C2.2 Neural signalling: data-based questions

What the Cell · DP Biology · data-based questions

Name _____ **Date** _____ **Total** _____ / 8

Read the data carefully before you answer. The number of marks shows how many separate points to make. Show your working in calculations.

1 Smelling danger

8 marks

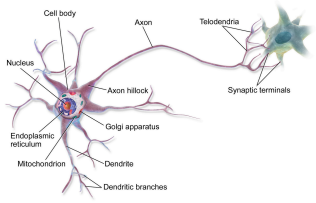
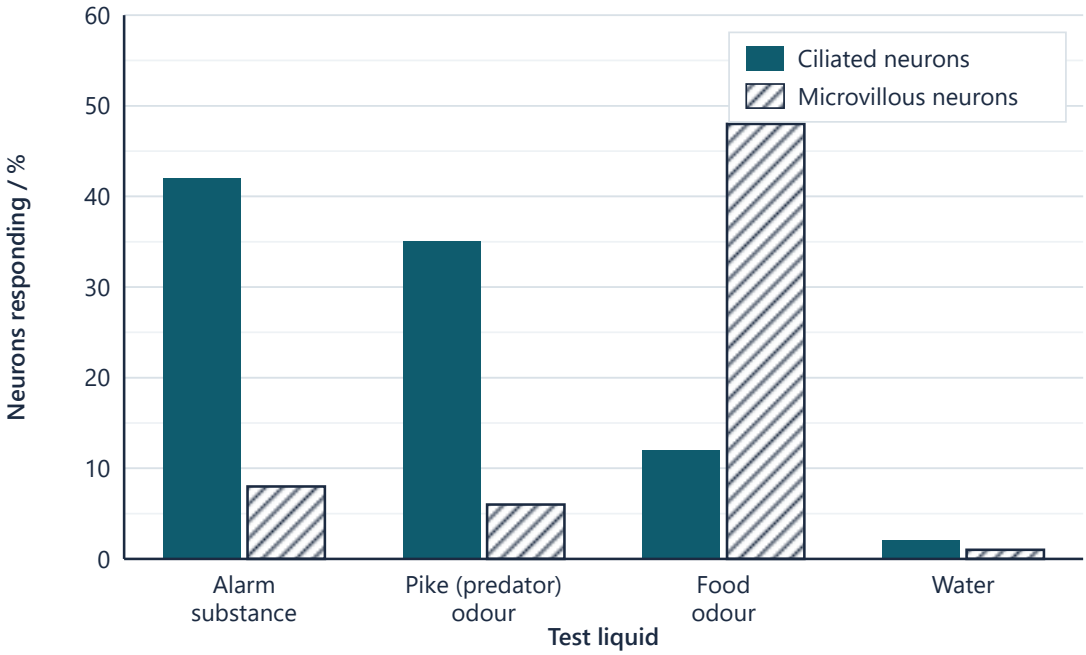


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When a fish is injured, its skin releases an alarm substance that warns other fish. Scientists recorded from two types of smell (olfactory) neurons in the noses of zebrafish while washing over one of four test liquids. The graph shows the percentage of neurons of each type that responded with action potentials.



a **State** the percentage of ciliated neurons that responded to pike odour. **[1]**

b **Identify**, with a reason, which type of neuron is mainly used to detect danger. **[1]**

c **Explain** why water was included as one of the test liquids. **[1]**

d **Compare** the responses of the two types of neuron to alarm substance and food odour. **[2]**

e **Explain** how the nervous system could tell a strong smell from a weak one, given that action potentials are all-or-nothing. **[2]**

f **Suggest** an advantage of detecting alarm substance and predator odour with the same neurons. **[1]**