

## Regulation of HIF1 $\alpha$ expression by a natural compound; a new hnRNP involvement

Bo Yeon Kim<sup>1</sup>, Yukihiro Asami<sup>1</sup>, Nak Kyun Soung<sup>1</sup>, Hae Min Kim<sup>1</sup>, Jae Hyuk Jang<sup>1</sup>, N.R. Themmegowda<sup>1</sup>, Jong Seog Ahn<sup>1</sup> and Kyung Lee<sup>2</sup>

<sup>1</sup>Korea Research Institute of Bioscience & Biotechnology, Korea

<sup>2</sup>Department of Pharmacology, Dongkook University, Korea

Hypoxia induces HIF1 $\alpha$  expression, leading to the malignant cell transformation. In screening of inhibitors against HIF1 $\alpha$  expression using a reporter gene assay system, a moracin derivative, MOA, was found to strongly reduce the level of HIF1 $\alpha$  in HeLa cells both in hypoxia-mimetic CoCl<sub>2</sub> treatment and under hypoxic conditions. Identification of binding proteins using agarose-bead conjugated MOA (AC-685) combined with subsequent MS data revealed several proteins affected by MOA. AC-685 co-localized with a nuclear hnRNPX protein in CoCl<sub>2</sub> treated HeLa cells. Amongst several cytoplasmic or nuclear proteins, hnRNPX was only found to be responsible for CoCl<sub>2</sub>-induced HIF1 $\alpha$  expression as supported by siRNA depletion of the protein. Cancer growth was also found to be reduced in a genograft animal model. This study suggests that regulation of HIF1 $\alpha$  expression by MOA under the control of hnRNP would be a novel approach to cancer treatment in hypoxic environment.

### Biography:

Dr. Bo Yeon Kim got Ph.D degree at Seoul National University in 1996. After the research fellow experience at Georgetown University, 2000-2003, he continued his work at Korea Research Institute of Bioscience & Biotechnology (KRIBB) for about 26 yrs so far. Major research focuses on identification of new cancer signaling pathways and development of a new anticancer drug with low side effect. In recent 5 years, He has made more than 65 publications, including Nature Cell Biology (2015), Autophagy (2016, 2013), Proc Natl Acad Sci, USA (2013), J Am Chem Soc (2011), J Biol Chem (2013, 2012), and under revision papers (Nature Communications, EMBO Reports, Autophagy) as a corresponding author.