CV

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Education

1988-1992	B. A., Microbiology, Seoul National University, Korea
1992-1994	M. S., Microbiology, Seoul National University, Korea
1994-1998	Ph.D., Biochemistry, Oxford University, UK

Major Activities

1999-2001	Postdoctoral Fellow, Howard Hughes Medical Institute, University of Pennsylvania, USA
2001-2004	Research Assistant Professor, Seoul National University, Korea
2004-2008	Assistant Professor, Seoul National University, Korea
2008-2013	Associate Professor, Seoul National University, Korea
2010-present	Editorial Board, *Cell*
2010-present	SNU Distinguished Fellow, Seoul National University, Korea
2011-present	Editorial Board, *EMBO Journal*
2012-present	Director, Center for RNA Research, Institute for Basic Science, Korea
2012-present	Editorial Board, *Genes & Development*
2012-present	Foreign Associate Member, EMBO
2013-present	Professor, Seoul National University, Korea

Honors and Awards

2007	Thomson Scientific Citation Award
2007	Young Scientist Award, Korea
2007	Woman Scientist of the Year, Korea
2008	L'Oreal-UNESCO Women in Science Award,
2009	Ho-Am Prize in medicine, Korea
2010	Amore Pacific the Grand Prize, Korea
2010	National Honor Scientist, Korea
2013	The Korea S&T Award, Korea

Research Interests

RNA-mediated gene regulation, microRNA biogenesis and function, Regulatory non-coding RNA, RNA-protein network, Stem cells and fate decision

Publications (Most representative 10 items)

1. Lee Y., Ahn C., Han J., Choi H., Kim J., Yim J., Lee J., Provost P., Rådmark O., Kim S., and Kim V.N. 2003. The Nuclear RNase III Drosha Initiates MicroRNA Processing. ***Nature*** 425:415-419.
2. Han J., Lee Y., Yeom K.H., Nam J., Lee K., Sohn S., Cho Y., Zhang B., and Kim V.N. 2006. Molecular Basis for Primary MicroRNA Processing by the Drosha-DGCR8 complex. ***Cell*** 125:887-901.
3. Heo I., Joo C, Cho J., Ha M., Han J. and Kim V.N. 2008. Lin28 mediates the terminal uridylation of let-7 precursor microRNA. ***Molecular Cell*** 32:276-284.
4. Han J., J. S. Pederson, Kwon S. C., C. D. Belair, Kim Y. K., Yeom K. H., Yang W. Y., D. Haussler, R. Blelloch, and Kim V.N. 2009. Posttranscriptional crossregulation between Drosha and DGCR8. ***Cell*** 136:75-84.
5. Heo I., Joo C., Kim Y.K., Ha M., Yoon M.J., Cho J., Yeom K.H., Han J. and Kim V.N. 2009. TUT4 in Concert with Lin28 Suppresses MicroRNA Biogenesis through Pre-MicroRNA Uridylation. ***Cell*** 138:696-708.
6. Hyun S., Lee J. H., Jin H., Nam J.W., Namkoong B., Lee G., Chun J., and Kim V.N. 2009. Conserved microRNA miR-8/miR-200 and its target USH/FOG2 control growth by regulating PI3K. ***Cell*** 139:1096-1108.
7. Park J.E., Heo I., Y. Tian, D. K. Simanshu, Chang H., D. Jee, D. J. Patel and Kim V.N. 2011. Dicer recognizes the 5' end of RNA for efficient and accurate processing. ***Nature*** 475:201-205
8. Heo I., Ha M., Lim J., Yoon M., Park J.-E., Kwon S. C., Chang H., and Kim V. N. 2012. Monouridylation of pre-microRNA as a key step in the biogenesis of group II let-7 microRNAs. ***Cell*** 151: 521-532.
9. Cho J., Chang H., Kwon S. C., Kim B., Kim Y., Choe J., Ha M., Kim Y. K., and Kim V. N. 2012. LIN28A is a suppressor of ER-associated translation in embryonic stem cells. ***Cell*** 151: 765-777.
10. Kwon S. C., Yi H., Eichelbaum K., Föhr S., Fischer B., You K. T., Castello A., Krijgsveld J., Hentze M. W., and Kim V. N. 2013 The RNA-binding protein repertoire of embryonic stem cells. ***Nature Structural and Molecular Biology***, in press.

The RNA-Binding Protein Repertoire of Embryonic Stem Cells

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RNA-binding proteins (RBPs) play essential roles in RNA-mediated gene regulation, and yet the current annotation of RBP is largely limited to those with known RNA-binding domains. To systematically identify the RBPs of embryonic stem cells (ESCs), we here employ "interactome capture", which combines UV-crosslinking of RBP to RNA in living cells, oligo(dT) capture, and mass spectrometry. From mouse ESCs, 555 proteins are defined to constitute the mESC mRNA-interactome, which includes 283 proteins not previously annotated as RBPs. Interestingly, 68 novel RBP candidates are highly expressed in ESCs compared to differentiated cells, implicating their roles in stem cell physiology. Among them, two well-known E3 ubiquitin ligases, Trim25 (or Efp) and Trim71 (or Lin41), are validated as RBPs, revealing a potential link between RNA biology and protein modification pathways. Our study confirms and expands the atlas of RBPs, providing a valuable resource for the study of RNA-RBP networks in stem cells.

Keywords : microRNA, non-coding RNA, RNA interference, RNA-binding protein