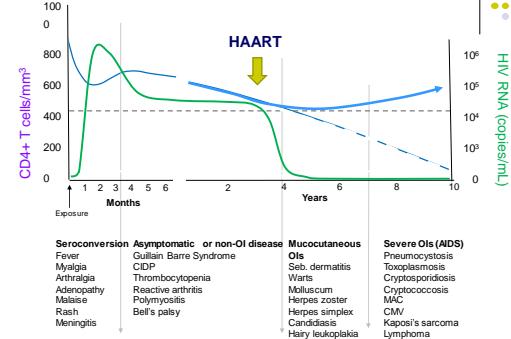


Abstract O21.1

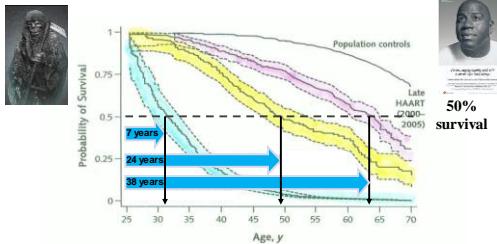
One profile or many? Plasma biomarkers CXCL10, sCD163 and sCD14 reveal distinct associations with HIV treatment response, choice of treatment, and cardiovascular risk factors

Castley A¹, James P², Williams L¹, Berry C³, David Nolan¹¹Department of Immunology, Royal Perth Hospital, Western Australia²Institute for Immunology and Infectious Diseases, Murdoch University, Western Australia³School of Veterinary and Biomedical Sciences, Murdoch University, Western Australia

CD4+ T cell and viral load monitoring: a successful paradigm



CD4+ T cell and viral load monitoring: a successful paradigm



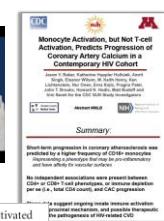
Cumulative survival curve for HIV-infected persons (without hepatitis C coinfection) and persons from the general population. Persons with HIV infection are divided into 3 calendar periods of observation. Dashed lines indicate 95% CIs. HIV = human immunodeficiency virus; HAART = highly active antiretroviral therapy.

Background

Plasma Levels of Soluble CD14 Independently Predict Mortality in HIV Infection

Nicholas G. Bandi¹, Jennifer Ward¹, Andrew Rogers¹, Matthew Low¹, Mark E. Branson¹, David C. Deeks², Daniel C. Douek², Michael S. Rosenthal¹, and Daniel C. Deems³, for the RICOH SMARTY Study Group

Background



Shared monocytic subset phenotypes in HIV-1 infection and in uninfected subjects with acute coronary syndrome

Nicholas T. Fundulus¹, David A. Zeldis², Casey Shiner³, Anthony LoCicero⁴, Joseph Muzell¹, Laura Winkler⁵, Michael J. Kuehn⁶, Michael J. Cicali⁷, Daniel Costa⁸, Benigno Rodriguez⁹, Scott F. Siegl¹, and Michael M. Lederman¹

Methods

Soluble CD163, a Novel Marker of Activated Macrophages, Is Elevated and Associated With Noncalcified Coronary Plaque in HIV-Infected Patients

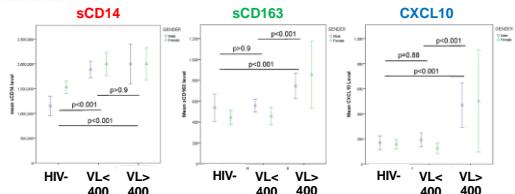
Nicholas G. Bandi¹, Jason Li¹, Sidney Almami¹, Jeffrey Weiss¹, Michelle E. Belanoff¹, Fred Pfeffer¹, Eric S. Rosenberg¹, Howard C. Williams¹, and Daniel C. Deems²

RESEARCH ARTICLE

Elevated Plasma Soluble CD14 and Skewed CD16+ Monocyte Distribution Persist despite Normalisation of Soluble CD163 and CXCL10 by Effective HIV Therapy: A Changing Paradigm for Routine HIV Laboratory Monitoring?

Alison Castley^{1,2}, Cassandra Berry¹, Martyn French^{1,2}, Sonia Fernandes², Robert O'Krueger³, David Nolan¹¹ Murdoch University, School of Veterinary and Life Sciences, Murdoch University, Murdoch, Western Australia, Australia; ² Institute for Immunology and Infectious Diseases, Murdoch University, Murdoch, Perth, Western Australia, Australia; ³ Department of Clinical Immunology, Royal Perth Hospital, Murdoch, Western Australia, Australia; ⁴ School of Medicine, Murdoch University, Murdoch, Western Australia, Murdoch, Perth, Western Australia, Australia

✉ Alison.Castley@murdoch.edu.au



Background

21 healthy controls
81 HIV+ subjects
• 60 with VL <400 copies/mL
• 21 with VL >400 copies/mL

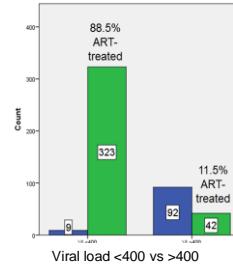
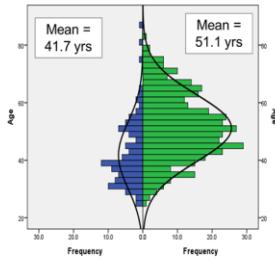
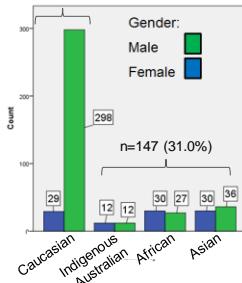
- Study population:** 474 consecutive patients with documented CVD risk (age, ethnicity, gender, smoking, blood pressure, BMI, fasting metabolic profile), as well as HIV treatment history and immunological/virological outcomes

- Plasma biomarker assessment:** Plasma sCD14, sCD163 and CXCL10 levels measured by ELISA methods

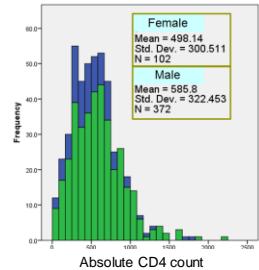
- Statistical analysis:** ANOVA for comparison of mean values, multiple regression analysis.

372 Males (87.7% Caucasian)
102 Females (28.7% Caucasian)

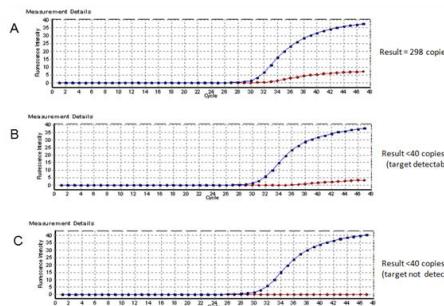
Results Gender, age and ethnicity



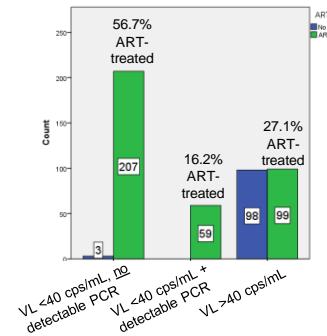
Results: CD4 counts and viral loads



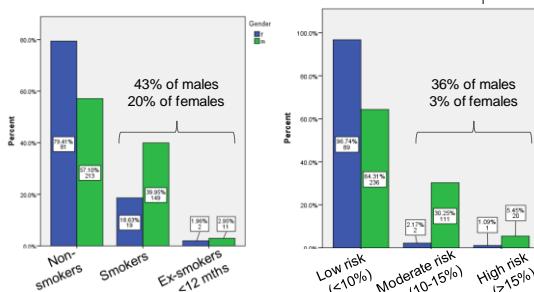
Results: Detectable viral load, residual viremia, and no detectable HIV RNA



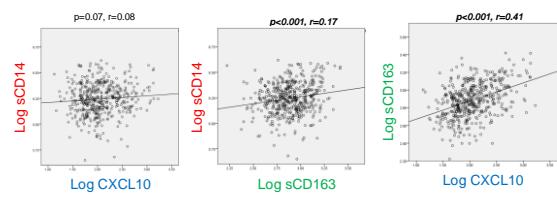
Results: Detectable viral load, residual viremia, and no detectable HIV RNA



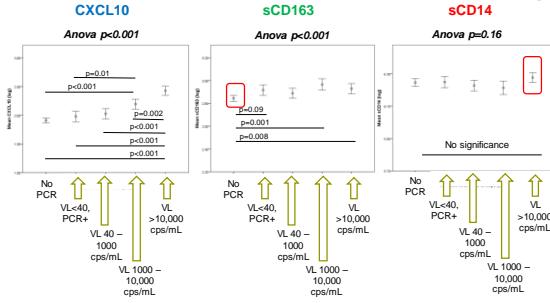
Results: Smoking status and cardiovascular risk assessment



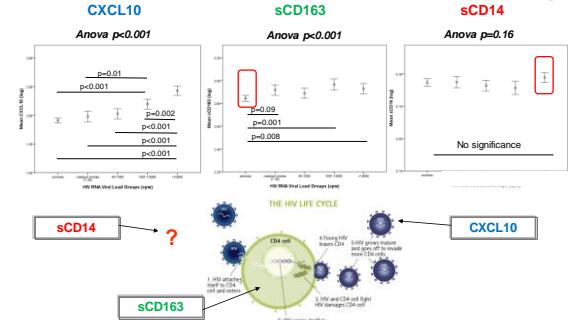
Results: Correlations between plasma biomarkers



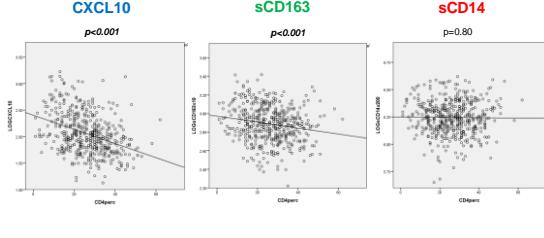
Results: Plasma biomarkers and viral load



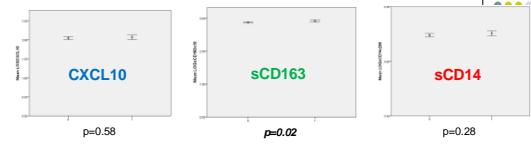
Results: Plasma biomarkers and viral load



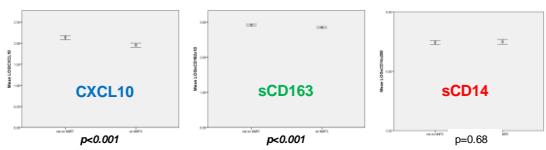
Results: Plasma biomarkers and CD4%



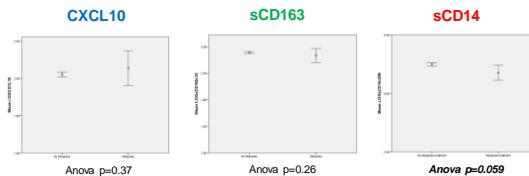
PIs and plasma biomarker levels (on PI=162: not on PI=310)



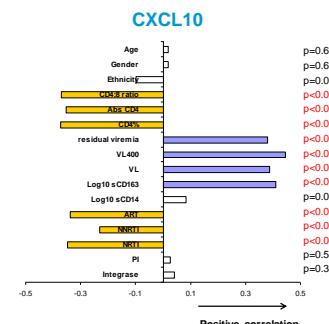
NNRTIs and plasma biomarker levels (on NNRTI=215: not on NNRTI=257)



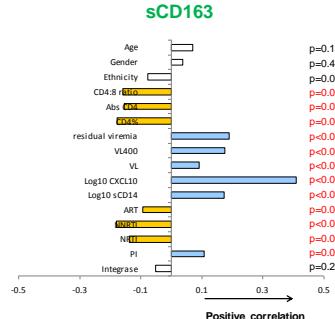
Integrase inhibitors and plasma biomarker levels (on Int=17: not on Int=455)



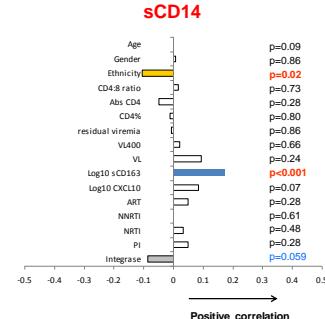
Correlations between HIV clinical parameters, ART and plasma biomarkers



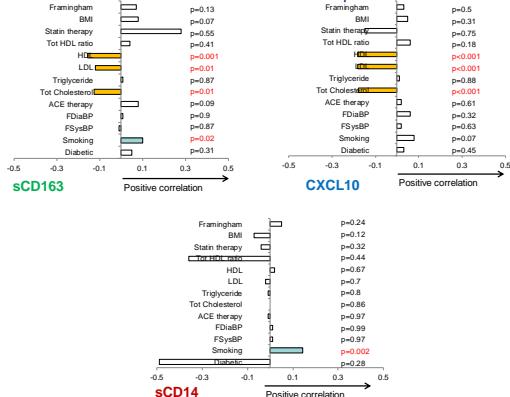
Correlations between HIV clinical parameters, ART and plasma biomarkers



Correlations between HIV clinical parameters, ART and plasma biomarkers



Correlations between CVD risk factors and plasma biomarkers



Multivariate regression analysis

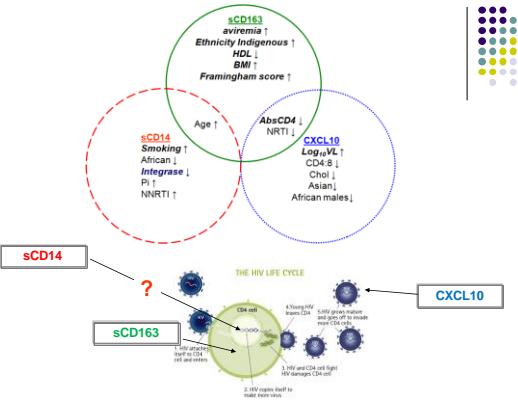
Biomarker	CXCL10			
	Variable	β	std error	p
CXCL10	Age	-	-	-
CXCL10	Gender	-	-	-
CXCL10	Ethnicity	-0.18	0.047	0.0002
CXCL10	Smoking	-	-	-
CXCL10	Residual viremia	-	-	-
CXCL10	VL3	0.08	0.043	0.056
CXCL10	VL4	0.12	0.063	0.054
CXCL10	VL5	0.29	0.060	<0.0001
CXCL10	SQR CD4:8	-0.22	0.083	0.0085
CXCL10	SQR CD4	-0.01	0.003	0.0001
CXCL10	NNRTI	-	-	-
CXCL10	PI	-	-	-
CXCL10	Integrase	-	-	-
CXCL10	HDL	-	-	-
CXCL10	BMI	0.006	0.003	0.078
CXCL10	Framingham score	-	-	-
sCD163	Age	-	-	-
sCD163	Gender	-	-	-
sCD163	Ethnicity	-0.18	0.047	0.0002
sCD163	Smoking	-	-	-
sCD163	Residual viremia	-	-	-
sCD163	VL3	0.08	0.043	0.056
sCD163	VL4	0.12	0.063	0.054
sCD163	VL5	0.29	0.060	<0.0001
sCD163	SQR CD4:8	-0.22	0.083	0.0085
sCD163	SQR CD4	-0.01	0.003	0.0001
sCD163	NNRTI	-	-	-
sCD163	PI	-	-	-
sCD163	Integrase	-	-	-
sCD163	HDL	-	-	-
sCD163	BMI	0.006	0.003	0.078
sCD163	Framingham score	-	-	-
sCD14	Age	-	-	-
sCD14	Gender	-	-	-
sCD14	Ethnicity	-0.18	0.047	0.0002
sCD14	Smoking	-	-	-
sCD14	Residual viremia	-	-	-
sCD14	VL3	0.08	0.043	0.056
sCD14	VL4	0.12	0.063	0.054
sCD14	VL5	0.29	0.060	<0.0001
sCD14	SQR CD4:8	-0.22	0.083	0.0085
sCD14	SQR CD4	-0.01	0.003	0.0001
sCD14	NNRTI	-	-	-
sCD14	PI	-	-	-
sCD14	Integrase	-	-	-
sCD14	HDL	-	-	-
sCD14	BMI	0.006	0.003	0.078
sCD14	Framingham score	-	-	-

Multivariate regression analysis

Biomarker	CXCL10			sCD163				
	Variable	β	std error	p	Variable	β	std error	p
CXCL10	Age	-	-	-	Age	0.003	0.001	0.001
CXCL10	Gender	-	-	-	Gender	-	-	-
CXCL10	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.16	0.045	0.011
CXCL10	Smoking	-	-	-	Smoking	-	-	-
CXCL10	Residual viremia	-	-	-	Residual viremia	0.002	0.027	0.022
CXCL10	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056
CXCL10	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054
CXCL10	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001
CXCL10	SQR CD4:8	-0.22	0.083	0.0085	SQR CD4:8	-0.22	0.083	0.0085
CXCL10	SQR CD4	-0.01	0.003	0.0001	SQR CD4	-0.01	0.003	0.0001
CXCL10	NNRTI	-	-	-	NNRTI	-	-	-
CXCL10	PI	-	-	-	PI	-	-	-
CXCL10	Integrase	-	-	-	Integrase	-	-	-
CXCL10	HDL	-	-	-	HDL	-0.049	0.025	0.048
CXCL10	BMI	0.006	0.003	0.078	BMI	0.005	0.002	0.099
CXCL10	Framingham score	-	-	-	Framingham score	0.056	0.027	0.038
sCD163	Age	-	-	-	Age	0.003	0.001	0.001
sCD163	Gender	-	-	-	Gender	-	-	-
sCD163	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002
sCD163	Smoking	-	-	-	Smoking	-	-	-
sCD163	Residual viremia	-	-	-	Residual viremia	-	-	-
sCD163	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056
sCD163	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054
sCD163	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001
sCD163	SQR CD4:8	-0.22	0.083	0.0085	SQR CD4:8	-0.22	0.083	0.0085
sCD163	SQR CD4	-0.01	0.003	0.0001	SQR CD4	-0.01	0.003	0.0001
sCD163	NNRTI	-	-	-	NNRTI	-	-	-
sCD163	PI	-	-	-	PI	-0.038	0.019	0.018
sCD163	Integrase	-	-	-	Integrase	-	-	-
sCD163	HDL	-	-	-	HDL	-0.049	0.025	0.048
sCD163	BMI	0.006	0.003	0.078	BMI	0.005	0.002	0.099
sCD163	Framingham score	-	-	-	Framingham score	0.056	0.027	0.038
sCD14	Age	-	-	-	Age	0.003	0.001	0.001
sCD14	Gender	-	-	-	Gender	-	-	-
sCD14	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002
sCD14	Smoking	-	-	-	Smoking	-	-	-
sCD14	Residual viremia	-	-	-	Residual viremia	-	-	-
sCD14	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056
sCD14	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054
sCD14	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001
sCD14	SQR CD4:8	-0.22	0.083	0.0085	SQR CD4:8	-0.22	0.083	0.0085
sCD14	SQR CD4	-0.01	0.003	0.0001	SQR CD4	-0.01	0.003	0.0001
sCD14	NNRTI	-	-	-	NNRTI	-	-	-
sCD14	PI	-	-	-	PI	-0.038	0.019	0.018
sCD14	Integrase	-	-	-	Integrase	-	-	-
sCD14	HDL	-	-	-	HDL	-0.049	0.025	0.048
sCD14	BMI	0.006	0.003	0.078	BMI	0.005	0.002	0.099
sCD14	Framingham score	-	-	-	Framingham score	0.056	0.027	0.038

Multivariate regression analysis

Biomarker	CXCL10			sCD163			sCD14					
	Variable	β	std error	p	Variable	β	std error	p	Variable	β	std error	p
CXCL10	Age	-	-	-	Age	0.003	0.001	0.001	Age	0.003	0.001	0.044
CXCL10	Gender	-	-	-	Gender	-	-	-	Gender	-	-	0.057
CXCL10	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002
CXCL10	Smoking	-	-	-	Smoking	-	-	-	Smoking	-	-	-
CXCL10	Residual viremia	-	-	-	Residual viremia	-	-	-	Residual viremia	-	-	-
CXCL10	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056
CXCL10	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054
CXCL10	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001
CXCL10	SQR CD4:8	-0.22	0.083	0.0085	SQR CD4:8	-0.22	0.083	0.0085	SQR CD4:8	-0.22	0.083	0.0085
CXCL10	SQR CD4	-0.01	0.003	0.0001	SQR CD4	-0.01	0.003	0.0001	SQR CD4	-0.01	0.003	0.0001
CXCL10	NNRTI	-	-	-	NNRTI	-	-	-	NNRTI	-	-	-
CXCL10	PI	-	-	-	PI	-0.038	0.019	0.018	PI	-0.038	0.019	0.018
CXCL10	Integrase	-	-	-	Integrase	-	-	-	Integrase	-	-	-
CXCL10	HDL	-	-	-	HDL	-0.049	0.025	0.048	HDL	-0.049	0.025	0.048
CXCL10	BMI	0.006	0.003	0.078	BMI	0.005	0.002	0.099	BMI	0.005	0.002	0.099
CXCL10	Framingham score	-	-	-	Framingham score	0.056	0.027	0.038	Framingham score	0.056	0.027	0.038
sCD163	Age	-	-	-	Age	0.003	0.001	0.001	Age	0.003	0.001	0.044
sCD163	Gender	-	-	-	Gender	-	-	-	Gender	-	-	0.057
sCD163	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002	Ethnicity	-0.18	0.047	0.0002
sCD163	Smoking	-	-	-	Smoking	-	-	-	Smoking	-	-	-
sCD163	Residual viremia	-	-	-	Residual viremia	-	-	-	Residual viremia	-	-	-
sCD163	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056	VL3	0.08	0.043	0.056
sCD163	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054	VL4	0.12	0.063	0.054
sCD163	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<0.0001	VL5	0.29	0.060	<

