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Modified mechano-perception and altered mechanical stress: Novel insights in stenotic valve and bypass pathology

Maurizio Pesce

Centro cardiologico Monzino-IRCCS, Italy

The role of mechanical forces in establishment and progression of the stenotic aortic valve pathology and the vein bypass graft failure has remained underestimated until few years ago. Today, the availability of engineering systems able to mimic the mechanical forces acting in these pathologies makes possible to perform *ex vivo* studies with human-derived cardiovascular tissues and stem cells isolated from the cardiovascular system. While this contributes to the comprehension of the molecular events underlying the pathology progression, it also significantly contributes to the devise of human tissue 'conditioning protocols' and of advanced tissue engineering strategies able to impact on the outcome of these outstanding pathologies. Our group has a R&D program in cardiovascular tissue engineering exploiting the latest advancements in the design of bioreactors and lab-on-chip devices, with the aim at investigating the mechanical causes of human aortic valve stenosis and the venous bypass failure. During the course of the presentation, original/unpublished results will be presented and discussed in the context of the latest advancements in molecular progression of these pathologies.

Biography

Maurizio Pesce is a tenured Senior Scientist with a Group Leader appointment. He holds a Bachelor of Sciences (Biology) and a Doctorate in Embryology. During the initial stages of his career, Dr. Pesce has been working on germ cell/pluripotent stem cells biology. Since 2001 he works on cardiovascular regenerative medicine and tissue engineering. He serves as an Editor in five International Journals and acts/acted as a Reviewer in more than 15 international Journals. He has been involved in EU/National Grant Reviewing Systems. He has authored 55 peer-reviewed articles and 7 book chapters. He has participated as a speaker/invited speaker in more than 20 National/International scientific events. He is a Member of the American Heart Association.

maurizio.pesce@ccfm.it