Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

fluconazole: **B**, making ergosterol

amphotericin B: **C**, ergosterol in the membrane

caspofungin: **A**, glucan in the cell wall

2.2

fungi are eukaryotes, like human cells

so there are fewer targets found only in the microbe

2.3

$250 \div 5000$

$= \mathbf{5\%}$

2.4

a **worm** (helminth) infection

IgE

Schistosoma

3.1

(a) *P. falciparum*

(b) thick and thin blood films (or an antigen test); repeat 3 times over 48–72 hours

(c) **3%**

(d) infected red cells stick to the walls of small vessels, blocking blood flow in the brain

(e) it has no sleeping liver forms (hypnozoites)

3.2

(a) to kill the sleeping liver forms (hypnozoites) and stop relapse

(b) primaquine causes oxidative stress in red cells; without G6PD the red cells cannot cope and burst (haemolysis)

(c) infected trait cells sickle and are removed by the spleen before the parasite can multiply

3.3

(a) *Aspergillus*

(b) neutrophils normally kill the fungal threads (hyphae); without them the hyphae grow into lung tissue and blood vessels

(c) a sugar from the *Aspergillus* cell wall, found in the blood

(d) it stops the fungus making ergosterol, so its cell membrane is faulty

(e) voriconazole blocks CYP3A4, so tacrolimus is broken down more slowly and builds up; lower the tacrolimus dose and check its blood level

exercises.lol exercises.com.cn