

I - ADIPONECTIN

Original discoveries:

1. **Wang Y**, Xu A*, Knight C, Xu LY, Cooper GJ. Hydroxylation and glycosylation of the four conserved lysine residues in the collagenous domain of adiponectin. Potential role in the modulation of its insulin-sensitizing activity. *Journal of Biological Chemistry* 2002 May 31;277(22):19521-19529.
2. Xu A*, **Wang Y**#, Keshaw H, Xu L, Lam KS, Cooper GJ. The fat-derived hormone adiponectin alleviates alcoholic and nonalcoholic fatty liver diseases in mice. *Journal of Clinical Investigation* 2003 Jul;112(1):91-100. (#Co-first author)

Follow-up studies on structural characterization of adiponectin:

1. **Wang Y**, Lu G, Wong W, Vliegenthart H, Gerwig GJ., Lam KS, Cooper GJ, Xu A*. Proteomic and functional characterization of endogenous adiponectin purified from fetal bovine serum. *Proteomics* 2004 Dec;4(12):3933-3942.
2. **Wang Y***, Lam KS, Xu JY, Lu G, Xu LY, Cooper GJ, Xu A. Adiponectin inhibits cell proliferation by interacting with several growth factors in an oligomerization-dependent manner. *Journal of Biological Chemistry* 2005 May 6;280(18):18341-18347.
3. **Wang Y***, Lam KS, Chan L, Chan KW, Lam JB, Lam MC, Hoo RC, Mak WW, Cooper GJ, Xu A. Post-translational modifications of the four conserved lysine residues within the collagenous domain of adiponectin are required for the formation of its high molecular weight oligomeric complex. *Journal of Biological Chemistry* 2006 Jun 16;281(24):16391-16400.
4. **Wang Y***, Xu LY, Lam KS, Lu G, Cooper GJ, Xu A. Proteomic characterization of human serum proteins associated with the fat-derived hormone adiponectin. *Proteomics* 2006 Jul;6(13):3862-3870.
5. Radjainia M, **Wang Y** and Mitra AK*. Structural polymorphism of oligomeric adiponectin visualized by electron microscopy. *Journal of Molecular Biology*, 2008 Aug 29;381(2):419-30. doi: 10.1016/j.jmb.2008.06.015.
6. Radjainia M, Huang B, Bai B, Schmitz M, Yang SH, Harris P, Griffin M, Brimble M, **Wang Y***, Mitra A*. A highly conserved tryptophan in the N-terminal variable domain regulates rate of disulfide bond formation and oligomeric assembly of adiponectin. *FEBS Journal* 2012 Jul;279(14):2495-2507. doi: 10.1111/j.1742-4658.2012.08630.x.
7. Hampe L, Radjainia M, Xu C, Harris PW, Bashiri G, Goldstone DC, Brimble MA, **Wang Y**, Mitra AK*. Regulation and quality control of adiponectin assembly by endoplasmic reticulum chaperone ERp44. *Journal of Biological Chemistry* 2015 Jul 17;290(29):18111-18123. doi: 10.1074/jbc.M115.663088.

Follow-up studies on functional characterization of adiponectin:

1. **Wang Y***, Lam JB, Lam KS, Liu J, Lam MC, Hoo RL, Wu D, Cooper GJ, Xu A. Adiponectin modulates the glycogen synthase kinase-3 β / β -catenin signaling pathway and attenuates mammary tumorigenesis of MDA-MB-231 cells in nude mice. *Cancer Research* 2006 Dec 1;66(23):11462-11470.
2. Zhou M, Xu A, Tam PK, Lam KS, Chan L, Hoo RL, Liu J, Chow KH and **Wang Y***. Mitochondria dysfunction contributes to the increased vulnerabilities of adiponectin knockout mice to liver injury. *Hepatology* 2008 Oct;48(4):1087-96. doi: 10.1002/hep.22444.
3. Liu J, Lam JB, Chow KH, Xu A, Lam KS, Moon RT and **Wang Y***. Adiponectin stimulates Wnt inhibitory factor-1 expression through epigenetic regulations involving the transcription factor specificity protein 1. *Carcinogenesis* 2008 Nov;29(11):2195-202. doi: 10.1093/carcin/bgn194.
4. Lam JB, Chow KH, Xu A, Lam KS, Liu J, Wong NS, Moon RT, Shepherd PR, Cooper GJ and **Wang Y***. Adiponectin haploinsufficiency promotes mammary tumor development in MMTV-

- PyVT mice by modulation of phosphatase and tensin homolog activities. PLoS ONE 2009;4(3):e4968. doi: 10.1371/journal.pone.0004968. Epub 2009 Mar 25.
5. Zhou M, Xu A, Lam KS, Tam PK, Che CM, Chan L, Lee IK, Wu D, **Wang Y***. Rosiglitazone promotes fatty acyl CoA accumulation and excessive glycogen storage in livers of mice without adiponectin. Journal of Hepatology 2010 Dec;53(6):1108-1116. doi: 10.1016/j.jhep.2010.05.034.
 6. Zhou M, Xu A, Tam PK, Lam KS, Huang B, Liang Y, Lee IK, Wu D, **Wang Y***. Upregulation of UCP2 by adiponectin: the involvement of mitochondrial superoxide and hnRNP K. PLoS One 2012;7(2):e32349. doi: 10.1371/journal.pone.0032349.
 7. Liu J, Xu A, Lam KS, Wong NS, Chen J, Shepherd PR, **Wang Y***. Cholesterol-induced mammary tumorigenesis is enhanced by adiponectin deficiency: role of LDL receptor upregulation. Oncotarget 2013 Oct;4(10):1804-1818.
 8. Hui X, Gu P, Zhang J, Nie T, Pan Y, Wu D, Feng T, Zhong C, **Wang Y**, Lam KS, Xu A*. Adiponectin enhances cold-induced browning of subcutaneous adipose tissue via promoting M2 macrophage proliferation. Cell Metabolism 2015 Aug 4;22(2):279-290. doi: 10.1016/j.cmet.2015.06.004.
 9. Hampe L, Xu C, Harris PW, Chen J, Ming L, Middleditch M, Radjainia M*, **Wang Y***, and Mitra AK*. Obesity-related metabolic disorders mitigated by peptides designed to modulate adiponectin assembly. British Journal of Pharmacology 2017 Dec;174(23):4478-4492. DOI: 10.1111/bph.14050.

Peer-reviewed periodical updates of the field by invitation:

1. **Wang Y***, Lam KS, Xu A. Adiponectin as a negative regulator in obesity-related mammary carcinogenesis. Cell Research 2007 Apr;17(4):280-282.
2. **Wang Y**, Lam KS, Yau MH, Xu A*. Post-translational modifications of adiponectin: mechanisms and functional implications. Biochemical Journal 2008 Feb 1;409(3):623-33. doi: 10.1042/BJ20071492.
3. **Wang Y***, Lam KS, Xu A. Adiponectin and chronic liver diseases: an update, in Adiponectin: Production, Regulation and Roles in Disease, publisher: Nova Science. 2012 (Book Chapter)
4. Li D, Cao H, Chen J, Liu M, **Wang Y***. Adiponectin-based therapeutics in cancer treatment, in *Frontiers in Clinical Drug Research- Anti Cancer Agents, Vol. 4*. Dr. Atta-ur- Rahman (Ed.) Bentham Science. 2017 (Book Chapter) DOI: 10.2174/9781681084817117040007