

OA011-03. Clusterin, a natural ligand of DC-SIGN present in human semen inhibits HIV capture and transmission by dendritic cells

Juan Sabatte, Wolfgang Faigle, Ana Ceballos, Willy Morelle, Claudia Rodríguez, Federico Lenicov, Michel Thépaut, Franck Fieschi, Hugues Lortat-Jacob, Jean-Claude Michalski, et al.

► **To cite this version:**

Juan Sabatte, Wolfgang Faigle, Ana Ceballos, Willy Morelle, Claudia Rodríguez, et al.. OA011-03. Clusterin, a natural ligand of DC-SIGN present in human semen inhibits HIV capture and transmission by dendritic cells. AIDS Vaccine 2009, Oct 2009, Paris, France. BioMed Central, 6 (Suppl 3), pp.09, 2009, Retrovirology. <10.1186/1742-4690-6-S3-O9>. <inserm-00663577>

HAL Id: inserm-00663577

<http://www.hal.inserm.fr/inserm-00663577>

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.

Oral presentation

Open Access

OA01 I-03. Clusterin, a natural ligand of DC-SIGN present in human semen inhibits HIV capture and transmission by dendritic cells

J Sabatte*^{1,2,3}, W Faigle⁷, A Ceballos¹, W Morelle⁴, C Rodríguez¹,
F Remes Lenicov¹, M Thépaut⁴, F Fieschi⁴, H Lortat-Jacob⁴, J Michalski⁵,
F Arenzana-Seisdedos⁶, J Geffner¹ and S Amigorena⁷

Address: ¹National Reference center for AIDS, Buenos Aires, Argentina, ²Institut Curie, Paris, France, ³Institut de Biologie Structurale, UMR CNRS-CEA-UJF, Grenoble, France, ⁴Institut de Biologie Structurale, UMR CNRS-CEA-UJF, Grenoble, France, ⁵UMR CNRS 8576, Unité de Glycobiologie Structurale et fonctionnelle, Lille, France, ⁶Unité d'Immunologie Virale, Institut Pasteur, Paris, France and ⁷U932 INSERM, Institut Curie, Immunité et Cancer, Paris, France

* Corresponding author

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

Published: 22 October 2009

Retrovirology 2009, 6(Suppl 3):O9 doi:10.1186/1742-4690-6-S3-O9

This abstract is available from: <http://www.retrovirology.com/content/6/S3/O9>

© 2009 Sabatte et al; licensee BioMed Central Ltd.

Background

Although sexual transmission represents the main mode of HIV dissemination worldwide, little is known about the influence of semen on viral spread. We have shown that seminal plasma (SP) inhibits both, the attachment of HIV to dendritic cells (DC) and the ability of DC to transmit the virus to T cells. Here, we characterized the inhibitor present in SP and their functional properties.

Methods

Semen samples were collected from healthy donors. SP proteins were analyzed by 2D electrophoresis. DC-SIGN binding proteins were identified by western blot using DC-SIGN^{fc} chimera. Selected spots were cut and clusterin was identified by MS analysis as the inhibitor present in SP. SP clusterin was then purified by affinity chromatography. In all the experiments, HIV was quantified by measurement of p24 antigen by ELISA.

Results

We found that SP clusterin markedly inhibits the attachment of HIV-1 BAL (5 ng p24 antigen) to DC in a dose-dependent mode (1–40 µg/ml), being the percentage of inhibition of 54 ± 11 (n = 6, p < 0.05) when used at a concentration of 15 µg/ml. Similar levels of inhibition were observed using blocking antibodies directed to DC-SIGN.

In transmission experiments DC were cultured with HIV-1 BaL (5 ng p24Ag) in the presence of clusterin (20 µg/ml), washed and cultured with activated peripheral blood mononuclear cells (PBMCs). Clusterin markedly prevented virus transmission to DC: % inhibition = 59 ± 17, n = 5, p < 0.05). Experiments performed with THP-1-DC-SIGN⁺ cells showed that clusterin, at a concentration of 15 µg/ml, almost completely inhibited both, the attachment of HIV (% inhibition < 87%, n = 5) and the ability of THP-1-DC-SIGN⁺ cells to transmit the virus to activated PBMCs (% inhibition < 82%, n = 4).

Conclusion

Our results identified clusterin, as a novel ligand of DC-SIGN present in human semen able to inhibit the capture and transmission of HIV by DC.