R7.8.19実施

〔大学院医薬理工学環　博士前期課程〕
〔Graduate School of Pharma-Medical Sciences〕(Master's Course)

創薬・製剤工学プログラム(Pharmaceutical Science and Technology)
応用和漢医薬学プログラム(Applied Natural Medicine)
認知・情動脳科学プログラム(Cognitive and Emotional Neuroscience)

科目名(Subject)　小論文・適性検査(Short Essay and Aptitude Test)

受験番号(Examinee's No.)

氏　名(Name)

(裏面にわたる場合は，この線より下に解答すること。)
(If your answer is longer than the space provided, you can write on the back of this page, but please write below this line.)

あなたが大学院医薬理工学環・博士前期課程で取り組む予定の研究について、以下の 4 つの観点から論じなさい。(1) その研究においてあなたが最も関心を持っている点、(2) これまでの経歴や学修がどのように活かされるか、(3) 研究において必要とされる倫理的配慮、(4) 研究目的が達成された場合に考えられる応用の可能性。日本語・英語のいずれかで回答してください。

Discuss the research you plan to undertake in the Master's Program of the Graduate School of Pharma-Medical Sciences, addressing the following four points: (1) The aspect of the research that most interests you, (2) How your academic or professional background will contribute to the project, (3) Ethical considerations that must be addressed in your research, and (4) Potential applications if your research objectives are successfully achieved. You can answer in either English or Japanese.

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出題の意図：

本設問は、受験者が大学院で取り組む予定の研究について、これまでの経歴と結びつけながら論理的に述べることを通じて、以下の点を評価することを目的としています：
・論理的思考力および文章構成力
・研究倫理に対する理解
・科学分野に関する基礎的知識や研究遂行能力
・自身の研究の社会的意義や応用展望に対する理解と意欲

定型的な模範解答はありませんが、与えられた 4 つの観点を踏まえて論理的に構成され、倫理的観点への配慮が示されているかどうかが採点の基準となります。

Purpose of the Question:

This question is designed to evaluate the applicant's ability to logically articulate their intended research based on their previous academic or professional experience. Specifically, it assesses:
・Logical reasoning and coherent writing ability
・Understanding of research ethics
・Knowledge and competence in science or related fields
・Awareness of the broader significance and possible applications of your research

There is no single correct answer; rather, the applicant's response will be assessed on how logically and ethically they address the four points provided.

応用和漢医薬学プログラム(Applied Natural Medicine)　受験番号(Examinee's No.)

科目名(Subject)　外国語（英語）(Foreign Language(English))　氏 名(Name)

（全1枚中の1枚目）

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Aspirin, often referred to as the "king of medicines," stands as a quintessential example of pharmaceuticals derived from salicylic acid. In the context of this program, understanding the knowledge of plant-based medications is crucial. Therefore, describe in as much detail as possible what you know about aspirin including recent new application examples.

〔大学院医薬理工学環博士前期課程〕(外国人留学生特別入試)　　(第２回)

応用和漢医薬学プログラム(Applied Natural Medicine)　　受験番号(Examinee's No.)

科目名(Subject)　外国語（英語）(Foreign Language(English))　氏 名(Name)

(全2枚中の1枚目)

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Aspirin, often referred to as the "king of medicines," stands as a quintessential example of pharmaceuticals derived from medicinal plants. In the context of this program, understanding the knowledge of plant-based medications is crucial. Therefore, describe in as much detail as possible what you know about aspirin including recent new application examples.

【出題の意図（Intention of the question)】
薬用植物由来の医薬品は現在もなお極めて重要な位置を占めている。これら先例薬用植物由来の医薬品の開発経緯や作用を知識として身につけることは、今後応用和漢医薬学プログラムで学ぶ上で大切な要素であると考えられる。
そこで、薬用植物由来の医薬品の代表例であるアスピリンについての論述を英語で求める。
アスピリンは、従来の解熱鎮痛作用のみならず、少量の使用では心筋梗塞、脳梗塞、突然死などの予防効果、さらには各種固形がんに対する予防効果も近年注目されていることから、英語試験の題材として取り上げた。

【解答例（Sample Answer)】
Aspirin, also known as acetylsalicylic acid (ASA), is a nonsteroidal anti-inflammatory drug (NSAID). It is commonly used to reduce pain, fever, and inflammation.

Aspirin has several uses, including:

- Pain relief: Effective for headaches, muscle aches, and joint pain.
- Fever reduction: Helps lower body temperature.
- Anti-inflammatory: Reduces inflammation and swelling.
- Cardiovascular health: Used to prevent heart attacks, strokes, and blood clots in high-risk individuals.
- Treatment of certain conditions: Such as Kawasaki disease, pericarditis, and rheumatic fever.

