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Professor
Department of Biological Sciences



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Key Words Phosphorylation, Ubiquitination, Autophagy, mTOR signaling, Nutrient sensing

Research Area Phosphorylation and ubiquitination are reversible post-translational modifications with key roles in various signal transduction cascades. Currently, cancer cell-specific metabolic adaptation is a hot issue to be addressed. The mammalian target of rapamycin (mTOR) signaling pathway integrates both intracellular and extracellular signals and serves as a central regulator of cell metabolism, growth, proliferation and survival. The mTOR pathway is activated during various cellular processes such as tumor formation and angiogenesis, insulin resistance, adipogenesis and is deregulated in human diseases such as cancer and diabetes. Although ubiquitination of target protein plays a critical role in other cellular activity during tumorigenesis, little is known about functional relevance of ubiquitin-mediated coordination of mTOR pathway and autophagy induction. So we have interested in the deciphering molecular networks of signaling pathway particularly associated with human diseases caused by malfunction of nutrient sensing.

Education

- 1995 PhD Department of Molecular Biology, Seoul National University
- 1990 MSc Department of Molecular Biology, Seoul National University
- 1987 BSc Department of Zoology, Seoul National University

Experience

- 2012 - present Professor, Dept. of Biological Sciences, Sungkyunkwan University
- 2006 - 2012 Associate Professor, Dept. of Biological Sciences, Sungkyunkwan University
- 2002 - 2006 Assistant Professor, Dept. of Biological Sciences, Sungkyunkwan University
- 1997 - 2001 Postdoc., Lab. of Molecular Cardiology, National Institutes of Health, USA
- 1995 - 1996 Postdoc., Research Center for Cell Differentiation, Seoul National University

Position

- 2012-2013 Editorial board member, Oncogene (SCI journal)
- 2012-present Editorial board member, Biomedical Research International (SCI journal)
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Selected Publication

- WIP1, a Homeostatic Regulator of the DNA Damage Response, Is Targeted by HIPK2 for Phosphorylation and Proteasomal Degradation (2013) Mol. Cell 51(3):374-385.
- SERBP1 affects homologous recombination-mediated DNA repair by regulation of CtIP translation during S phase (2015) Nucl Acids Res. 43, 6321-6333.
- HIPK2 Modification Code for Cell Death and Survival (2014) Mol. Cell Onc. 1(2):e95599-1.
- Mdm2 associates with Ras effector NORE1 to induce the degradation of oncoprotein HIPK1 (2012) EMBO Rep. 13(2):163-169.
- WDR11, a WD protein that interacts with transcription factor EMX1, is mutated in idiopathic hypogonadotropic hypogonadism and Kallmann syndrome (2010) Am J Hum Gen. 87(4):465-479.

Others

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