GMAT考试阅读辅导（38） PDF转换可能丢失图片或格式，建议阅读原文
https://www.100test.com/kao_ti2020/214/2021_2022_GMAT_E8_80_83_E8_AF_95_c89_214026.htm Passage 38 It was once believed that the brain was independent of metabolic processes occurring elsewhere in the body.In recent studies, however, we have discovered that the production and release in brain neurons of the neuro(5) transmitter serotonin (neurotransmitters are compounds that neurons use to transmit signals to other cells) depend directly on the food that the body processes. Our first studies sought to determine whether the increase in serotonin observed in rats given a large injec(10)tion of the amino acid tryptophan might also occur after rats ate meals that change tryptophan levels in the blood. We found that, immediately after the rats began to eat, parallel elevations occurred in blood tryptophan, brain tryptophan, and brain serotonin levels. These find-(15) ings suggested that the production and release of serotonin in brain neurons were normally coupled with blood-tryptophan increases. In later studies we found that injecting insulin into a rat ’s bloodstream also caused parallel elevations in blood and brain tryptophan levels(20) and in serotonin levels. We then decided to see whether the secretion of the animal ’s own insulin similarly affected serotonin production. We gave the rats a carbohydrate- containing meal that we knew would elicit insulin secretion. As we had hypothesized, the blood tryptophan (25) level and the concentrations of tryptophan serotonin in the brain increased after the meal. Surprisingly, however, when we added a

large amount of protein to the meal, brain tryptophan and serotonin levels fell. Since protein contains tryptophan,(30)why should it depress brain tryptophan levels? The answer lies in the mechanism that provides blood tryptophan to the brain cells. This same mechanism also provides the brain cells with other amino acids found in protein, such as tyrosine and leucine. The consumption(35) of protein increases blood concentration of the other amino acids much more, proportionately, than it does that of tryptophan. The more protein in the meal, the lower is the ratio of the resulting blood-tryptophan concentration to the concentration of competing amino(40) acids, and the more slowly is tryptophan provided to the brain. Thus the more protein in a meal, the less serotonin subsequently produced and released.1. Which of the following titles best summarizes the contents of the passage? (A) Neurotransmitters: Their Crucial Function in Cellular Communication (B) Diet and Survival: An Old Relationship Reexamined (C) The Blood Supply and the Brain: A Reciprocal Dependence (D) Amino Acids and Neurotransmitters: The Connection Between Serotonin Levels and Tyrosine (E) The Effects of Food Intake on the Production and Release of Serotonin: Some Recent Findings2. According to the passage, the speed with which tryptophan is provided to the brain cells of a rat varies with the (A) amount of protein present in a meal (B) concentration of serotonin in the brain before a meal (C) concentration of leucine in the blood rather than on the concentration of tyrosine in the blood after a meal (D) concentration of tryptophan in the brain before a meal (E)

number of serotonin-containing neurons present in the brain before a meal3. According to the passage, when the authors began their first studies, they were aware that (A) they would eventually need to design experiments that involved feeding rats high concentrations of protein (B) tryptophan levels in the blood were difficult to monitor with accuracy (C) serotonin levels increased after rats were fed meals rich in tryptophan (D) there were many neurotransmitters whose production was dependent on metabolic processes elsewhere in the body. (E) serotonin levels increased after rats were injected with a large amount of tryptophan4. According to the passage, one reason that the authors gave rats carbohydrates was to (A) depress the rats ' tryptophan levels (B) prevent the rats from contracting diseases (C) cause the rats to produce insulin (D) demonstrate that insulin is the most important substance secreted by the body (E) compare the effect of carbohydrates with the effect of proteins5. According to the passage, the more protein a rat consumes, the lower will be the (A) ratio of the rat ' s blood-tryptophan concentration to the amount of serotonin produced and released in the rat ' s brain (B) ratio of the rat ' s blood-tryptophan concentration to the concentration in its blood of the other amino acids contained in the protein (C) ratio of the rat ' s blood-tyrosine concentration to its blood-leucine concentration (D) number of neurotransmitters of any kind that the rat will produce and release (E) number of amino acids the rat ' s blood will contain6. The authors ' discussion of the " mechanism that provides blood tryptophan to the brain cells " (lines 31-32) is meant to (A) stimulate further research studies (B) summarize an

area of scientific investigation (C) help explain why a particular research finding was obtained (D) provide supporting evidence for a controversial scientific theory (E) refute the conclusions of a previously mentioned research study7. According to the passage, an injection of insulin was most similar in its effect on rats to an injection of (A) tyrosine (B) leucine (C) blood (D) tryptophan (E) protein8. It can be inferred from the passage that which of the following would be LEAST likely to be a potential source of aid to a patient who was not adequately producing and releasing serotonin? (A) Meals consisting almost exclusively of protein (B) Meals consisting almost exclusively of carbohydrates (C) Meals that would elicit insulin secretion (D) Meals that had very low concentrations of tyrosine (E) Meals that had very low concentrations of leucine9. It can be inferred from the passage that the authors initially held which of the following hypotheses about what would happen when they fed large amounts of protein to rats? (A) The rats’ brain serotonin levels would not decrease. (B) The rats’ brain tryptophan levels would decrease (C) The rats’ tyrosine levels would increase less quickly than would their leucine levels (D) The rats would produce more insulin. (E) The rats would produce neurotransmitters other than serotonin. 100Test 下载频道开通，各类考试题目直接下载。详细请访问 www.100test.com