ESC First Contact Initiative Grant report

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Future Host Institution : Laboratory of Sean M. Wu at the Cardiovascular Research Center of Massachusetts General Hospital, Harvard Stem Cell Institute, Boston, Massachusetts, USA

**Due to the fact that some of the data gathered during my short stay at the Cardiovascular Research Center of the Massachusetts General Hospital is still unpublished, this data will not be described in this report.*

First of all I would like to thank the ESC and ESC council of basic science for allowing me to broaden my horizon in cardiovascular research and explore the possibilities in the next phase of my carreer in cardiology.

I visited the laboratory of Sean Wu, MD, PhD at the Cardiovascular Research Center of the Massachusetts General Hospital (Boston, Massachusetts, USA), which is a part of the Harvard Stem Cell Institute.. The primary goal of this excellent laboratory was to define the earliest steps in mammalian cardiogenesis. To this purpose, they use genetically-modified mice as an in vivo model to take advantage of a broad range of molecular tools available for germline manipulation.

My PhD training focuses on unraveling the environmental, molecular and genetic determinants of cardiac differentiation in human mesenchymal stem cells. During my PhD training, our laboratory was able to determine an essential difference in the cardiac

differentiation potential of human and rat mesenchymal stem cells derived from several tissues, which differed in donor age (Ramkisoensing et al., Plos One, 2011). These findings led to new questions on the process of cardiomyogenesis in stem cells. Therefore, one of the goals of my 12-day stay at the laboratory of Sean Wu was to get more insight into the process of cardiomyogenesis using cells derived from their transgenic mouse model that is directed to express enhanced green fluorescent protein under a cardiac-specific enhancer from the murine Nkx2.5 locus. One major advantage of these cells is they are able to differentiate towards cardiomyocytes very efficiently. Furthermore, during my stay I got acquainted with techniques that are used at this laboratory that are not used at our laboratory. Hopefully, I will be able to implement these techniques at my current institution in The Netherlands. During my stay at the Harvard Stem Cell Institute I also attended guest lectures by experts in the field of cardiovascular research, like Eric Olson, PhD, and William Pu, MD. Their lectures were very interesting to me because the topics they touched upon are closely related to my field of research. With regard to future collaborations, we agreed to keep in touch about future projects and the exchange of research tools. In summary, the ESC First Contact Initiative Grant enabled me to explore important future steps in my professional carreer, for which I am very grateful. This grant not only helped me in taking the next step, but also allowed me to further develop my scientific skills.