

Cellular and Molecular Sciences: Describing a new mechanism that links inflammation and pathological cardiovascular remodelling

29/09/2022

Immune-inflammatory response contributes to the pathological remodelling of the arteries in different cardiovascular diseases. Research published by [Cellular and Molecular Life Sciences](#) has shed new light on one of the mechanisms that links immune-inflammatory response to vascular disease, by describing the key role that the early activation marker of lymphocytes, CD69. The study, a collaboration of [CIBERCV](#) en la Universidad Autónoma de Madrid (UAM)/[Centro Nacional de Investigaciones Cardiovasculares](#) (CNIC) and [Instituto de Investigaciones Biomédicas de Barcelona](#) (IIBB-CSIC) opens the way for new therapeutic strategies.

Antigen CD69, the early activation marker of lymphocytes is a receptor that is induced after the leukocyte stimulation. Previous research by these teams identified the role of CD69 as an oxidised low density lipoprotein (oxLDL) receptor, a union giving an anti-inflammatory response that protects against atherosclerosis. Based on that previous work, this new study focuses on finding its possible role in the mechanisms that control inflammatory-immune response and the link with tissue remodelling in cardiovascular diseases.

By means of large-scale RNA sequencing (RNAseq) it was observed that the union of CD69 with oxLDL induces expression of PD-1 (a protein found in T lymphocytes that contributes to the control of immune response) and that this mechanism participates in regulation of immune response.

"This mechanism of PD-1 induction mediated by CD69 contributes to modulating inflammation and the cardiovascular remodelling that is produced as a consequence" explain [Francisco Sánchez Madrid](#) and José Martínez González, heads of the CIBERCV group at the UAM and IIBB-CSIC respectively, and coordinators of this new research.

- [Jiménez-Fernández M, Rodríguez-Sinovas C, Cañes L, Ballester-Servera C, Vara A, Requena S, de la Fuente H, Martínez-González J, Sánchez-Madrid F. CD69-oxLDL ligand engagement induces Programmed Cell Death 1 \(PD-1\) expression in human CD4 + T lymphocytes. Cell Mol Life Sci. 2022 Aug 5;79\(8\):468. doi: 10.1007/s00018-022-04481-1. PMID: 35930205; PMCID: PMC9355928.](#)

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