

High frequency of gross deletion in 5' LTR/gag regions in HIV-1 infected long-term survivors treated with Korean red ginseng

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Abstract

Our previous studies have shown that gross deletion in *nef* gene as well as slow decrease in CD4 T cells are associated with Korean red ginseng (KRG) intake in HIV-1 infected patients. To our knowledge, there is no report on the high frequency of gross deletion in the genes other than *nef* gene. In the present study, to investigate whether there is the association between KRG intake and occurrence of gross deletion ($g\Delta$) in 5' LTR and *gag* region, we determined 1,125 bp over 5' LTR and *gag* genes in 10 long-term survivors (LTS) treated with KRG ($13,364 \pm 5,364$ g) for a prolonged period and 6 control LTS with no or a little KRG intake ($1,526 \pm 1,183$ g). A total of 187 PCR products were obtained from 80 PBMC samples in 10 LTS. All the 10 LTS revealed $g\Delta$ ranging from 33% to 86% in PBMC sample. Among the 80 PBMC and 187 PCR products, 44 PBMC samples (55%) and 72 PCR products (38.5%) revealed $g\Delta$, respectively. Median time for the detection of $g\Delta$ from KRG intake was 26 months. Among the 72 PCR products with $g\Delta$, 7 revealed deletion either 5' LTR or *gag* region. The deletion size in the remaining 59 was larger than 155 bp and it contained at least terminal part 33 bp of 5' LTR and initial part 29 bp of *gag* gene. The proportions of PBMC samples and PCR products with $g\Delta$ were significantly higher than 26.7% (8/30) and 13.9% (11/79) in control LTS ($P < 0.05$ and 0.0001, respectively). Irrespective of LTS, 13.3% (4/30) and 8.3% (5/60) were detected in another 28 control patients without KRG-intake. Taken together, these data suggest that occurrence of $g\Delta$ in 5' LTR and *gag* region is associated with KRG intake.

Keywords: grossly deletion in the 5' LTR/gag region, long-term survivors, HIV-1, Korean red ginseng