

**Abstract (600 word limits)**

**Title: The roles of Wnt/ $\beta$ -catenin pathway in heart development and aging**

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The heart is the first organ that forms and functions during embryonic development and is one of the organs most closely related to human health. In the early 1990s, the author was the first to demonstrate that canonical Wnt signaling controls the embryonic heart development using fruit fly model[1], and thus the signaling was introduced into the cardiac development field. Our finding was further proved by other studies with vertebrate models such as *Xenopus*, zebrafish and mice. Nowadays, Wnt signaling has become one of the most important signaling pathways in the cardiac development field. However, it was found that studies with different animal models and even in the same animal model can lead to opposed findings. For example, the author demonstrated that canonical Wnt signaling promotes cardiac development in *Drosophila*, while the others showed that it inhibits the heart development in vertebrate[2]. The two contradictory conclusions about the role of canonical Wnt signaling in the regulation of heart development were not solved until 2007[3]. However, in the same year, it emerged as a new paradox that canonical Wnt signaling activates or inhibits cellular aging[4-5]. Here our studies on the unresolved question of canonical Wnt signaling regulation in cardiac aging, and on the novel co-factors of the canonical Wnt signaling for cardiac development will be discussed based on our recent findings.

**Key words:** canonical Wnt signaling, heart development, heart failure, novel co- factors

### Biography (200 word limit)

Xiushan Wu completed his PhD from Stockholm University in 1986-1990, postdoctoral studies from Michigan University and etc in 1990-1994 and Scientist in Karolinska Institute in 1994-2000. He is the Director and Professor of The Center for Heart Development, Hunan Normal University. His research focuses on understanding the mechanisms by which embryonic heart is developed using Drosophila, zebrafish and mice as models. He has published more than 350 papers including over 110 SCI papers.

### References (With Hyperlink)

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