

BIOGRAPHICAL SKETCH

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NAME Weiguo Cao		POSITION TITLE Professor	
eRA COMMONS USER NAME (credential, e.g., agency login)			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Wuhan University, Wuhan, P. R. China	B.S.	07/83	Biochemistry
University of Idaho, Moscow, Idaho, USA	Ph.D.	09/92	Microbiology
Weill Cornell Medical College of Cornell University, New York, USA (Formally Cornell University Medical College)	Postdoc	1992-1997	Biochemistry, Mol. Biol.

Positions and Honors**Positions and Employment**

2011-Present Professor, Dept. of Genetics and Biochemistry, Clemson University, Clemson, South Carolina
 2006-2011 Associate Professor, Dept. of Genetics and Biochemistry, Clemson University, Clemson, South Carolina
 2000-2006 Assistant Professor, Dept. of Genetics and Biochemistry, Clemson University, Clemson, South Carolina
 1997-2000 Research Associate and Instructor, Department of Microbiology, Weill Medical College of Cornell University, New York, New York
 1992-1997 Postdoctoral Fellow, Department of Microbiology, Weill Medical College of Cornell University, New York, New York
 1988-1992 Research Assistant, Department of Microbiology, Molecular Biology, and Biochemistry, University of Idaho, Moscow, Idaho.
 1983-1988 Research & Teaching Assistant, Department of Nutrition and Food Hygiene, Tongji Medical University, Wuhan, P. R. China.

Other Professional Experience

1999 Grant reviewer for the Petroleum Research Fund (American Chemical Society)
 2005 NIH-NCI "Innovative technologies for the molecular analysis of cancer" Review Panels
 2006-2007 Grant reviewer for USDA
 2007-2008 Grant reviewer for DoD
 2012 Grant reviewer for USDA
 2007-Present Grant reviewer for NASA
 2014-Present Grant reviewer for NSF

Textbook Reviewer

2013 Sandler Biochemistry, Oxford University Press
 2012-Present GRE Biochemistry, Cell and Molecular Biology test writing and review
 2012 Pratt Essential Biochemistry, 3rd Edition, Wiley
 2010 Voet, Voet and Pratt *Fundamentals of Biochemistry* Test Bank, Wiley

Editorial Service

2013-2014 Guest Editor for Special Issue "Stresses, Aging, and Age-Related Disorders", Oxidative Medicine and Cellular Longevity.
 2012-2013 Guest Editor for Special Issue "Molecular Cut and Paste" in International Journal of Molecular Sciences.

Honors and Awards

2001-2002	Ralph E. Powe Junior Faculty Enhancement Award
1998	Young Investigator Award, FASEB Nucleic Acid Enzymology meeting
1997	Computational Genomics Course Scholarship, Cold Spring Harbor Laboratory
1993-1995	Charles H. Revson Foundation Fellow in Biomedical Research
1981-1982	"Excellent Student Award" recipient, Wuhan University, P. R. China
1980-1981	"Excellent Student Award" recipient, Wuhan University, P. R. China
1977-1979	Wuhan Mathematics Olympics finalist, P. R. China

