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4[B] – Genetic Clues eTOC Lesson9 G2 Chobun TypeB

In recent years, it has become common for police to use DNA analysis to solve crimes.
This usually involves a technique known as “genetic fingerprinting”.
Most of the genetic information in DNA is the same for everyone, but a small percentage is unique to each individual.
By comparing someone’s DNA to that found at the scene of the crime, it is possible to prove that he or she was there.
Now, though, the police have begun expanding this DNA analysis to cats.

Further Questions& Sample Answers

1) What technique has become for police to use to solve crimes?
They use genetic fingerprinting.

2) Is most DNA in people different?
No. Only a small amount of the DNA is different from person to person.

The usefulness of this was first shown in Canada.
The police there suspected a man of carrying out a murder, but they had no evidence that he was present at the crime.
They did, however, find a jacket nearby on which there were some white hairs.
One of the policemen remembered that the parents of the man had a white cat.
They asked scientists to compare DNA from both the cat and the white hairs.
They also took DNA samples from other cats in the neighborhood.
The DNA from the hairs and the parent’s cat turned out to be the same, and different from that of the other cats.
This showed that the jacket belonged to the man and he was sent to prison for the crime.

Further Questions& Sample Answers

3) Where was genetic fingerprinting for cats first used?
It was first used on a murder case in Canada.

4) Why did the police take DNA samples from other cats in the neighborhood?
They took DNA from other cats to find out how different they were from the white hairs.

The biggest difficulty with genetic fingerprinting is making sure which part of the DNA is unique.
For this reason, it is important to have some examples of DNA of genetically related animals to identify which genes are shared and which are not.
With this in mind, the United States Federal Bureau of Investigation (FBI) requested

scientists to establish databases of animal DNA.
In response, a team led by Robert Grahn, a scientist at the University of California at Davis, began to collect DNA from cats around the world.
The team's database now has DNA from 1,394 different cats.

Further Questions& Sample Answers

5) What has the FBI requested scientists to establish?
The FBI asked scientists to establish a database of animal DNA.

6) How many different cats does the database now have the profiles of?
It contains the DNA profiles of 1,394 different cats.

Although the scientists plan to include the DNA of dogs and other animals, they believe that cat DNA will be especially useful.
This is because cats leave fur behind wherever they go.
This makes it almost impossible for people nearby to avoid getting fur on their clothes.
For this reason, police confidently expect the DNA of cats to play a part in many future crime investigations.
*DNA = deoxyribonucleic acid

Further Questions& Sample Answers

7) Why do scientists believe that cat DNA will be more useful than other animals?
Cats leave fur behind more than other common pets.

8) How helpful do you think that this database will be in solving future crimes?
It's unlikely criminals will come in contact with the cats in the database,
so it's more useful for studying the genome than solving crime.

***Choose the correct answer from these choices.**

(37) The technique of "genetic fingerprinting"
1 was first tested on cats but is now also being used for human beings.
2 relies on the fact that the DNA of each individual is slightly different.
3 can be used to determine the types of people likely to commit crimes.
4 is a way of discovering similarities between two separate crime scenes.

(38) What did genetic fingerprinting show the police in Canada?
1 That the white hairs found on the jacket belonged to the victim of a murder.
2 That the jacket found at the crime scene belonged to the murderer's father.
3 That a man they suspected of murder had been at the scene of the crime.
4 That a man had been wrongly sent to prison for murdering someone.

(39) What is one thing that the new database will do?
1 Show which genes are shared by genetically related animals.
2 Provide a list of cats that have been at crime scenes around the world.
3 Store information about experts on genetic fingerprinting.
4 Identify which types of DNA are unique to humans.

73.(40) Why do the police think cat DNA will be more useful to them than DNA from other animals?

74.1 Cats are less likely to be noticed at a crime scene.
75.2 Cats have a wider variety of DNA than other animals.
76.3 Cat fur tends to remain at a crime scene for a longer time.
77.4 Cat fur is more likely to be found on criminals' clothes.

Review Questions

1.1) What technique has become for police to use to solve crimes?
2.*They use genetic fingerprinting.*

3.2) Is most DNA in people different?
4.*No. Only a small amount of the DNA is different from person to person.*

5.3) Where was genetic fingerprinting for cats first used?
6.*It was first used on a murder case in Canada.*

7.4) Why did the police take DNA samples from other cats in the neighborhood?
8.*They took DNA from other cats to find out how different they were from the white*
9.*hairs.*

10.5) What has the FBI requested scientists to establish?
11.*The FBI asked scientists to establish a database of animal DNA.*

12.6) How many different cats does the database now have the profiles of?
13.*It contains the DNA profiles of 1,394 different cats.*

14.7) Why do scientists believe that cat DNA will be more useful than other animals?
15.*Cats leave fur behind more than other common pets.*

16.8) How helpful do you think that this database will be in solving future crimes?
17._*It's unlikely criminals will come in contact with the cats in the database,*
18._*so it's more useful for studying the genome than solving crime.*
19.

