair, Department of Psychology chair review committee (2010)
Chair, Department of History Chair Search Committee (2015)

B. Position Held in Professional Association

AFAR's (American Federation for Aging Research)
National Scientific Advisory Council (NSAC).

C. Journal/Editorial Activity

Journal Review (selected):	The Journals of Gerontology American Journal of Physiology Journal of Applied Physiology Neurobiology of Aging Journal of Nutrition Mechanism of Aging and Development Journal of Biological Chemistry
Grants review:	NIH/NCI American Federation for Aging Research Nathan Shock Aging Center, UTHSC-San Antonio