

Graduate School of Medicine Akita University
Entrance Examination (Doctoral Course)
(Second time)

English

10:00～11:40

December 21, 2023

You have three QUESTION SHEETs and two ANSWER SHEETs.
Write all your answers on your ANSWER SHEETs.
Submit only your ANSWER SHEETs.
Do not open the questions until the supervisor gives instructions.

I Answer the following questions after having read the following sentences.

(Text omitted)

(Text omitted)

(Text omitted)

<Gabriel Hancu and Adriana Modroiu, Chiral Switch: Between Therapeutical Benefit and Marketing Strategy, Pharmaceuticals, 2022, 15, 240>

Q 1 Explain in less than 100 words the reasons for considering it as underlined.

Q 2 Explain “chiral switch” in less than 30 words.

Q 3 Explain why ibuprofen is used as a racemate in less than 50 words.

Q 4 Which of 1) *R*-ibuprofen and 2) *S*-ibuprofen is “eutomer”?

1) *R*-ibuprofen

2) *S*-ibuprofen

Applicant Number		Name	
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English (Doctoral Course) : Answer Sheet

1/2

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Q1 Explain in less than 100 words the reasons for considering it as underlined.

Q2 Explain “chiral switch” in less than 30 words.

Applicant Number		Name	
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English (Doctoral Course) : Answer Sheet

2/2

Q3 Explain why ibuprofen is used as a racemate in less than 50 words.

Q4 Which of 1) R-ibuprofen and 2) S-ibuprofen is “eutomer”?

- 1) *R*-ibuprofen
- 2) *S*-ibuprofen

【博士 英語 (英文)】

Question 1 Explain in less than 100 words the reasons for considering it as underlined.

(25 点)

例 62words

The desired pharmacological effect is generally limited to only one of the enantiomers, while the other enantiomer may be inactive, less active or in some cases may even be responsible for the adverse effects of the racemate. Thus, in a chiral environment, enantiomers with different pharmacological and pharmacokinetic properties can act as different drugs. Therefore, developing an enantiopure medicine should be desired.

Question 2 Explain “chiral switch” in less than 30 words. (25 点)

例 17words

It means that racemate was switched to the use of the pure enantiomers with only pharmacological activity.

Question 3 Explain why ibuprofen is used as a racemate in less than 50 words. (25 点)

例 29words

S-Ibuprofen is an over 100-fold more potent COX-2 inhibitor than *R*-ibuprofen. Racemic ibuprofen undergoes quick and significant unidirectional chiral inversion, resulting in mostly *S*-ibuprofen and minimal *R*-ibuprofen in circulation.

Question 4 Which of 1) *R*-ibuprofen and 2) *S*-ibuprofen is “eutomer”? (25 点)

1) *R*-ibuprofen

2) *S*-ibuprofen ☐