



International Conference & Exhibition on Analytical and Bioanalytical Techniques 2010

ANALBIOANAL - 2010

Pharmaceutical R & D Summit

doi:10.4172/2155-9872.1000098

Analytical Strategies Employed for Doping Analysis in XIX Commonwealth Games-2010, in India

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The control of drug abuse in athletes has become a highly specialized complex task which requires use of sophisticated testing procedures. Doping control analysis using instrumental analytical tools have been performed since the 1960s when various measures were initiated to control the misuse of performance-enhancing drugs in sports. Each major game viz. Olympics, Asian games and Commonwealth Games sees enormous advances in doping control. The analytical strategies employed for the XIX Commonwealth games testing in India is in compliance with the WADA 'prohibited list' which includes hundreds of substances, ranging from volatile stimulants to modified polysaccharides and glycoproteins. Apart from prohibited substances, there are few methods which are also prohibited viz. blood transfusion and other forms of blood doping. The determination of low molecular weight (700-800 Da) substances (stimulants, narcotics, anabolic agents, glucocorticosteroids, beta-2-agonists, beta blockers, diuretics, antiestrogens, cannabinoids) was performed mainly by chromatographic- mass spectrometric technique which is considered as the gold standard for antidoping analysis. The protein chemistry and molecular biology components (EPO, CERA, Blood transfusion, Human Growth Hormone) are analyzed by dedicated analytical techniques for the identification of high molecular masses viz. electrophoresis, luminometry etc. The presentation will focus on the various analytical strategies employed in the testing of the mega event so as to set a milestone of excellence in the field of doping control.