

## Characterization of variable regions of the Gp120 protein from HIV-1 subtype C virus variants obtained from individuals at different disease stages in Sub-Saharan Africa

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Development of a preventative vaccine against HIV is hampered by HIV envelope (Env) heterogeneity that makes it difficult to induce broad neutralizing antibodies against different HIV clades. Several studies indicate that gp120 Env protein sequence can undergo changes during the course of HIV to allow the virus to escape immune response. To define gp120 sequence changes, we characterized the gp120 variable regions of variants from 72 HIV-1-clade-C-infected patients from South Africa and Swaziland, naive for antiretroviral therapy and at different disease stages. Amino acid sequence length, presence of Putative N-Glycosylation Sites (PNGSs) and electric charge were investigated. According to Avidity Index and CD4+ T cell count, patients were classified for disease stage in three groups: early, chronic and late stage, each one comprised of 24 patients. The V1 to V5 Env regions were PCR amplified from plasma virus RNA and sequenced. A significant increase in the amino acid sequence length of V1 and V4 domains, and a corresponding increase of the “shifting” PNGSs were observed in variants obtained from individuals at chronic disease stage, as compared to early infection group. Finally, a significant increase of net electric positive charge of V5 loop was found in HIV variants from the group of subjects with late disease, as compared to the chronic disease group. We conclude that changes in sequence length, glycosylation pattern and net electrical charge in V1, V4 and V5 regions of gp120 occur in the course of HIV infection, possibly in response to the pressure of the host immune response.

### Biography

Stefano Butto has completed his studies in Biological Sciences in 1980, at the age of 25, at the University of Rome, “La Sapienza”. Since 2006, he is director of the “Division of Retrovirus Infections in developing countries” at the National AIDS Center of Istituto Superiore di Sanità (ISS) (National Health Institute) in Rome. In 1995, he got a permanent position as researcher at ISS and in 1994 he has been upgraded to senior investigator. He is author of more than 100 original paper, most of them on highly peer-reviewed journals and is on the board of editors of several journals.

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