



**Figure 1.1 /** The human immune system: All blood cells originally come from the bone marrow. There are three main cell types in our blood: red blood cells, which carry oxygen to our tissues; platelets, which help the blood clot; and white blood cells (leucocytes), which are the main component of the human immune system. There are two main types of leucocytes: guardian cells responsible for innate immunity and lymphocytes responsible for specific immunity.

The guardian cells of the innate immune system form the first line of defence against infection and can digest pathogens or vaccine particles and use these to activate lymphocytes. In addition they produce chemicals capable of causing inflammation and amplifying specific immunity. These cells are the target of adjuvants in vaccines (Questions 2 and 3).

Lymphocytes have receptors for one antigen; that is, they are antigen specific. After infection or vaccination, specific lymphocytes recognise their target antigens, multiply and turn into short-lived effector cells or long-lived memory cells. Lymphocytes (T- and B-cells) have receptors on their surface for one particular antigen; that is, they are antigen specific.