REPORTE CORTO/SHORT REPORT

In vitro ANTI-HIV ACTIVITY OF TRANSFER FACTOR

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SUMMARY

Transfer Factor have been recently reported as an anti-retroviral agent in in vitro studies, targeting its action on the activity of the reverse transcriptase enzyme. Herein we described the study of in vitro antiviral activity of Transfer Factor and its chromatographic fractions.

INTRODUCTION

The pandemic behavior of AIDS disease has notably impulsed the use of antiviral drugs. Transfer Factor (TF), a dialyzable extract of human leukocyte lysates have been recently reported as an anti-retroviral agent in in vitro studies, targeting its action on the activity of the reverse transcriptase enzyme (1-2). Also, the usefulness of TF in early stages of HIV
infection was previously demonstrated in a clinical trial where progression to AIDS during treatment of seropositive asymptomatic HIV carriers was significantly lower for TF treated group as compared to the control group (3). Herein we described the study of in vitro antiviral activity of TF and its chromatographic fractions.

EXPERIMENTAL PROCEDURES

TF (25 U) was chromatographed on a Sephadex G-15 column and three fractions were collected (A, B and C). For toxicity testing culture of MT4 cells were incubated with various concentrations (0.6-10 U/mL) of TF and its fractions. Cell viability was determined 7 days from drug addition by tripan blue exclusion and the results were expressed as 50% cytotoxic dose (CD50) (4). To determine the levels of inhibition of HIV replication by TF we infected MT4 cell cultures, pre-treated for 3h or 7 days with TF nontoxic concentrations (or only 7 days for TF fractions), using the Bru viral isolate at 0.05 and 0.1 M.O.I for TF treated cells, or 0.5 and 1 M.O.I for TF-fractions treated cells. The viral p24 antigen present in culture fluids was quantitated by an ELISA system (DAVIH LAB) at seven days postinfection. The results were expressed as percentage of inhibition.

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\text{% of inhibition} = \frac{\text{unrelated cells} - \text{drug treated cells}}{\text{unrelated cells}} \times 100
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RESULTS AND DISCUSSION

The CD50 of TF was 4 U/mL, therefore we evaluate doses from 0.15 to 2.5 U/mL. The CD50 of fraction A was 4.4 U/mL and of B and C were 9.3 U/mL; we evaluate antiviral activity using 2.5 U/mL and 5 U/mL for A and B-C respectively. No effect was observed when MT4 cells were incubated with TF for only 3h. 1.25 and 2.5 U/mL of TF inhibited p24 production more than 50% at 0.1 M.O.I. More than 80% inhibition was observed for all doses at 0.05 M.O.I. Higher viral doses (M.O.I. 0.5 and 1) were used to evaluate the antiviral activity of TF fractions. Fraction B inhibits viral production more than 80%. According to p24 levels, fraction A was also inhibitory for viral production but this effect could result from the high cell mortality observed in the fraction A-treated cultures. Fraction C was not inhibitory for any viral dose used. The observed inhibitory effect on in vitro HIV replication by 7-days pre-treatment of target cells with TF or Fraction B indicates that they were able to modulate cell susceptibility to viral infection.

REFERENCES


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