hiv resistance response database initiative

HIV TReePS
HIV Treatment Response Prediction System

PRESS RELEASE

Computer models that predict response to treatment published in the international journal *AIDS*

London, UK; 14th September 2011. Details of computer models that can predict the chances of a patient responding to their HIV drugs with 80% accuracy are published online today in the journal *AIDS.* The models were developed by the HIV Resistance Response Database Initiative (RDI) using almost half a million pieces of data from approximately 6,000 clinical cases in hundreds of clinics around the world. The models are now available online as part of an experimental treatment support tool, HIV-TRePS.

The random forest models were trained to predict the probability of any combination of HIV drugs reducing the virus in the patient's blood to an undetectably low level (<50 copies/ml). They use the genetic code of the virus, the patient's immune status, their treatment history and a measure of the level of HIV in the blood, to make their predictions.

"The publication of these results is an important milestone in the development of expert computer systems to aid clinical practice", commented Professor Julio Montaner, Past President of the International AIDS Society and Director of the BC Centre for Excellence in HIV & AIDS, based in Vancouver, Canada. "The models harness the experience of hundreds of physicians treating thousands of patients and puts this distilled expertise in the hands of the individual physician via the click of a mouse."

Currently, when a patient's treatment fails and the levels of the virus increase, physicians usually run a genotype test, which detects mutations in the genetic code of the virus that can make it resistant to certain drugs. The physician then selects a combination of drugs that the test indicates will still be effective against the mutated virus. When the results of this test were compared with those of the RDI models they proved significantly less accurate as a predictor of response.

The RDI is an independent, not-for-profit international research collaboration set-up in 2002 with the mission to improve the clinical management of HIV infection through the application of bioinformatics to HIV drug resistance and treatment outcome data. Over the nine years since its inception, the RDI has worked with many of the leading clinicians and scientists in the world to develop the world's largest database of HIV drug resistance and treatment outcome data, containing information from approximately 85,000 patients in more than 20 countries.

The journal *AIDS* publishes the very latest ground-breaking research on HIV and AIDS. Read by all the top clinicians and researchers, *AIDS* has the highest impact of all AIDS-related journals.

Note: HIV-TRePS is an experimental system intended for research use only. The predictions of the system are not intended to replace professional medical care and attention by a qualified medical practitioner and consequently the RDI does not accept any responsibility for the selection of drugs, the patient's response to treatment or differences between the predictions and patients' responses.

Reference: Revell AD, Wang D, Boyd MA *et al* . The development of an expert system to predict virological response to HIV therapy as part of an online treatment support tool. *AIDS* 2011; **25**(15): 1855-1863.

Link to paper online:
http://journals.lww.com/aidsonline/Abstract/2011/09240/The_development_of_an_expert_system_to_predict.6.aspx

More information can be found at: www.hivrdi.org.

For further information contact:
Andrew Revell (Executive Director, RDI) on +44 207 226 7314, +44 7967 126498 (mobile) or andrewrevell@hivrdi.org

The following personnel are available for interview on request, through Andrew Revell above:
Dr Julio Montaner: Past President of the International AIDS Society and Director of the BC-Centre for Excellence in HIV & AIDS, based in Vancouver, Canada (time difference –8 hours)
Dr Brendan Larder: Scientific Chairman of the RDI, Cambridge, UK
Dr Andrew Revell: Executive Director, RDI, London, UK