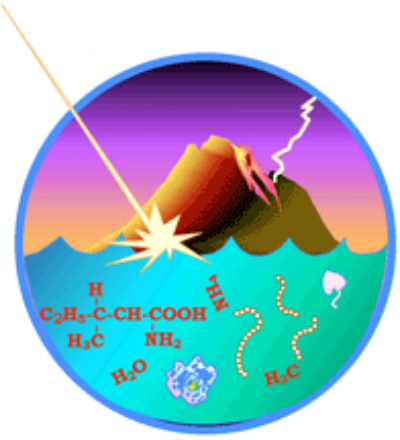
Miller-Urey experiment

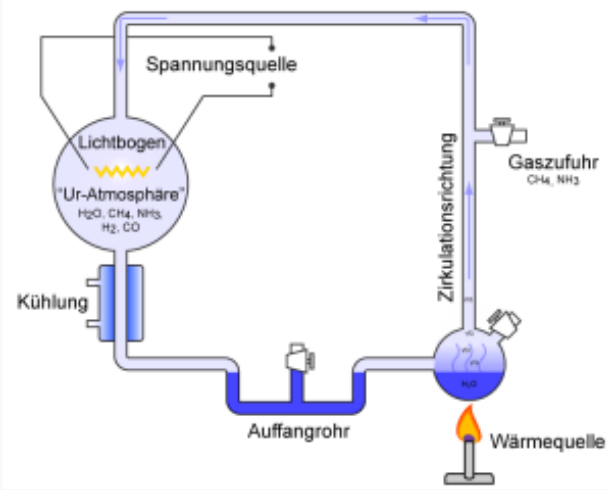
Advocates for the Grand Evolutionary Paradigm always cite the Miller-Urey experiment as proof of abiogenesis. In fact the Miller-Urey experiment shows everything wrong with origins science today, and with the creation-evolution debate. Those who run that debate, have a double standard for setting initial conditions. They show this by assuming facts not in evidence, and "facts" the evidence contradicts!



History of the Miller-Urey experiment

Stanley Miller and Harold Urey ran the first Miller-Urey experiment in 1953. As the diagram shows, they created a mix of four gases (water vapor, methane, hydrogen, ammonia) as a "primitive atmosphere." They knew, from earlier work, that an oxidizing atmosphere would destroy most of the molecules living things need. So with *no* evidence, they *assumed* an "initial condition" of life: a *reducing* atmosphere. Biology textbooks to this day (including *Biology*, by Miller and Levine; Prentice-Hall) *assert*, as Miller and Urey did, the earth had this atmosphere.

So they introduced the four components in a special chamber, and struck a spark in it. They then gathered whatever material fell out of the chamber and into the collecting tube at the bottom of the loop.



Setup of the Miller-Urey experiment. Graphic by User XerxesK2 on Wikimedia Commons, CC BY-SA 3.0 Unported License

In 1958, Miller ran this experiment several times, and collected several vials of reaction products. These sat on shelves for decades. During that time, Miller never analyzed their contents. Eventually his health failed him, and he died. But his student, Jeffrey Bada, would find the vials and analyze them with modern equipment. So to discuss the Miller-Urey experiment, we must use this analysis. (Did the contents of the vials really stay stable for fifty-three years? Even that seems a stretch.)

Bada's own student, Eric Parker, and Parker's team found twenty-three different amino acids in those vials. Living things use twenty amino acids. So at first glance one might assume Miller and Urey found all the building blocks of protein. But Parker *et al.* admitted, even counted on, finding this key difference. *The Miller-Urey experiment produced racemic mixtures of these amino acids,* except glycine. That is, it produced most amino acids in *left-hand and right-hand forms.* (Glycine, a symmetrical molecule, does not have left-hand and right-hand forms.) Living things use only the *left-hand* form. (Living things use the *right-hand* form of sugars, hence the common nickname of glucose as *dextrose*, not *levose*, the left-hand form.)

Problems with the Miller-Urey experiment

The Miller-Urey experiment has one immediate problem. The racemic mixture told Parker and his team that no stray germ contaminated the Miller-Urey experiment apparatus. But that same mixture tells them they did *not* find the stuff of life. Why does life use only the left-hand form? Because living things cannot tolerate much variation in their basic raw materials. Why did they "choose" left-handed amino acids and right-handed sugars? No one knows. No one can even figure out *how* they could have "chosen" this from a draw from some figurative biochemical blackjack dealer's shoe.

Worse than that: neither Miller nor Urey had the slightest clue to what made up that reducing atmosphere. They merely *chose* methane, hydrogen, ammonia, and water vapor as the most likely atmosphere to produce amino acids from a lightning strike. Now: *if* the atmosphere of earth once had that composition, the rocks would tell us that. *They do not.* As Ed Yong writes in his review of Parker's finish to the Miller-Urey experiment:

> *By analysing ancient rocks, scientists have since found that Earth was never particularly teeming in hydrogen-rich gases like methane, hydrogen sulphide or hydrogen itself. If you repeat Miller's experiment with a more realistic mixture – heavy in carbon dioxide and nitrogen, with just trace amounts of other gases – you'd have a hard time finding amino acids in the resulting brew.*

Wups.

Even then: amino acids themselves don't hold the code of life. *Nucleic* acids do. Amino acids have a simple structure. Nucleic acids form from *nucleotides*, which in turn need to form from *nucleobases* and either ribose (for RNA) or deoxyribose (for DNA). After that, DNA and RNA must assemble in a sequence that can *code* for a sequence of amino acids. To imagine DNA or even RNA forming by itself, and in a useful form, first imagine letters of the Roman, Greek, Sanskrit, or Hebrew alphabet forming by themselves, then somehow forming typesetter's letters. Now imagine those letters, along with Arabic numerals and punctuation marks, arranging themselves in a text that can tell a story. Now imagine something harder: that those characters not only tell a story but also form computer code. Life needs a process orders-of-magnitude more complex.

Even the Miller-Urey experiment did not produce DNA or RNA.

Yong suggests the original primordial soup, or biological ylem, formed from hydrothermal vents on the ocean floor. These "white smokers" or "black smokers" all hold "superheated" water. In fact, it's supercritical water. Walt Brown (Center for Scientific Creation) has a different answer for that: these are the last remnants of the subcrustal (or even intra-mantle) ocean that broke containment during the Global Flood. Even if you don't believe that, how could life even form, much less survive, in such hot water?

Double standards

So when secular scientists discuss the Miller-Urey experiment, they do several things they criticize creation scientists for doing. They assume a "fact," i.e., a reducing atmosphere, not in evidence. In fact, geologists have never once found evidence the earth ever had a reducing atmosphere. The Miller-Urey experiment results include several vials from several hypothetical atmospheres. But *not one of them* could have produced the changes geologists have actually seen in rocks.

And the same people who defend the Miller-Urey experiment, criticize Walt Brown (see above) for assuming the earth had an ocean deep to the earth's crust, or within the mantle. The reducing atmosphere for the Miller-Urey experiment

has evidence *against* it. The subcrustal or intra-mantle ocean has evidence *for* it, specifically the seeming face of a tectonic plate forty-three miles down.

This shows what's wrong with the central debate in origins science: did the universe, the earth, and life come to exist by "evolution," or by creation? Those on the evolution side, do not even argue in good faith. They employ a double standard, special pleading, and sometimes projection – "throwing off" on their opponents. The Miller-Urey experiment provides the prize example of such behavior.

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