

P16-45. High avidity CD4+ T cell response directed to an immunodominant Gag epitope in HIV controllers: an ANRS EP36 study

Benoît Vingert, Santiago Perez-Patrigéon, Patricia Jeannin, Olivier Lambotte, Faroudy Boufassa, Fabrice Lemaître, William Kwok, Ioannis Theodorou, Jean-François Delfraissy, Jacques Thèze, et al.

► **To cite this version:**

Benoît Vingert, Santiago Perez-Patrigéon, Patricia Jeannin, Olivier Lambotte, Faroudy Boufassa, et al.. P16-45. High avidity CD4+ T cell response directed to an immunodominant Gag epitope in HIV controllers: an ANRS EP36 study. AIDS Vaccine 2009, Oct 2009, Paris, France. pp.P274, 10.1186/1742-4690-6-S3-P274 . inserm-00663927

HAL Id: inserm-00663927

<https://www.hal.inserm.fr/inserm-00663927>

Submitted on 27 Jan 2012

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

PI6-45. High avidity CD4+ T cell response directed to an immunodominant Gag epitope in HIV controllers: an ANRS EP36 study

B Vingert⁶, S Perez-Patrigéon⁶, P Jeannin⁶, O Lambotte¹, F Boufassa², F Lemaître³, WK Kwok⁴, I Theodorou⁵, J Delfraissy¹, J Thèze⁶ and LA Chakrabarti^{*6}

Address: ¹AP-HP, Department of Internal Medicine and Infectious Diseases, Bicêtre Hospital, Le Kremlin-Bicêtre, France, ²INSERM U822, Bicêtre Hospital, Le Kremlin-Bicêtre, France, ³G5 Dynamiques des Réponses Immunes, Institut Pasteur, Paris, France, ⁴Benaroya Research Institute at Virginia Mason, Seattle, USA, ⁵INSERM U543, Pitié-Salpêtrière Hospital, Paris, France and ⁶Unité d'Immunogénétique Cellulaire, Institut Pasteur, Paris Cedex 15, France

* Corresponding author

from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P274 doi:10.1186/1742-4690-6-S3-P274

This abstract is available from: <http://www.retrovirology.com/content/6/S3/P274>

© 2009 Vingert et al; licensee BioMed Central Ltd.

Background

Emerging evidence indicates that HIV controllers contain HIV-1 replication through very active cellular immune responses, though how such responses can persist over time without exhaustion or waning is not yet understood. To investigate the nature of memory CD4+ T cells responsible for sustained anti-HIV responses, we characterized their capacity to generate primary cell lines specific for immunodominant Gag peptides.

Methods

CD4+ T cell lines were derived from patients who spontaneously controlled HIV replication (HIV controller group, n = 17) and patients who achieved viral control following successful antiretroviral therapy (HAART group, n = 20). Cell lines were compared for growth kinetics, V β repertoire, and sensitivity to antigen.

Results

Specific cell lines were obtained at high rate for both HIV controllers (16/17) and efficiently treated patients (19/20) in response to the immunodominant Gag293 peptide. However, lines from controllers showed faster growth kinetics than those of treated patients. After normalizing for growth rates, IFN- γ responses directed against

the immunodominant Gag293 peptide showed higher functional avidity in HIV controllers, while responses to Gag161, Gag263, or CMV peptides did not differ between groups. Characterization of Gag293-specific CD4+ T cells through MHC class II tetramer labeling revealed a diverse V β repertoire, suggesting that multiple clones contributed to the high avidity CD4+ T cell population in HIV controllers. The high functional avidity of the Gag293-specific response could be explained, at least in part, by a high avidity interaction between the TCR and the peptide-MHC complex, as demonstrated by class II tetramer binding.

Conclusion

This study provides evidence that HIV controllers harbor a pool of high avidity memory CD4+ T cell precursors directed against an immunodominant Gag peptide. The capacity to mount a rapid CD4 response in the presence of minimal amounts of Gag antigen helps explain how HIV controllers maintain an active antiviral response in the face of very low viremia.