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1 INTRODUCTION

Antimetabolites can be defined as analogs of naturally occurring compounds that interfere with their formation or utilization, thus inhibiting essential metabolic routes. Although the enzymes inhibited by antimetabolites are also present in normal cells, some selectivity toward cancer cells is possible due to their faster division rates.

Most antimetabolites interfere with nucleic acid synthesis, and for this reason we study in this chapter the antitumor compounds that hamper the production of DNA or RNA by a variety of mechanisms, including the following:

1. Competition for binding sites of enzymes that participate in essential biosynthetic processes
2. Incorporation into nucleic acids, which inhibits their normal function and triggers the apoptosis process

Because of this mode of action, most antimetabolites have high cell cycle specificity.

A brief outline of DNA biosynthesis is given in Figure 2.1, including the main steps where antimetabolite drugs discussed in this chapter exert their action.

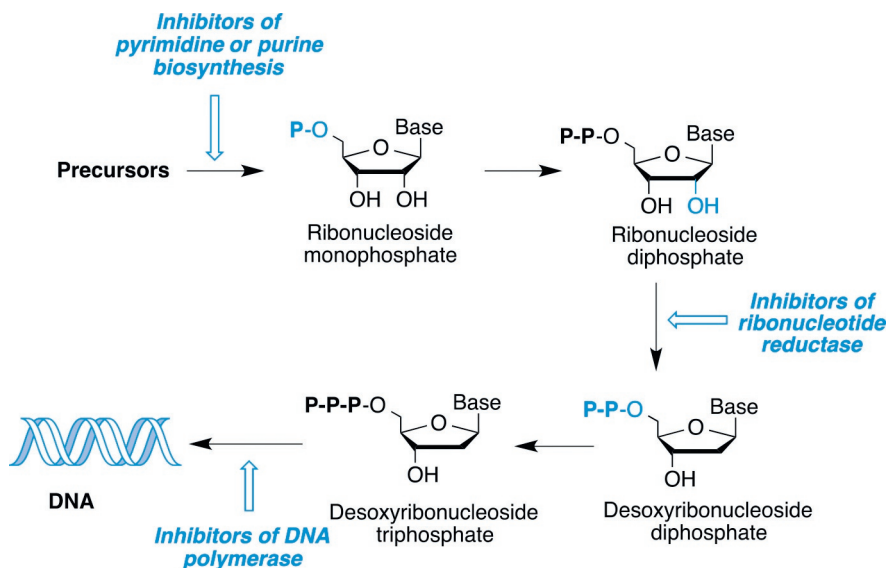


FIGURE 2.1

Types of anticancer drugs that interfere with DNA biosynthesis.