Aspirin works by inhibiting the production of prostaglandins (inhibition of Cox), which are chemicals in the body that promote inflammation, pain, and fever. It also suppresses the normal functioning of platelets, which are involved in blood clotting.

Common side effects of aspirin include:

- Upset stomach
- Stomach ulcers and bleeding
- Worsening asthma
- Ringing in the ears (tinnitus) with high doses

Precautions

- Not recommended for children: Due to the risk of Reye's syndrome, a serious condition affecting the liver and brain.
- Pregnancy: Should be avoided in the last part of pregnancy.
- Allergies: Avoid if allergic to NSAIDs.
- Bleeding disorders: Not suitable for individuals with bleeding disorders or recent stomach/intestinal bleeding.

Histry

- Aspirin is derived from salicylic acid, which has been used for its health benefits for over 2,400 years. The modern form of aspirin was first synthesized in 1853 by chemist Charles Frédéric Gerhardt.

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Aspirin and Cancer Prevention

Research over the past few decades has suggested that regular use of aspirin may have a preventive effect on certain types of cancer. Here are some key points:

Colorectal Cancer

- Strong Evidence: The most consistent evidence for aspirin's cancer-preventive effects is in colorectal cancer. Studies have shown that regular aspirin use can significantly reduce the risk of developing colorectal cancer.
- Mechanism: Aspirin reduces inflammation and abnormal blood vessel growth, which are key factors in the development of colorectal cancer.

Other Cancers

- Breast Cancer: Some studies suggest a reduced risk of breast cancer with regular aspirin use, but the evidence is not as strong as for colorectal cancer.
- Prostate Cancer: There is mixed evidence regarding aspirin's effect on prostate cancer, with some studies showing a reduced risk and others showing no significant effect.
- Other Cancers: Research is ongoing to determine if aspirin can help prevent other types of cancer, such as lung, esophageal, and stomach cancers.

Clinical Trials and Recommendations

- ASPREE Trial: A large clinical trial called ASPREE found that for adults aged 70 or older, taking low-dose aspirin daily may increase the risk of advanced cancer. However, it did not significantly reduce the overall incidence of cancer.
- USPSTF Recommendations: The U.S. Preventive Services Task Force (USPSTF) recommends low-dose aspirin for certain individuals to reduce the risk of cardiovascular disease and colorectal cancer.

Mechanisms of Action

- Inflammation Reduction: Aspirin inhibits the production of prostaglandins, which are chemicals that promote inflammation.
- Platelet Function: Aspirin suppresses platelet aggregation, which can reduce the risk of cancer by preventing abnormal blood clotting and tumor growth.
- Immunologic Effects: Aspirin may enhance the body's immune response to cancer cells.

Considerations and Precautions

- Side Effects: Regular aspirin use can lead to side effects such as gastrointestinal bleeding and ulcers.
- Individual Risk: The decision to use aspirin for cancer prevention should be made in consultation with a healthcare provider, considering individual risk factors and medical history.

R7.2.27実施

〔大学院医薬理工学環博士前期課程〕(外国人留学生特別入試)　(第２回)

応用和漢医薬学プログラム(Applied Natural Medicine)

科目名(Subject)　受験番号(Examinee's No.)

小論文・適性検査(Short Essay and Aptitude Test)

分野名(Educational Area)　Bio-functional Molecule Engineering　氏 名(Name)

(裏面にわたる場合は，この線より下に解答すること。)

(If your answer is longer than the space provided, you can write on the back of this page, but please write below this line.)

応用和漢医薬学プログラムでは，様々なアプローチによって和漢医薬学の応用に貢献できる人材を育成することになる。あなたの研究内容をいかに和漢医薬学の応用に資することができるか，また研究を進めるにあたり，あなたの研究の意義を述べた上で，解決すべき課題と解決に向けた方略を述べなさい。英語，日本語どちらで回答しても構いません。

In the program of Applied Natural Medicine, we will cultivate human resources who can contribute to the application of natural medicine through various approaches. How can your research contribute to the application of natural medicine? And as you proceed with your research, state the significance of your study, identify the issues that need to be addressed, and describe the strategies for addressing them. You may answer in either English or Japanese.

〔大学院医薬理工学環博士前期課程〕(外国人留学生特別入試)　　(第２回)

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【出題の意図 (Intention of the question)】

大学院教育において最も重要なことは，如何に自ら進んで学ぶことができる環境を整えるか，即ち「アクティブラーニング」の機会を提供できるかである、そのためには，自身の研究内容，研究の意義，解決すべき課題の把握，および解決方法を熟知する必要がある。当該プログラムのディプロマポリシーに照らした人材育成を推進するためには，入学時に上記考えをしっかりと備えていること，および入学後は本プログラムで用意されているカリキュラムを能動的に学ぶ必要がある。これらを踏まえて，上記内容の小論文，適性検査を実施する必要があることを出題の意図としている。