Lung cancer is the leading cause of cancer mortality for men and women in the United States and second only to cardiovascular disease as a cause of death for Americans. The American Cancer Society (ACS) estimates 171,900 new cases of lung cancer for 2003 (ACS, 2003). Smoking remains the greatest contributor to the development of lung cancer; in fact, 90% of all lung cancer cases are thought to be smoking related, with very few nonsmokers developing lung cancer (Greenlee, Hill-Harmon, Murray, & Thun, 2001). Lung cancer is considered to be one of the most preventable diseases because smoking abstinence and cessation drastically reduce its incidence. However, even if 100% of smokers were to cease immediately, new cases of lung cancer would continue to appear for many years because of the long lead time associated with the development of lung cancer (Greenlee et al.).

This article will review the biology of lung cancer and provide information on genetic carcinogenesis, specific mutations found in lung cancer, and cells’ signaling pathways. New therapies that target the specific biologic processes found in lung cancer will be explored. Further discussion will be provided about clinical trials and nursing implications.