Sir Alexander Fleming

A. Sir Alexander Fleming is a Scottish bacteriologist best known for his discovery of penicillin. Fleming had a genius for technical ingenuity and original observation. His work on wound infection and lysozyme, an antibacterial enzyme found in tears and saliva, guaranteed him a place in the history of bacteriology. But it was his discovery of penicillin in 1928, which started the antibiotic revolution that sealed his lasting reputation. Fleming was recognized for that achievement in 1945, when he received the Nobel Prize for Physiology or Medicine, along with Australian pathologist Howard Walter Florey and German-born British biochemist Ernst Boris Chain, both of whom isolated and purified penicillin.

B. Fleming was the seventh of eight children of a Scottish hill farmer (third of four children from the farmer's second wife). His country upbringing in southwestern Scotland sharpened his capacities for observation and appreciation of the natural world at an early age. He began his elementary schooling at Loudoun Moor and then moved on to a larger school at Darvel before enrolling in Kilmarnock Academy in 1894. In 1895 he moved to London to live with his elder brother Thomas (who worked as an oculist) and completed his basic education at Regent Street Polytechnic. After working as a London shipping clerk, Fleming began his medical studies at St. Mary's Hospital Medical School in 1901, funded by a scholarship and a legacy from his uncle. There he won the 1908 gold medal as top medical student at the University of London. At first, he planned to become a surgeon, but a temporary position in the laboratories of the Inoculation Department at St. Mary's Hospital convinced him that his future lay in the new field of bacteriology. There he came under the influence of bacteriologist and immunologist Sir Almroth Edward Wright, whose ideas of vaccine therapy seemed to offer a revolutionary direction in medical treatment.

C. In November 1921 Fleming discovered lysozyme, an enzyme present in body fluids such as saliva and tears that has a mild antiseptic effect. That was the first of his major discoveries. It came about when he had a cold and a drop of his nasal mucus fell onto a culture plate of bacteria. Realizing that his mucus might have an effect on bacterial growth, he mixed the mucus into the culture and a few weeks later he saw signs of the bacteria having been dissolved. Fleming's study of lysozyme, which he considered his best

This publication's user rights are given to
Email: tuongquangdodn@gmail.com
Phone: 0988788959

LIVEWORKSHEETS

work as a scientist, was a significant contribution to the understanding of how the body fights infection. Unfortunately, lysozyme had no effect on the most-pathogenic bacteria.

D. On September 3, 1928, shortly after his appointment as professor of bacteriology, Fleming noticed that a culture plate of *Staphylococcus aureus* he had been working on had become contaminated by a fungus. A mold, later identified as *Penicillium notatum* (now classified as *P. chrysogenum*), had inhibited the growth of the bacteria. He at first called the substance "mould juice" and then "penicillin," after the mold that produced it. Fleming decided to investigate further, because he thought that he had found an enzyme more potent than lysozyme. In fact, it was not an enzyme but an antibiotic—one of the first to be discovered. By the time Fleming had established that, he was interested in penicillin for itself. Very much the lone researcher with an eye for the unusual, Fleming had the freedom to pursue anything that interested him. Although that approach was ideal for taking advantage of a chance observation, the therapeutic development of penicillin required multidisciplinary teamwork. Fleming, working with two young researchers, failed to stabilize and purify penicillin. However, he did point out that penicillin had clinical potential, both as a topical antiseptic and as an injectable antibiotic, if it could be isolated and purified.

E. Penicillin eventually came into use during World War II as the result of the work of a team of scientists led by Howard Florey at the University of Oxford. Though Florey, his coworker Ernst Chain, and Fleming shared the 1945 Nobel Prize, their relationship was clouded owing to the issue of who should gain the most credit for penicillin. Fleming's role was emphasized by the press because of the romance of his chance discovery and his greater willingness to speak to journalists.

F. In 1953, two years prior to his death, Fleming married Greek microbiologist Amalia Coutsouris-Voureka, who had been involved in the Greek resistance movement during World War II and had been Fleming's colleague since 1946, when she enrolled at St. Mary's Hospital on a scholarship. For the last decade of his life, Fleming was feted universally for his discovery of penicillin and acted as a world ambassador for medicine and science. Initially a shy uncommunicative man and a poor lecturer, he blossomed under the attention he received, becoming one of the world's best-known scientists.

This publication's user rights are given to
Email: tuongquangdodn@gmail.com
Phone: 0988788959

LIVEWORKSHEETS

Questions 34-36

Reading Passage 3 has seven sections, **A-G**

Which paragraph contains the following information?

Write the correct letter, **A-G,** in boxes 34-37 on your answer sheet.

33. A brief description of Fleming's personalities

34. An anti-bacterial enzyme that was of no use when it comes to getting rid of a certain type of bacteria

35. A reference to a senior in a scientific field that had potential ideas for a medical revolution

36. An unsuccessful result despite assistance from other people

Questions 37-40

*Choose **NO MORE THAN TWO WORDS** from the passage for each answer.*

Write your answers in boxes 37-40 on your answer sheet.

37. Which relative financially supported Fleming's study in a medical school?

38. What was the initial job that Fleming intended to do after his success at university?

39. What skill that is necessary for developing penicillin's healing property?

40. For how long did Fleming enjoy his marriage before he passed away?

This publication's user rights are given to
Email: tuongquangdodn@gmail.com
Phone: 0988788959

LIVEWORKSHEETS