

32 Red blood cells may contain a molecule known as 2,3-bisphosphoglycerate (2,3-BPG).

When 2,3-BPG binds to haemoglobin, a higher partial pressure of oxygen is needed to bring about 50% saturation of haemoglobin with oxygen.

Which statements about the effect of 2,3-BPG are correct?

- 1 2,3-BPG in red blood cells causes the oxygen dissociation curve to shift to the right.
- 2 The binding of 2,3-BPG to haemoglobin reduces the Bohr effect.
- 3 The binding of 2,3-BPG to haemoglobin lowers the affinity of the haemoglobin for oxygen.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

33 Which statement correctly describes the Bohr shift?

- A** the decrease in affinity of haemoglobin for oxygen that occurs when pH is lowered
- B** the increase in affinity of haemoglobin for oxygen that occurs when oxygen concentration rises
- C** the increase in affinity of haemoglobin for oxygen that occurs when pH is at an optimum
- D** the release of oxygen from oxyhaemoglobin in the absence of carbonic acid