**Data Analysis Problem**

by Marianna Pap and József Szeberényi

to accompany

*The Cell: A Molecular Approach,* Eighth Edition

Geoffrey M. Cooper

**20.2 The Enzyme Activity Associated with an Oncogenic
RNA Virus**

This Data Analysis Problem does not appear in the textbook.

**Source:** Hatanaka, M., R. J. Huebner, R. V. Gilden. 1970. DNA polymerase activity associated with RNA tumor viruses. *Proc. Nat. Acad. Sci. USA* 67: 143–147.

**Level of difficulty:** Low

**Corresponding chapter(s) in the textbook:** Chapter 20

**Review the following terms before working on the problem:** oncogenic RNA viruses, deoxyribonucleosidetriphosphates, [3H]TTP, ether, *in vitro* enzyme assay, filter precipitation assay, radioactivity measurement

**Experiment**

Purified samples of an oncogenic RNA virus from viper were analyzed in this experiment. The virus samples were incubated in reaction mixtures containing dATP, dGTP, dCTP, and [3H]TTP, in the absence (●─●) or presence (○─○) of ether. Aliquots of the mixtures taken after the incubation times indicated in the figure were precipitated by ice cold trichloroacetic acid, the precipitates were collected on filters and the radioactivity of the filters was determined.

**Figure**



Source: Hatanaka, M., R. J. Huebner, R. V. Gilden. 1970. DNA polymerase activity associated
with RNA tumor viruses. *Proc. Nat. Acad. Sci. USA* 67: 143–147.

**Questions**

1. The radioactivity of what material was measured in this experiment?

2. What enzyme’s activity in the virus was identified?

3. Explain the effect of ether.