

Accepted Manuscript

Research paper

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PII: S0008-8749(18)30144-8

DOI: <https://doi.org/10.1016/j.cellimm.2018.03.011>

Reference: YCIMM 3787

To appear in: *Cellular Immunology*

Received Date: 20 November 2017

Revised Date: 29 March 2018

Accepted Date: 30 March 2018



Please cite this article as: K. Van der Borght, B.N. Lambrecht, Heart macrophages and dendritic cells in sickness and in health: a tale of a complicated marriage, *Cellular Immunology* (2018), doi: <https://doi.org/10.1016/j.cellimm.2018.03.011>

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Heart macrophages and dendritic cells in sickness and in health: a tale of a complicated marriage

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Abstract

Heart disease is the major cause of death and it is broadly recognized that the immune system plays a central role in healthy and injured heart. Here, we focus on the contribution of various subsets of mononuclear phagocytes in the cardiac system. Macrophages and dendritic cells reside in the healthy myocardium to fulfill homeostatic functions and rapidly increase in numbers in diseases like myocardial ischemia and myocarditis to contribute to disease or resolve it. Recent experiments have revealed the extraordinary heterogeneity of cardiac mononuclear phagocytes that differ in origin, lifespan, phenotype and function. Although many studies described cardiac phagocytes in the mouse, subsets of cardiac mononuclear phagocytes can also be broadly found in the human heart, opening up the potential of selective targeting of these cells in a therapeutic setting. Before this goal can be achieved we need better understanding not only of the detrimental but also beneficial functions of these highly diverse cells in the heart.

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