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CHARACTERISATION OF REGULATORY T CELLS IN HIV-INFECTED ADULTS IN SOUTH AFRICA

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Medicine in the branch of Clinical Pathology

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DECLARATION

I, Melinda Shelley Suchard, declare that this research report is my own work. It is being submitted for the degree of Master of Medicine in the branch of Clinical Pathology in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

My colleague has used the same sample group for further study (functional analyses) and these additional investigations will form part of a separate research report to be submitted to the University of the Witwatersrand in the future.

…….
Melinda Shelley Suchard

…… day of ……2008

PUBLICATIONS/PRESENTATIONS ARISING FROM THIS STUDY

Results from this study were presented in a poster format at the Keystone Conference entitled: *HIV Vaccines: From Basic Research to Clinical Trials* held in Whistler, British Columbia, Canada 25-30 March 2007.

Title: *Characterisation of Regulatory T cells in HIV and Tuberculosis Infected Adults in South Africa*
Authors: Elizabeth Mayne, Melinda Suchard, Victoria Eastham, Sharon Shalekoff, Samantha Donninger, Lesley Scott, Lara Vallet, Anthony Mayne, Adriano Duse, Wendy Stevens, Caroline Tiemessen, Clive Gray

ABSTRACT

Regulatory T cells (Tregs) are $CD4^+$ T lymphocytes that express the gene *FOXP3* and suppress other cellular immune responses. Their role in HIV pathogenesis is uncertain. Regulatory T cell (Treg) levels were analysed in peripheral blood of HIV infected patients and controls in South Africa.

Immunophenotypic analysis revealed significantly elevated levels of FOXP3 positive Tregs in HIV infected patients (median 6.8%) compared with controls (median 3.7%). Treg levels were inversely correlated with $CD4^+$ T cell count. FOXP3 mRNA expression was dependent on choice of reference gene (GAPDH or 18sRNA) and did not correlate with FOXP3 protein expression analysed flow cytometrically.

These findings illustrate that Tregs are elevated in the peripheral blood of patients with late stage HIV disease and suggest a role for Tregs in the clinical immune suppression seen in these patients. Tregs may prove to be useful therapeutic targets for intervention or as a prognostic monitoring tool.

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