

## Proper autophagy is indispensable for early embryonic morphogenesis

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People have known that autophagy plays a very important role in many physiological and pathological events. But autophagy role on embryonic morphogenesis still remains obscure. Using embryonic chick and mouse models, we first demonstrated that autophagy relevant genes such as *Atg7*, *Atg8* and *Beclin1* express in many germ layers at gastrula embryos, implying that autophagy might be involved in those embryonic morphogenesis. Further interference of autophagy with autophagy inhibitor or activator could lead the malformations of heart tube, abnormal cell migration and differentiation of neural crest cells, improper angiogenesis etc. Down-regulation or up-regulation of *Atg7* gene also caused the similar phenotypes *in vivo* and *in vitro*. The corresponding mechanisms for each dysplasia were investigated in further detail. Taken together, our

experimental data revealed that autophagy is indeed involved in regulating the crucial gene regulation and corresponding morphogenesis at early embryo development.

### Speaker Biography

Xuesong Yang is currently working as a Professor at Jinan University Medical College, China. He received his Bachelor's and Master's degree from Harbin Medical University, China and then received his Doctorate from Tokyo Medical and Dental University School of Medicine, Japan. After having worked in University of Manchester and University of Dundee, UK for 11 years, he took the position at Jinan University Medical College. His research interests contain: exploring embryos as the possible models for stem cell applications on regenerative medicine, the regulations of coordinated signaling pathways on mesoderm and neural crest cell migration during gastrula embryo development, the investigation of gene-regulatory elements on birth defects. So far, he has published 86 SCI scientific papers including *Developmental Cell*, *PNAS*, *Current Biology and Development*, *Developmental Biology and Oncogene*.

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