

The potential role of HIV-specific CD38-/HLA-DR+ CD8+ T cells in viral suppressive activity and cytotoxicity in HIV controllers

Stéphane Hua, Camille Lecuroux, Asier Saez-Cirion, Gianfranco Pancino, Isabelle Girault, Martine Sinet, Olivier Lambotte, Alain Venet

► **To cite this version:**

Stéphane Hua, Camille Lecuroux, Asier Saez-Cirion, Gianfranco Pancino, Isabelle Girault, et al.. The potential role of HIV-specific CD38-/HLA-DR+ CD8+ T cells in viral suppressive activity and cytotoxicity in HIV controllers. BMC Infectious Diseases, BioMed Central, 2014, 14 (Suppl 2), pp.P64. <inserm-00995736>

HAL Id: inserm-00995736

<http://www.hal.inserm.fr/inserm-00995736>

Submitted on 23 May 2014

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

POSTER PRESENTATION

Open Access

The potential role of HIV-specific CD38-/HLA-DR+ CD8+ T cells in viral suppressive activity and cytotoxicity in HIV controllers

Stéphane Hua^{*}, Camille Lecuroux, Asier Saez-Cirion, Gianfranco Pancino, Isabelle Girault, Martine Sinet, Olivier Lambotte, Alain Venet

From Abstracts from International Symposium HIV and Emerging Infectious Diseases 2014
Marseille, France. 21-23 May 2013

Introduction

In HIV-1 infection, some rare patients called HIV controllers (HICs) are capable to spontaneously control viral replication in vivo. Interestingly, HICs exhibit higher frequency of a particular activated phenotype CD38-HLA-DR+ HIV-specific CD8+ T cells. The aim of this study was to characterize this profile and evaluate its role in HICs.

Materials and methods

To investigate the functionality of the CD38-HLA-DR+ profile, we compared it with the classically activated phenotype CD38+HLA-DR+ by evaluating several qualitative parameters: (1) activation measured by CD69, CD25, CD71, CD40 and Ki67 expression, (2) memory parameters measured by proliferation capacity, CD127 and Bcl-2 expression, cytokine production measured by IL-2 production and (3) cytotoxic activity. We also determined the mechanism responsible for this particular profile.

Results

CD38-HLA-DR+ cells exhibited a more resting profile than CD38+HLA-DR+ cells marked by a lower expression of several activation markers. Although they presented similar ex vivo profile especially concerning survival, IL-2 production, CD38-HLA-DR+ cells displayed significantly higher HIV-specific cytotoxic capacity after in vitro culture compared to CD38+HLA-DR+ cells (13% [7%-23%] vs. 7% [3%-11%], $p=0.02$). Furthermore only the frequency of CD38-HLA-DR+ HIV-specific CD8+ T cells correlated with the capacity of CD8+ T cells to inhibit viral replication ex vivo ($r=0.32$, $p<0.0001$). Moreover, the CD38-HLA-DR+

profile was preferentially displayed after activation by low doses of antigen. These results are in line with the enhanced expression of this profile in patients which exhibit high functional sensitivity ($r=0.41$, $p=0.01$).

Conclusions

Collectively, these data highlight the cytotoxic role of CD38-HLA-DR+ expressing HIV-specific CD8+ T cells in HICs and we provide insights into the mechanism of its induction. Induction of this type of protective cell subset could be an important goal in vaccine strategies.

Published: 23 May 2014

doi:10.1186/1471-2334-14-S2-P64

Cite this article as: Hua et al.: The potential role of HIV-specific CD38-/HLA-DR+ CD8+ T cells in viral suppressive activity and cytotoxicity in HIV controllers. *BMC Infectious Diseases* 2014 **14**(Suppl 2):P64.

**Submit your next manuscript to BioMed Central
and take full advantage of:**

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit



INSERM U1012, Le Kremlin Bicêtre, France



© 2014 Hua et al.; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated.