

**WORKSHOP ON QUANTITATIVE METHODS FOR RESEARCH ON
ANTIVIRAL RESISTANCE
May 11-12, 2006
Boston, MA**

**Sponsored by the Forum for Collaborative HIV Research
With special support from Vircolab Inc, GlaxoSmithKline, and Bayer
Health Care Diagnostics**

Workshop Chairs: Dominique Costagliola & Victor DeGruttola

Organizing committee members: Lee Bacheler, Francoise Brun-Vezinet, Ben Cheng, David Hall, Richard Haubrich, Veronica Miller, Mark van der Laan

PROGRAM OVERVIEW

SESSION 1 Setting the Stage	May 11	8:00 – 9:30
SESSION 2 Definitions, Cut-offs and Metrics	May 11	9:45 – 1:00
SESSION 3 Predictions and Validations	May 11	2:00 – 4:30
POSTER SESSION	May 11	4:30 – 5:30
SESSION 4 Quantitative Analysis in Drug Development	May 12	8:30 – 10:00
SESSION 5 Data Management and Integration	May 12	10:15 – 11:20
FINAL DISCUSSION	May 12	11:20 – 12:30

SESSION 1: SETTING THE STAGE
MODERATORS: V DeGRUTTOLA, F BRUN-VEZINET

8:00	Welcome	V DeGruttola
8:05	Introduction to the Forum's program on HIV drug resistance	V Miller
8:15	What are the scientific and clinical questions for which sophisticated quantitative methods are needed?	F Brun-Vezinet R Haubrich
8:45	Methodological Challenges in Modeling the Development and Consequences of HIV Drug Resistance	D Costagliola V DeGruttola
9:15	Discussion	

Coffee Break 9:30-9:45

SESSION 2: DEFINITIONS, CUT-OFFS & METRICS
MODERATORS: D COSTAGLIOLA & R HAUBRICH

9:45	Genotype analyses: issues in metrics and data reduction	P Flandre
10:00	A1 Testing for quantitative interaction between subtype and amino acid mutations induced by selective drug pressure	DT Dunn
10:15	A2 Explorative analysis for the development of a score-based interpretation system to predict abacavir susceptibility using the FCHR database	A Cozzi-Lepri
10:30	A3 The evolutionary potential of HIV predicts response to antiretroviral therapy	N Beerenwinkel
10:45	Discussion	
11:15	Phenotype analysis: issues from a virology perspective	L Bachelier
11:30	Phenotype analysis: issues from a statistician's perspective	C Chappey
11:45	A4 Prediction of HIV-1 drug susceptibility phenotype from the viral genotype by linear regression modeling	H Vermeiren
12:00	A5 Effect of selection bias due to lack of resistance in the study population on Virco®TYPE clinical cutoff estimates for new drugs	B Winters
12:15	Inhibitory Quotient: issues in analysis	D Kempf
12:30	Discussion	

Lunch 1:00 – 2:00

SESSION 3: PREDICTIONS & VALIDATION
MODERATORS: D HALL, V DEGRUTTOLA

2:00	Approaches to validations	M Van der Laan
2:30	A6 Variable importance measures to rank the effects of viral mutations on clinical virologic response	ML Petersen
2:45	A7 Resampling-based multiple testing methods with covariate adjustment: application to investigation of antiretroviral drug susceptibility	Y Yang
3:00	A8 Comparing HIV-1 genotype-phenotype models using the minimum description length principle	RJ Murray
3:15	A9 Predicting in vivo evolution of HIV under treatment based on mutation, fitness and epistasis as first principles	K Deforche
3:30	A10 Developing methodologies which combine in-vitro and in-vivo data: a Bayesian approach to predicting resistance to combination therapy	F Lewis
3:45	Discussion	

Refreshments & Poster Presentations

All workshop abstract presentations

P1 Emergence of drug resistance is associated with an increased risk of death among patients first starting HAART VD Lima

P2 Use of HIV-1 genotype interpretation system (Retrogram) enables prediction of the viral response in HIV-1 infected patients AMJ Wensing

SESSION 4: QUANTITATIVE ANALYSES IN DRUG DEVELOPMENT
MODERATORS: V MILLER, R HAUBRICH

8:30	The pharmaceutical perspective on quantitative analysis in drug development	R Demasi D Hall
9:00	FDA perspective: challenges of incorporating HIV resistance data into package inserts	L Naeger
9:30	Discussion	

Coffee Break 10:00 – 10:15

SESSION 5: DATA MANAGEMENT & INTEGRATION
MODERATORS: L BACHELER, D COSTAGLIOLA

10:15	Data management & integration issues	B Lober
10:45	<u>A11</u> HIV resistance analysis using HyPhy	SL Kosakovsky Pond
10:55	<u>A12</u> Resolving the problem of multiple reference sequences in the UK HIV drug resistance database	EL Fearnhill
11:05	Discussion	

FINAL DISCUSSION SESSION
MODERATORS: V DEGRUTTOLA, V MILLER

11:20	Recap and Consensus	All
12:30	Workshop Adjourned	