Selected Peer-Reviewed Publications

- Kucukkal, T., Yang, Y., Chapman, S.³, **Cao, W.**³, Alexov, E.³ (2014) Computational and experimental approaches to reveal the effects of single nucleotide polymorphisms with respect to disease diagnostics, *International Journal of Molecular Sciences*, 15: 9670-9717.
- Xia, B., Liu, Y., Li, W., Brice, A.R., Dominy, B.N., **Cao, W.**, (2014) Specificity and Catalytic Mechanism in Family 5 Uracil DNA Glycosylase, *J. Biol. Chem.* 289: 18413-18426.
- **Cao, W.**, (2013) Endonuclease V: An Unusual Enzyme for Repair of DNA Deamination, *Cellular and Molecular Life Sciences*, Invited Review, 70: 3145-3156.
- Mi, R.¹, Alford-Zappala, M., Kow, Y. W., Cunningham, R. P., and **Cao, W.**, (2012) Human endonuclease V as a repair enzyme for DNA deamination, *Mutation Research* 735: 12-18.
- Lee, H. W.¹, Dominy, B. N., and **Cao, W.**, (2011) A New Family of Deamination Repair Enzymes in the Uracil DNA Glycosylase Superfamily, *J Biol Chem*, 286: 31282-31287. (Highlighted in Spotlight, *Chemical Research in Toxicology*, 24: 1161).
- Lee, H.-W.¹, Brice, A. R.¹, Wright, C. B.², Dominy, B. N. and **Cao, W.**, (2010). Identification of Escherichia coli MUG as a Robust Xanthine DNA Glycosylase, *J Biol Chem*, 285: 41483-41490.
- Dalhus, B., Arvai, A. S., Rosnes, I., Olsen, O. E., Backe, P. H., Alseth, I., Gao, H.¹, **Cao, W.**, Tainer, J. A., and Bjoras, M., (2009) Structures of endonuclease V with DNA reveal initiation of deaminated adenine repair, *Nat Struct Mol Biol*, 16: 138-143 (News & Views, *Nat Struct Mol Biol*, 16: 102-104).
- Mi, R.¹, Dong, L.¹, Kaulgud, T.¹, Hackett, K. W.², Dominy, B. N., and **Cao, W.**, (2009) Insights from xanthine and uracil DNA glycosylase activities of bacterial and human SMUG1: switching SMUG1 to UDG, *J Mol Biol* 385: 761-778.
- Dong, L.¹, Mi, R.¹, Glass, R. A.², Barry, J. N.², and **Cao, W.**, (2008) Repair of deaminated base damage by *Schizosaccharomyces pombe* thymine DNA glycosylase, *DNA Repair*, 7: 1962-1972.
- Dong, L.¹, Meira, L. B., Hazra, T. K., Samson. L. D. and **Cao, W.** (2008) Oxanine DNA Glycosylase Activities in Mammalian Systems, *DNA Repair*, 7: 128-134.
- Lin, J.¹, Gao, H.¹, Schallhorn, K. A.¹, Harris, R. M.², **Cao, W.**, and Ke, P.-C. (2007) Lesion Recognition and Cleavage by Single Endonuclease V, *Biochemistry*, 46: 7132-7137.
- Gao, H.¹, Huang, J., Barany, F., and **Cao, W.**, (2007) Switching Base Preferences of Mismatch Cleavage in Endonuclease V, *Nucleic Acids Res.*, 35: e2.
- Feng, H., Dong, L.¹ and **Cao, W.**, (2006) Catalytic Mechanism of Endonuclease V: A Catalytic and Regulatory Two-Metal Model, *Biochemistry*, 45: 10251-10259.

Program Director/Principal Investigator (Last, First, Middle):

- Feng, H., Dong, L.¹, Klutz, A. M.², Aghaebrahim, N. and **Cao, W.**, (2005) Defining Amino Acid Residues Involved in DNA-protein Interactions and Revelation of 3'-Exonuclease Activity in Endonuclease V, *Biochemistry*. 44: 11486-11495.
- Feng, H., Klutz, A. M.² and **Cao, W.**, (2005) Active Site Plasticity of Endonuclease V from Salmonella typhimurium. *Biochemistry*, 44: 675-683.
- Hitchcock, T. M.¹, Gao, H. and **Cao, W.**, (2004) Cleavage of Deoxyoxanosine-Containing Oligodeoxyribonucleotides by Bacterial Endonuclease V. *Nucleic Acids Res.*, 32: 4071-4080.
- Hitchcock, T. M.¹, Dong, L.¹, Connor, E. E.¹, Meira, L. B., Samson, L. D., Wyatt, M. D. and **Cao, W.**, (2004) Oxanine DNA Glycosylase Activity from Mammalian AlkylAdenine Glycosylase. *J. Biol. Chem.*, 279: 38177-38183.

Book Chapters

- **Cao, W.** (2004) High-Fidelity Thermostable DNA Ligases as a Tool for DNA Amplification, in *DNA Amplification: Current Technologies & Applications*, N. E. Broude and V. V. Demidov (ed.), Horizon Bioscience: Norfolk, UK. pp. 25-58.
- **Cao, W.** (2000). Mutation detection_methods and progress. *In Principle and Practice of Gene therapy* B. Du (ed.), Tianjing Science & Technology Publishing House, Tianjing (China). 48-66.

Patents

- Barany, F., **Cao, W.**, Huang, J., and Lu, J. Detection of Nucleic Acid Differences Using Combined Endonuclease Cleavage and Ligation Reactions. U. S. Patent and Trademark Office, No. 7,198,894, awarded April 3, 2007.
- Barany, F., **Cao, W.**, and Tong, J. High Fidelity Thermostable Ligase and Uses Thereof. U. S. Patent and Trademark Office, No. 6,949,370, awarded September 27, 2005.
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