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Bacteria pass 'memories' to future generations – 27th November 2023

Level 4

Scientists thought they knew most things about bacteria. However, they have just found that bacteria can pass on memories to future generations. The research was on the well-studied E. coli bacteria. Researchers said these bacteria can form memories even though they have no brain. Bacteria can get information from their environment. They can store memory of this and can quickly access it for later use.

Bacterial memory is different from human memory. It is more like our muscle memory. Our muscles have a sense of what to do next. Bacterial memory is because of levels of iron. A researcher said early life used iron for many cellular processes. Iron was essential for the evolution of life. A researcher said his research could help to fight bacterial diseases. He said the more we know about bacterial behaviour, the easier it is to combat disease.

Level 5

Scientists perhaps thought they knew all there was to know about bacteria. However, they have just found that bacteria have a mechanism that can store and pass on memories to future generations. The research was on the E. coli bacterium. This is one of the most well-studied organisms. Researchers wrote about how bacteria could form memories even though they lack a brain. They said bacteria can gather information from their environment, "and if they have encountered that environment frequently, they can store it and quickly access it later for their benefit".

Bacterial memory is different from human memory. It is more like our muscle memory. Our muscles have a sense of what to do next from having done it many times before. The researchers say bacterial memory is because of their levels of iron. A researcher said: "Early life was utilizing iron for a lot of cellular processes. Iron is...critical...in the evolution of life. It makes sense that cells would utilize it." He added that his research could help to fight bacterial diseases. He said: "The more we know about bacterial behaviour, the easier it is to combat them."

Level 6

Just when scientists thought they knew all there was to know about bacteria, they have unearthed something quite unexpected. They have found that bacteria have a mechanism within their single-celled forms that can store and pass on memories to future generations. The research was on the ubiquitous E. coli bacterium. This is one of Earth's most well-studied organisms. Researchers at the University of Texas wrote about how bacteria could form memories while lacking a brain: "Bacteria don't have brains, but they can gather information from their environment, and if they have encountered that environment frequently, they can store it and quickly access it later for their benefit."

Bacterial memory differs from that in humans. It may be more akin to our muscle memory. Our bodily tissue has a sense of what to do next from having done it repetitively many times before. The researchers attributed bacterial memory to levels of iron in their physical constitution. A researcher said: "Before there was oxygen in the Earth's atmosphere, early life was utilizing iron for a lot of cellular processes." He added: "Iron is not only critical in the origin of life on Earth, but also in the evolution of life. It makes sense that cells would utilize it." He said his research could aid in combating bacterial diseases, as "the more we know about bacterial behaviour, the easier it is to combat them".