*genome = 生物(せいぶつ)が機能的(きのうてき)に完全(かんぜん)な生活(せいかつ)をするために必要(ひつよう)な遺伝子群(いでんしぐん)を含(ふく)む染色体(せんしょくたい)の一組(ひとくみ)

解答: (37) 2 (38) 3 (39) 1 (40) 4

日本語訳付

4[B]– Genetic Clues (遺伝子(いでんし)の 手掛(てが)かり) Lesson9 G2 Chobun dokkai 10.3(4B)A2E

78.In recent(最近(さいきん)の) years, it has become common(ありふれた) for police to use DNA analysis(分析(ぶんせき)) to solve(解決(かいけつ)する) crimes(犯罪(はんざい)).
79.This usually involves(巻(ま)き添(ぞ)えにする) a technique(技術(ぎじゅつ)) known as "genetic fingerprinting(遺伝子鑑定(いでんしかんてい))".

遺伝子（いでんし）の
80. Most of the genetic information in DNA is the same for everyone, but a small
割合（わりあい） 独特（どくとく）な 個々（ここ）の
percentage is unique to each individual.
比較（ひかく）すること きづいた
81. By comparing someone's DNA to that found at the scene of the crime, it is
証明（しょうめい）する
possible to prove that he or she was there.
だけども 拡大（かくだい）する 分析（ぶんせき）
82. Now, though, the police have begun expanding this DNA analysis to cats.

Further Questions& Sample Answers

技術（ぎじゅつ） 解決（かいけつ）する 犯罪（はんざい）
83. 1) What technique has become for police to use to solve crimes ?
84. 犯罪を解決するために使う警察官の技術は何ですか。
85. *They use genetic fingerprinting.*

86. 2) Is most DNA in people different? ほとんどの DNA は異なりますか。
量（りょう）
87. *No. Only a small amount of the DNA is different from person to person.*

役（やく）に立（た）つ 最初（さいしょ）の
88. The usefulness of this was first shown in Canada.
あやしい 遂行（すいこう）している 殺人（さつじん）
89. The police there suspected a man of carrying out a murder , but they had no
証拠（しょうこ） 居合（いあ）わせて
90. evidence that he was present at the crime.
しかしながら 近（ちか）くの
91. They did, however, find a jacket nearby on which there were some white hairs.
思（おも）い出（だ）した
92. One of the policemen remembered that the parents of the man had a white cat.
科学者（かがくしゃ） くらべる
93. They asked scientists to compare DNA from both the cat and the white hairs.
標本（ひょうほん） 近隣（きんりん）
94. They also took DNA samples from other cats in the neighborhood.
～であるとわかる
95. The DNA from the hairs and the parent's cat turned out to be the same, and
96. different from that of the other cats.
証明（しょうめい）した ～のものであった
97. This showed that the jacket belonged to the man and he was sent to
刑務所（けいむしょ） 犯罪（はんざい）
98. prison for the crime .

Further Questions& Sample Answers

99. 3) Where was genetic fingerprinting for cats first used?
100. 初めて猫の遺伝子鑑定をしたところはどこですか。
殺人（さつじん） 事件（じけん）
101. *It was first used on a murder case in Canada.*

標本（ひょうほん）
102. 4) Why did the police take DNA samples from other cats in the neighborhood?
103. 警察が近所の他の猫から DNA 標本 を取ったのはなぜですか。
104. *They took DNA from other cats to find out how different they were from the white hairs.*

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105. The biggest difficulty (困難（こんなん）) with genetic fingerprinting is making sure (確実（かくじつ）にしている) which part of
106. the DNA is unique (特有（とくゆう）で) .
107. For this reason, it is important to have some examples (例（れい）) of DNA of genetically (遺伝的（いでんてき）に)
108. related (関連（かんれん）した) animals to identify (見分ける) which genes (遺伝子（いでんし）) are shared (役割（やくわり）をあたえられた) and
109. which are not.
110. With this in mind (念頭（ねんとう）において), the United States Federal Bureau of Investigation (捜査（そうさ）) (FBI)
111. requested (頼（たの）む) scientists to establish (制定（せいてい）する) databases (検索可能（けんさくかのう）にする為（ため）の機能（きのう）) of animal DNA.
112. In response (応（こた）えて), a team led (導（みちび）かれた) by Robert Grahn, a scientist at the University (大学（だいがく）) of
113. California at Davis, began to collect (集（あつ）める) DNA from cats around the world.
114. The team's database now has DNA from 1,394 different cats.

