P17-16. Anti-Langerin-HIV Gag p24 fusion protein targeting Langerhans cells as a new anti-HIV vaccine strategy

Slobodan Culina, Gérard Zurawsky, Anne-Laure Flamar, Pierre Brochard, Benoît Delache, Jacques Banchereau, Roger Le Grand, Frédéric Martinon

Retrovirology

Poster presentation

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S Culina*[1], G Zurawsky[2], A Flamar[2], P Brochard[1], B Delache[1], J Banchereau[2], R Le Grand[1] and F Martinon[1]

Address: [1]Institute for Emerging Diseases and Innovative Therapies, DSV, CEA, Division of Immuno-Virology, Fontenay-aux-Roses, France and [2]Baylor Institute for Immunology Research INSERM U899, Dallas, TX, USA

* Corresponding author

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Background

Langerhans cells (LC), skin residential cells, are shown to induce specific CD8+ T cell response upon activation. Targeting vaccine antigens to LC with specific antibodies could elucidate specific CD8+ response. Therefore we propose the intra-dermal injection of mAb specific for C-type lectin Langerin, expressed on LC in epidermis, fused to HIV Gag p24 protein, as type of T-cell based vaccine. The present work emphasizes molecular and cellular immune mechanisms triggered in the skin by intra-dermal vaccination.

Methods

Technical approach considers an intra-dermal injection of fusion protein (100 μg) in macaque that was followed by skin and draining lymph nodes (LN) biopsies at different time points. Frozen biopsies were used for immunochemistry fluorescent staining to establish biodistribution of injected Ab/fusion protein and co-localisation with different cell types.

Results

We show that antibody used as delivery system, targeted and brought p24 antigen specifically to the LC in epidermis. Number of targeted LC in the zone of injection increased in the first days upon injection and peaked 72 h after injection. In draining LN, HIV Gag p24 were detected as soon as 4 h after injection. 24 h post injection, fusion protein appeared to be associated with CD1a+ cells.

Conclusion

Our data suggested that using viral antigens fused to the mAb specific for LC target and bring viral Ag specifically to this cell population in the zone of injection. This same fusion protein related to the CD1a+ cells was present in draining lymph nodes as soon as 24 h after injection where it could present viral antigen and activate CD8+ T lymphocytes.