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HIV-2 gene product-specific T cell responses and viraemia control

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Background

HIV-2 infection is characterized by an attenuated disease course in most patients, which may reflect viraemia control by an efficient immune response. However, there is little information on the breadth, magnitude, or specificity of cellular immune responses to the proteome and their relationship to viral control.

Methods

105 freshly separated PBMCs from 64 members of a well-described community-based HIV-2 cohort (Caio, Guinea Bissau) were used in ex vivo IFNg ELISpot assays. 424 peptides spanning the HIV-2 proteome were divided into 3 × 24 pools in a 3-dimensional matrix (16–20 peptides/pool, 2 μg/ml per peptide).

Results

All HIV-2 gene products induced IFNg responses, with Gag being targeted most frequently (89% of patients). The total proteome response inversely correlated with HIV-2 VL ($p < 0.01$) and this relationsAhip was due to targeting Gag ($p < 0.01$). Patients with VL ≤ 100 (N = 31) had a greater median gag-specific response (1120 vs 385 SFU, $p < 0.01$) than patients with VL ≥ 100 (N = 33). Responses to a single Gag peptide (recognized by >30% of patients) correlated with low VL ($p = 0.05$).

Conclusion

There is a strong relationship between HIV-2 VL and IFNg responses. VL ≤ 100 correlates with targeting Gag, with the 6 most frequently recognized peptides originating from a highly conserved region spanning 149 aa, suggesting that immune responses to this region play a role in HIV-2 viraemia control.