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BELGIAN RESEARCH AIDS&HIV CONSORTIUM



# Best Belgian Papers on HIV Contest

**18 Papers**

- 4 Basic Science
- 14 Clinical Science
- 0 Social Science



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Objective: To determine whether viral suppressive capacity (VSC) of CD8+ T cells can be boosted by stimulation with HIV-1 peptides and whether the ability to control HIV-1 replication correlates with immunological (cytokine production and CD8+ T cell phenotype) and viral reservoir measures (total HIV-1 DNA and cell-associated RNA) in well-treated HIV-infected chronic

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# BEST PAPER

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## Basic Science

### “IN-VITRO VIRAL SUPPRESSIVE CAPACITY CORRELATES WITH IMMUNE CHECKPOINT MARKER EXPRESSION ON PERIPHERAL CD8+ T CELLS IN TREATED HIV POSITIVE PATIENTS”

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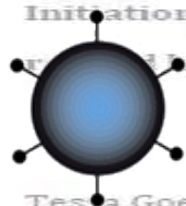
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Results: We found that the VSC of CD8+ T cells can be increased by prior stimulation with a pool of HIV-1 peptides. This increase was associated with an increase in CD8+ T cell phenotype (17-color flow cytometry) and viral reservoir size (total HIV-1 DNA), basal viral transcription (unspliced cell-associated RNA) and inducible viral transcription (cell-associated HIV-1 RNA) in 36 HIV+ patients on cART and six healthy donors.

Conclusions: These findings add to a small body of evidence that the capacity of CD8+ T cells to suppress viral replication is increased after stimulation with HIV-1 peptides. Interestingly, this increase was associated with an increase in CD8+ T cell phenotype, which is generally considered to be markers of exhaustion. Our findings may guide further investigations into immune phenotypes correlated with viral suppression.

**7<sup>th</sup> BREACH SYMPOSIUM**  
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**Concertgebouw, Bruges**



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# BEST PAPER

## Clinical Science

**“INITIATION OF ANTI-RETROVIRAL THERAPY BEFORE PREGNANCY REDUCES THE RISK OF INFECTION-RELATED HOSPITALIZATION IN HIV-EXPOSED UNINFECTED INFANTS BORN IN A HIGH-INCOME COUNTRY”**

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# BREACH

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## Decision tree for accurate infection timing in individuals newly diagnosed with HIV-1 infection

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# BEST PAPER

## Clinical Science

### Abstract

**Background:** There is today no gold standard method to accurately define the time passed since infection at HIV diagnosis. Infection timing and incidence measurement is however essential to better monitor the dynamics of local epidemics and the effect of prevention initiatives.

**Methods:** Three methods for infection timing were compared using a sample of 566 individuals from documented seroconversions and 566 cross-sectional samples from Belgium. A decision tree for the identification of antibodies against the HIV p31 protein in INNO-LIA, Sedia™ BED-CEM1 and Sedia™ LAg-Avidity EIA was developed.

**Results:** Clear differences in reactivity window between BED CBA, LAg-Avidity EIA and p31 antibody presence were observed with a switch from recent to long term infection a median of 1,695, 108.0 and 64.5 days after collection of the pre-seroconversion sample. LAg-Avidity is highly accurate for identification of recent infections. Using BED as initial assay to identify the long term infections and LAg-Avidity as confirmatory assay for recent infections explores the strengths of both while reduces the workload. BED recent infection results not confirmed by LAg-Avidity are considered to reflect a period more distant from the infection time. False reactivity predictions in this group can be minimized by elimination of patients with a CD4 count of less than 100 cells/mm<sup>3</sup> or without no p31 antibodies. For 566 cross sectional sample the outcome of the decision tree confirmed the infection timing based on the results of all 3 markers but reduced the overall cost from 13.2 USD to 5.2 USD per sample.

**Conclusions:** A simple, multistep decision tree allows accurate timing of the HIV infection at diagnosis at affordable effort and cost. This method can be used to monitor the impact of prevention strategies.

**Keywords:** HIV, Infection timing, Decision tree, Serology, Cost reduction, Prevention strategies

**“DECISION TREE FOR ACCURATE INFECTION TIMING IN INDIVIDUALS NEWLY DIAGNOSED WITH HIV-1 INFECTION.”**

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