

International Conference and Exhibition on **Pediatric Cardiology** August 25-27, 2015 Valencia, Spain

Myocardium formation after the development of the linear heart tube

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Over the last decade, knowledge on the formation of the heart has advanced substantially. It was long thought that within the linear heart tube, which is formed during the third week after fertilization in humans, all future adult cardiac compartments were already segmentally present. However, extensive molecular analyses in experimental animals have shown that the initially formed linear heart tube only comprises the left side of the interventricular septum and a small part of the left ventricular wall. During subsequent development, the linear heart tube lengthens by the recruitment of mesodermal cells that differentiate into the myocardial lineage at both the arterial and venous poles. To discriminate the mesodermal cells that contribute to the forming heart at both distal borders of the heart tube, they are often dubbed the first and second heart fields. Within this lengthening heart tube, the cardiac chambers are formed by local differentiation and proliferation. The latter concept is summarized in the ballooning model of heart development. In this presentation new insights in this field will be discussed.

Biography

Maurice J B van den Hoff obtained his PhD in 1994 from the University of Amsterdam: "Isolation and characterization of the rat carbamoylphosphatesynthetase I gene". After moving to the field of heart development with Prof. Moorman, he established his own group focusing on heart muscle cell formation and epicardial development after the formation of the linear heart tube. As a visiting scientist he has developed a tight collaboration with the Medical University of South Carolina in Charleston (US). Currently, he is Vice-Chair of the Department of Anatomy, Embryology & Physiology and AMC Principle Investigator and has published in excess of 86 papers (h-index 29) in peer-reviewed journals.

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