Jacqueline A. MacDonald
Senior Staff Officer,
Water Science and Technology Board,
National Research Council,
Washington, DC 20418, USA
E-mail: jmacdona@nas.edu

■

Telomerase Activity of Reverse Transcriptase

In their report "Reverse transcriptase motifs in the catalytic subunit of telomerase" (25 Apr., p. 561), Joachim Lingner *et al.* demonstrate that such motifs are present in the catalytic subunit of the telomerase that they purified and identified in *Euplotes aediculatus*. They show that similar motifs exist in a homologous yeast gene and that alteration of these motifs by classical yeast genetics affects telomere elongation. After mentioning that telomerases are frequently called "specialized reverse transcriptases," they stress that three main features distinguish them from other reverse transcriptases: (i) telomerase uses only a small portion of its RNA subunit as a template; (ii) during processive synthesis of telomeric repeats, the substrate translocates from one end of the template to the other by an as-yet-unknown mechanism; and (iii) the telomerase protein is stably associated with its RNA subunit (a feature also found in retrotransposon reverse transcriptase).

On the other hand, we have recently shown that, under specific in vitro conditions, human immunodeficiency virus–type 1 (HIV-1) reverse transcriptase uses a portion of its template RNA to perform a reiterative synthesis; the substrate then translocates from one end of the template motif to the other, and the enzyme maintains a stable association with its RNA (*1*). On specific template sequences, it is therefore sufficient to modify the cationic environment (from manganese chloride to magnesium chloride in the reaction buffer) in order to switch the HIV-1 reverse transcriptase mode of synthesis from a regular one to a telomerase-like reiterative synthesis (as described in figure 9 of the report by Lingner *et al.*).

Thus, HIV-1 reverse transcriptase can display an appreciable telomerase-like activity, indicating that these enzymes are biochemically closely related.

Miria Ricchetti
Henri Buc
Unité de Physicochimie des Macromolécules Biologiques, Institut Pasteur,
25 rue du Docteur Roux
75724 Paris Cédex 15, France
E-mail: mricch@pasteur.fr
E-mail: henribuc@pasteur.fr

References

1. M. Ricchetti and H. Buc, *Biochemistry* **35**, 14970 (1996).

Corrections and Clarifications

Because of an editing error, the tricarboxylic acid (TCA) cycle was incorrectly identified in Steven Sparks' letter "The purpose of glycosis" (27 July, p. 459).

Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.