

The Hitchhiker's Guide to the Galaxy is a multi-media classic story that has entertained generations globally. The first book of the series follows the adventures of Arthur Dent after



the destruction of Earth. At one point he encounters a group of hyper-intelligent pan-dimensional beings, who demand to learn the “Answer to the Ultimate Question of Life, The Universe, and Everything” from the supercomputer, Deep Thought, which was specifically built for this purpose. It took Deep Thought 7 and a half million years to compute and check the answer, which ends up being 42. The supercomputer points out that the answer may seem meaningless because the beings who instructed it to find the answer, never knew what the original Question actually was.

However, author Douglas Adams might have had the actual answer to a very real question this entire time.

Researchers from the University of Toronto and a San Francisco-based biotechnology company have determined the number of protein molecules in a single cell—42 million.

This might not seem like a big deal, but knowing this can truly be the answer to the ultimate question of life.

The number of protein molecules wasn't known with much certainty until now. This is the first-time scientists have been able to establish a reliable estimate for the baseline number of those molecules in a single cell.

Proteins are considered the hardest-working components of cells, influencing everything from structure to function. Their activity is what determines how well our cells function and

communicate with each other. Considering how important proteins are to any organism, it is no surprise that biologists have been searching for the number of proteins in a simple cell.

Led by biochemistry professor, Grant Brown, researchers analyzed data from 21 separate analyses, measuring the amount of proteins in *Saccharomyces cerevisiae*, a single-cell yeast species that serves as one of the classic model organisms in cellular biology, as published in the journal *Cell Systems*.

The work was entirely computational, meaning that the researchers used data sets mostly generated by other scientists. The method can be applied to all kinds of data to compare different cell types and conditions, including diverse types of more complex human cells that may contain different numbers and types of protein molecules.

This discovery not only has an amazing coincidence to the answer of the universe, but will help advance other research, like cancer. The scientists not only provided a reliable number for protein abundance in yeast, but were able to devise methods that can potentially help to do similar studies on human cell proteomes in the future.

By providing a protein baseline, scientists can study how and why a normal cell suddenly changes, and use those kinds of changes to figure out where a vulnerability might be and what kind of cell might respond better to treatment.

Scientists involved in cancer research have been interested in how things change in a cell when it is diseased. So, the researchers hope these findings can be used to better help predict cancers and diseases where proteins are overly abundant or lacking.

Brown's lab is mostly focused on cancer biology and the study of how cells respond to various kinds of drugs that are used in cancer treatment.

“The cell is the functional unit biology, it’s just a natural curiosity to want to know what’s in there and how much of each kind,” said Brown, explaining why he is so passionate for the 42 million proteins.

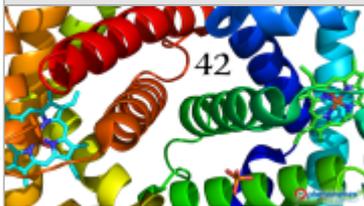
Given that cells are the basic structural units of all living organisms—it is only fitting that the number coincides perfectly with the world of Douglas Adams—the answer to the ultimate question of life, the universe, and everything.

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Summary



Article Name

Answer to the Ultimate Question of Life? Scientists Find It Really Is 42!

Description

The Hitchhiker's Guide to the Galaxy had it right, as scientists have found the number of protein molecules found in a single cell is 42 million.