

Re: Life's range = 0–50C

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- *From:* Jeremy.Winfield@xxxxxxxxxx
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I feel it my duty as a biologist who has worked with hyperthermophilic organisms to correct you on multiple points.

You are about 71C off on your upper temperature limit of. The limit for reproducible life, that is, a bug that divides and grows is currently at 121C (<http://www.sciencemag.org/cgi/content/citation/301/5635/934>), and biologists continue to probe this upper limit, believing it can be expanded. Allow me to reemphasize, life not only grows at this temperature, it *thrives.* Some Thermotoga microbes are impossible to keep in culture because they lyse when brought to normal mesophilic temperatures.

There is also strong evidence, as shown between the free energy of binding between alpha and beta subunits of tryptophan synthase in *Thermus thermophilus* (<http://www.jbc.org/cgi/content/abstract/M210893200v1>), that the enthalpy of salt bridges helps to drive folding rather than the entropy of hydrophobic collapse. This would explain the bias of salt bridges in thermophilic proteins. The knowledge base in which you are stating your broad hypothesis also appears to lack a thorough understanding of thermodynamics and protein folding.

It is also a general consensus amongst biologists that the last common ancestor was most likely a thermophile, since it is so deeply rooted in the tree of life. Read the following for more detail: (<http://=BGmARvqaMI–IgATjkK3dCw&usg=AFQjCNH2QZ8Mc4SDcMKJJOelMI8Hyt6ysg&sig2=JscVizztnYUTiv–HpQ>) is also a general consensus that life evolved from spontaneous events of polymerization from early protein–metal precursors around volcanic vents. I would google "composomes" to find out more on this (http://www.google.com/url?sa=t&ct=res&cd=1&url=http%3A%2F%2Fonline.kitp.ucsb.edu%2Fonline%2Fevonet07%2Flancet1%2Fpdf%2Flancet1_EvoNet_KITP.pdf&ei=42eARrayL4TSgwTU7YTcCw&usg=AFQjCNEa–IR_EFgP1S0GIBn5WiKwAGV4JQ&sig2=–YkHXRWaKwQbW–usG2zULg).

The language in which you state your broad claims is poorly worded. One should be more specific when writing "life," "best fit," "dormant." The term you used, "planetary chemical reaction," is extremely unspecific and unclear, as are your adjectives "strong" and

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"fragile." There are massive sequence spaces of amino acid sequences that remain unprobed.

As a potential scientist, you should site more references when making such broad and debatably weak claims. Sir, to answer your final question, yes, many scientists (with PhD's) would disagree with you.