S.G. is a 25 year-old P&S medical student who received a routine screening test for TB. The test consisted of an intradermal injection of PPD (purified protein derivative) derived from *Mycobacterium tuberculosis*. After 48 hr, S.G. noted a 10 mm induration around the injection site. There was no prior history of a positive PPD. He denied respiratory or constitutional symptoms. His chest X-ray was normal.

**Questions for Case 16**

1. What does a positive PPD mean from a clinical standpoint? From an immunological standpoint? If a skin biopsy were to be performed, what would the pathology look like?

2. Why did it take 48 hr for the PPD to become positive?

3. What cytokines are released locally at the site of a positive PPD? What are their functions?

4. Although its pathological appearance is not identical, contact hypersensitivity can cause a similar immunological reaction to the one described above. For example, poison ivy contains a small organic substance that is chemically reactive towards proteins. Once bound, the substance activates a hypersensitivity response. Explain how this substance, now defined as a “hapten,” elicits an immune response. What cells are involved in this response?