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Endosymbiotic theory worksheet answers

Learning goals Briefly describe what is understood by endosymbiotic theory. Give some evidence to support the theory that mitochondria and chloroplasts may have arisen from prokaryotic organisms. Life is thought to have occurred on Earth about four billion years ago. Endosymbiotic theory states that some of the organelles in today's eukaryotic cells were once prokaryotic microbes. In this theory, the first eukaryotic cell is probably an ameba-like cell that has nutrients from phagocytosis and contains a nucleus that is formed when a piece of the cytoplasm membrane intercepts around chromosomes. Some of these ameba-like organisms ingested prokaryotic cells, which then survived in the body and developed a symbiotic relationship. Mitochondria are formed when bacteria have been ingested by aerobic breathing; chloroplasts formed when ingested by photosynthetic bacteria. They eventually lost their cell wall and much of the DNA because they were not beneficial in the host cell. Mitochondria and chloroplasts cannot grow outside their host cell. The evidence for this is based on the following: Chloroplasts are the same size as prokaryotic cells, divide by two-component division, and as bacteria have FTS proteins in their plane of division. Mitochondria are the same size as prokaryotic cells, divided by binary division, and the mitochondria of some protists have FTS homologs in their plane of division. Mitochondria and chloroplasts have their own DNA, which is round, not linear. Mitochondria and chloroplasts have their own ribosomes, which have 30S and 50S subunits, not 40S and 60S. Several more primitive eukaryotic microbes, such as Giardia and Trichomonas, have a nuclear membrane but no mitochondria. Although the evidence is less convincing, it is also possible that the flagellum and cilia came from spirochetes. Figure (PageIndex{1}): A model for the origin of mitochondria and plastids. This model has amitochondriate eukarion from an anaerobic and then cyanobacterium. by Kelvinsong Example (PageIndex{1}) Briefly describe what is meant by endosymbiotic theory. Give three points of evidence to support the theory that mitochondria and chloroplasts may have arisen from prokaryotic organisms. Solutions Endosymbiotic theory states that some of the organelles in eukaryotic cells were once prokaryotic microbes. Mitochondria and chloroplasts are the same size as prokaryotic cells and are divided by two-dimensional division. Mitochondria and chloroplasts have their own DNA, which is round, not linear. Mitochondria and chloroplasts have their own ribosomes, which have 30S and 50S subunits, not 40S and 60S. Donors and attributions Gary Kaiser (Baltimore County Community College, Catonsville Catonsville) To continue to enjoy our site, we ask you to confirm your identity as a person. Thank you so much for your cooperation. Biology MCQ #1MCQs biology exam. Content of the test; Cell Biology: Structures and Organelles, Liquid Mosaic Pattern, Cell Theory, Cell Transport, Osmosis, Rin, Virus, Archea, Bacteria, Protozoa, Microscope, Endosymbiotic Theory, This Package Contains.1) 30 Multiple Options Questions Page 26th, 7th, 8th, 9th, 10th, 11th, 12th, HomeschoolPage 36th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, 47th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Learning, Home-Home games 55th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, Homes 68th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, Home, Staff, 76th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, HomeschoolPage 87th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, 95th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Page, HomeschoolPage 108th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, Homeschool, StaffPage 116th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, HomeschoolPage 127th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, HomeschoolPage 135th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, HomeschoolPage 148th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, Homeschool, StaffPage 156th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, HomeschoolPage 167th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, HomeschoolPage 175th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, HomeschoolPage 188th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, Homeschool, StaffPage 196th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, HomeschoolPage 207th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Education, 215th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Learning, Adult Learning, Adult Learning, Adult Learning, Training on the 228th, 9th, 10th, 11th you, 12th, higher education, adult education, Adult, Staff 236th, 7th, 8th, 9th, 10th, 11th, 12th, Higher Education, Homes 247th, 8th, 9th, 10th, 11th, 12th, Higher Education, Adult Learning, Adult Learning, 255th, 6th, 7th, 8th, 9th, 10th 11th, 12th, 12th, 12th, Higher Education, Adult Learning, HomesPage 268th, 9th, X10, X1, X2, Higher Education, Adult Education, Adult Education, Staff

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