Abstract

Human immunodeficiency virus (HIV) is globally spread virus without available cure. Since its life-long presence, virus is carefully monitored as well as patient's immunological status. Replicative fitness of the virus is one of important aspects which can be taken into account, when monitoring HIV. Here, we are measuring HIV replicative fitness of *gag* recombinant viruses and comparing the results with replicative fitness of primary isolates. Further, we are comparing our findings of replicative fitness change over time with disease progression in the patient. We found that *gag* can be major contributor to overall fitness, although not in all cases. Additionally, we observed a correlation of replicative fitness development and slope of patient's $CD4^+$ T cells. Moreover, this relation was even more noticeable in patients with slow disease progression or in carriers of protective alleles. In summary, our results extend the understanding of replicative fitness and its role in disease progression; and pave the way to use the recombinant HIV for replicative fitness measurement in clinical practice.

Keywords: HIV, replicative fitness, recombinant virus, HIV disease progression, gag