The first B/G intersubtype recombinant form of human immunodeficiency virus type 1 (HIV-1) identified in Germany was undetected or underquantitated by some commercial viral load assays.

Abstract:
The high level of genetic diversity of human immunodeficiency virus type 1 (HIV-1) and the continual emergence of recombinant forms have important implications not only for the global evolution of HIV but also for diagnosis, monitoring, and treatment strategies. The present study reports the first intersubtype B/G recombinant strain of HIV-1 in Germany. This strain is notable from a clinical perspective, since it was undetectable in the NucliSens HIV-1 QT assay (Organon Tecknika/bioMérieux) and was significantly underquantitated in the Monitor v1.5 test (Roche Molecular Systems) relative to the LCx HIV RNA Quantitative assay (Abbott Laboratories). Gag-encoded p24 (gag p24), pol-encoded integrase (pol IN), and env-encoded gp41 (env gp41) immunodominant region (IDR) sequences were characterized to establish group and subtype designation and to evaluate the degree of genetic diversity at primer and probe binding sites of the viral load assays. Phylogenetic analysis revealed that this virus is an intersubtype B/G recombinant strain. The gag p24 region is subtype G, env gp41 IDR is subtype B, and pol IN is a B/G chimera. Nucleotide mismatches within primer and probe-binding sites provided the molecular basis for differences in quantitation observed between viral load assays. Genetic diversity of HIV-1 continues to challenge the reliability of detection.
and quantitation by viral load assays.