In this special issue, seven articles explore developments in basic and applied research that are increasing our understanding of the pathways leading to cancer. The syringe symbolizes the new approaches to prevention and therapy that are being developed and tested as a result of research advances. See pages 1131 to 1177. In addition, there is a special section highlighting personalities and issues in European cancer research. See pages 1114 to 1119. [Cover illustration by Julie Cherry]