Further Questions& Sample Answers

115. 5) What has the FBI requested (要請（ようせい）した) scientists to establish (設立（せつりつ）する) ?
116. FBI が科学者達（かがくしゃたち）に要請（ようせい）して設立（せつりつ）したものは何（なん）ですか。
117. *The FBI asked scientists to establish a database of animal DNA.*

118. 6) How many different cats does the database now have the profiles (プロフィール) of?
119. このデータベースには今何種類（いまなんしゅるい）の猫（ねこ）のプロフィールがありますか。
120. *It contains (含（ふく）む) the DNA profiles of 1,394 different cats.*

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121. Although (だけども) the scientists plan to include (～を含（ふく）む) the DNA of dogs and other animals,
122. they believe (思（おも）う) that cat DNA will be especially (特（とく）に) useful (役（やく）にたつ) .
123. This is because cats leave (残（のこ）す) fur (毛皮（けがわ）) behind (去（さ）ったあとに) wherever (～する所（ところ）はどこでも) they go. This makes (～になる) it
124. almost impossible (不可能（ふかのう）な) for people nearby (近（ちか）くの) to avoid (避（さ）ける) getting (付くこと) fur on their clothes.
125. For this reason (理由（りゆう）), police confidently (自信（じしん）をもって) expect (期待（きたい）する) the DNA of cats to play a part (役割（やくわり）をはたす)
126. in many future (将来（しょうらい）) crime (犯罪（はんざい）) investigations.
127. *DNA = deoxyribonucleic (デオキシ・リボ核（かく）の) acid (酸（さん）) = 生化学 (せいかがく)

Further Questions& Sample Answers

128. 7) Why do scientists believe that cat DNA will be more useful than other animals?
129. なぜ科学者（かがくしゃ）たちは猫（ねこ）の DNA は他（ほか）の動物（どうぶつ）より役（やく）に立（た）つと信（しん）じているのですか。
130. *Cats leave fur behind more than other common (ありふれた) pets.*

131. 8) How helpful (役立つ) do you think that this database will be in solving (解決（かいけつ）する) future crimes?
132. このデータベースは将来（しょうらい）の犯罪（はんざい）にどのくらい役立（やくだ）つと思（おも）いますか。
133. *It's unlikely (ありそうもない) criminals (犯罪（はんざい）の) will come in contact (接触（せっしょく）において) with the cats in the database,*
134. *so it's more useful for studying the genome (ゲノム) than solving crime.*

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*Choose the correct answer from these choices.

(37) The technique of "genetic fingerprinting" 遺伝子鑑定の技術は…

1 was first tested on cats but is now also being used for human beings.

2 relies on the fact that the DNA of each individual is slightly different.

3 can be used to determine the types of people likely to commit crimes .

4 is a way of discovering similarities between two separate crime scenes .

(38) What did genetic fingerprinting show the police in Canada?

遺伝子鑑定によってカナダの警察は何がわかりましたか。

1 That the white hairs found on the jacket belonged to the victim of a murder .

2 That the jacket found at the crime scene belonged to the murderer's father.

3 That a man they suspected of murder had been at the scene of the crime.

4 That a man had been wrongly sent to prison for murdering someone.

(39) What is one thing that the new database will do?

新しいデータベースがすることの一つは何ですか。

1 Show which genes are shared by genetically related animals.

2 Provide a list of cats that have been at crime scenes around the world.

3 Store information about experts on genetic fingerprinting.

4 Identify which types of DNA are unique to humans.

(40) Why do the police think cat DNA will be more useful to them than DNA from other animals? なぜ警察は猫の DNA が他の動物からの DNA よりも、彼らにとって有用だと考えていますか。

1 Cats are less likely to be noticed at a crime scene.

2 Cats have a wider variety of DNA than other animals.

3 Cat fur tends to remain at a crime scene for a longer time.

4 Cat fur is more likely to be found on criminals' clothes.

Review Questions

1) What technique has become for police to use to solve crimes ?

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166. 5) What has the FBI requested (要請（ようせい）した) scientists to establish (設立（せつりつ）する) ?

167. *The FBI asked scientists to establish a database of animal DNA.*

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169. *It contains (含（ふく）む) the DNA profiles of 1,394 different cats.*

170. 7) Why do scientists believe that cat DNA will be more useful than other animals?

171. *Cats leave fur behind more than other common (ありふれた) pets.*

172. 8) How helpful (役立つ) do you think that this database will be in solving (解決（かいけつ）する) future crimes?

173. *It's unlikely (ありそうもない) criminals (犯罪（はんざい）の) will come in contact (接触（せっしょく）において) with the cats in the database, so it's more useful for studying the genome (ゲノム) than solving crime.*

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解答: (37) 2 (38) 3 (39) 1 (40) 4