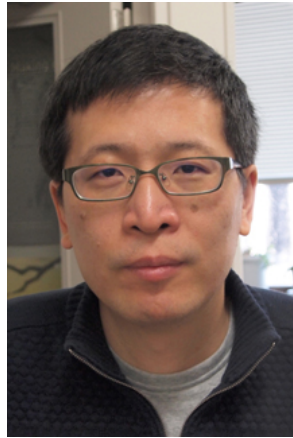


## Keynote Talk 2



**Guojun Sheng**

Team Leader of Laboratory for Early Embryogenesis, Center for Developmental Biology  
The Institute of Physical and Chemical Research (RIKEN)

**Title of the keynote talk:**

**The Primitive Streak:**

**--- An Interface between Technology, Embryology and Morality**

**Abstract of the keynote talk:**

The primitive streak is a transitory structure in human embryonic development where the earliest signs of pluripotency loss and tissue differentiation are observed. Its appearance is viewed by government regulatory bodies as the beginning of human individuality in ethical and moral debates. Technological advances in ES/iPS cell biology have made it easy to revert terminally differentiated cells back to this peri-pluripotent/primitive streak state, bringing modern biology to an uncharted territory with equal promises and challenges. In this talk, I will give an embryological overview of the primitive streak and of how it turns pluripotent epiblast cells into mesoderm cells (bones, muscles and blood). I will also present our recent data on generating ectopic primitive streak and creating conjoined twins using animal models. Finally, I will discuss how future technological improvement can maximize social benefits and minimize moral dilemma of breakthroughs in biological research.

**Biography:**

Dr. Sheng is a Team Leader at Center for Developmental Biology, RIKEN. His lab is interested in understanding molecular and cellular mechanisms regulating early vertebrate development, with a focus on the formation and differentiation of the mesoderm germ layer. He is also exploring the interface between evolution and developmental biology, and that between embryology and technology. Dr. Sheng received his undergraduate training in biology from Fudan University in China and studied developmental genetics at the Rockefeller University in New York for his doctoral thesis. He did his postdoctoral work at the Columbia University Medical Center and University College London, and has been running a lab on early embryogenesis at RIKEN CDB in Kobe since 2004.