

**AS Level Biology B**  
**H022/01** Foundations of biology

**Question Set 15**

- 1 Fig. 1 shows the number of cancer cases linked to human papilloma virus (HPV) that occurred worldwide in 2002.

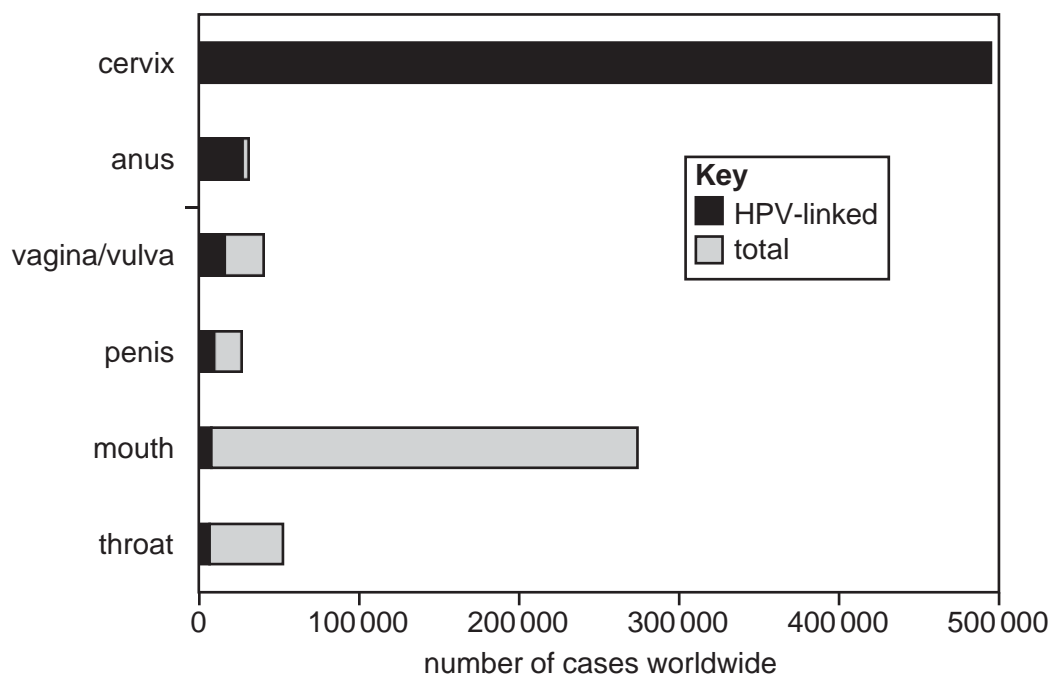


Fig. 1

- (a) It has been concluded that women are at greater risk than men of developing cancer linked to HPV. The most common cancer linked to HPV in women is cervical cancer.

(i) Using Fig. 1, suggest what additional information would be needed to conclude that women are at greater risk than men of developing **other** cancers linked to HPV.

[1]

(ii) A vaccine against HPV has been developed to protect young women from cervical cancer. It has been suggested that young men could also benefit from this vaccine.

Suggest why some people might object to compulsory vaccination of young men.

[2]

- (b) In the UK, the HPV vaccine is now part of the national childhood vaccination programme.

Administration of vaccines such as the HPV vaccine is an example of a type of artificial immunity.

(i) Describe examples of **two** types of **natural** immunity.

[3]

- (ii) Studies have shown the presence of memory B lymphocytes in recipients of the HPV vaccine eight years after it was administered.

Outline the role of memory B lymphocytes in providing long-term immunity to HPV.

[3]

- (c) In some areas of the UK, screening tests for HPV were trialled in addition to the normal cervical screening test.

Suggest why women in these trials were offered both screening tests.

[1]

**Total Marks for Question Set 15: 10**



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