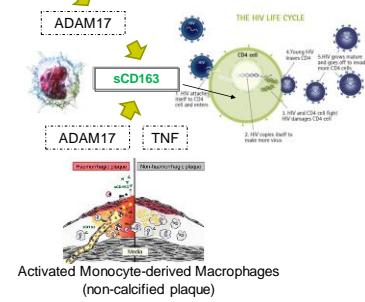


Exosomes from Human Immunodeficiency Virus Type 1 (HIV-1)-Infected Cells License Quiescent CD4⁺ T Lymphocytes To Replicate HIV-1 through a Nef- and ADAM17-Dependent Mechanism

Claudia Annunziato,^{a,b} Chiara Ciozzone,^c Sandra Colombo-Calezzo,^c Francesco Martini,^c Elisabetta Aflati,^b Andreas Baier,^b

National MDS Center, Istituto Superiore di Sanita, Rome, Italy; Department of Science, Universita Roma Tre, Rome, Italy; Department of Cell Biology and Neuroscience,

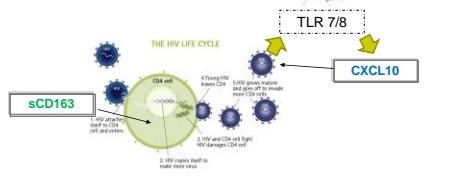
IRCCS Istituto Superiore di Sanita, Rome, Italy; Department of Immunology, University Hospital Erlangen, Erlangen, Germany



HIV-1 infection induces strong production of IP-10 through TLR7/9-dependent pathways

Rachel P. SIMMONS^{1,2,*}, Eileen P. SCULLY^{2,6}, Erin E. GRODEN², Kelly F. BENEDICT³, J. Judy CHANG², Kim LANE², Jeff LIPSON⁴, Eric ROSENBERG⁵, Douglas A. LAUFFENBURGER², and Marcus ALTFELD²

AIDS. 2013 October 23; 27(16): 2505–2517.



Soluble CD14 is a nonspecific marker of monocyte activation

Carey L. Shive^a, Wei Jiang^a, Donald D. Anthony^{a,c}, and Michael M. Lederman^b

AIDS. 2015 June 19; 29(10): 1263–1265.

Tobacco Smoking Increases Immune Activation and Impairs T-Cell Function in HIV Infected Patients on Antiretrovirals: A Cross-Sectional Pilot Study

Renee Valentin^a, Maria J. Miyake^a, Rupal Patel^a, Christopher L. Arheart^a, Debrah Asthana^{a,b,c}

AIDS. 2015 June 19; 29(10): 1263–1265.

The Journal of Infectious Diseases^a 2015;212:345–54



Differential Reduction in Monocyte Activation and Vascular Inflammation With Integrase Inhibitor-Based Initial Antiretroviral Therapy Among HIV-Infected Individuals

Sasha A. Weiss^a, David Katz^a, Michael P. Koenig^a, Kelly McNamee^a, Leslie Sacks^a, Daniel J. Martin^a, Michael M. Lederman^b, and Dennis A. Moritz^b

The Journal of Infectious Diseases^a 2015;212:345–54