

# GENERAL ASPECTS OF CANCER CHEMOTHERAPY

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## 1. INTRODUCTION: SOME GENERAL COMMENTS ABOUT CANCER

*Cancer* is a collective term used to describe a group of different diseases that are characterized by the loss of control of cell growth and division, leading to a primary tumor that invades and destroys adjacent tissues. It may also spread to other regions of the body through a process known as metastasis, which is the cause of 90% of cancer deaths. Cancer remains one of the most difficult diseases to treat and is responsible for approximately 14.5% of all deaths worldwide. This incidence is increasing due to the aging of the population in most countries, including those under development. Indeed, against a widely held belief, more than two-thirds of all cancer deaths occur in low- and middle-income countries, and the estimated increase in cancer incidence by 2030, compared with 2008, will be greater in low- (82%) and lower-middle-income countries (70%) compared with the upper-middle- (58%) and high-income countries (40%).<sup>1</sup>

The creation in late 1971 of the U.S. National Cancer Program led by the National Cancer Institute (NCI) had as its most important consequence that the amount of basic science implied in these studies permitted the initial understanding of cancer development. Cancer has been redefined throughout the years,<sup>2</sup> and currently comprehensive views exist of how most cancers arise and function at the genetic and biochemical level. However, the cure of cancer continues to be a daunting objective<sup>3</sup> because of the high mutation potential of tumor cells and the original heterogeneity in genetic alterations of