**Data Analysis Problem**

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to accompany

*The Cell: A Molecular Approach,* Eighth Edition

Geoffrey M. Cooper

**1.6 Analysis of Protein Synthesis in Adenovirus-Infected Cells**

This Data Analysis Problem does not appear in the textbook.

**Source:** Velicer, L. F., H. S. Ginsberg. 1968. Cytoplasmic synthesis of type 5 adenovirus capsid proteins. *Proc. Natl. Acad. Sci. USA* 61: 1264–1271.

**Corresponding chapter(s) in the textbook:** Chapter 1 (and 2 and 9)

**Review the following terms before working on the problem:** adenovirus, radioactive precursors, amino acids, pulse/chase labeling, protein synthesis, protein transport, light microscopy, autoradiography

**Experiment**

Human cells were infected with adenovirus, and 26 hours after infection were pulse-labeled with [3H]valine for 1 minute. The sample in micrograph A was processed immediately for microscopic analysis, while cells in micrograph B were chased with excess unlabeled valine for 1 hour after the 1-minute pulse-labeling before processing for microscopic analysis.

**Figure**



Source: Velicer, L. F., H. S. Ginsberg. 1968. Cytoplasmic synthesis of type 5 adenovirus capsid proteins. *Proc. Natl. Acad. Sci. USA* 61: 1264–1271.

**Questions**

1. What process was studied by [3H]valine labeling?

2. What is the aim of pulse-chase labeling?

3. What technique was used to detect radioactivity in the samples?

4. What conclusion can be drawn by comparing the two microscopy images?