



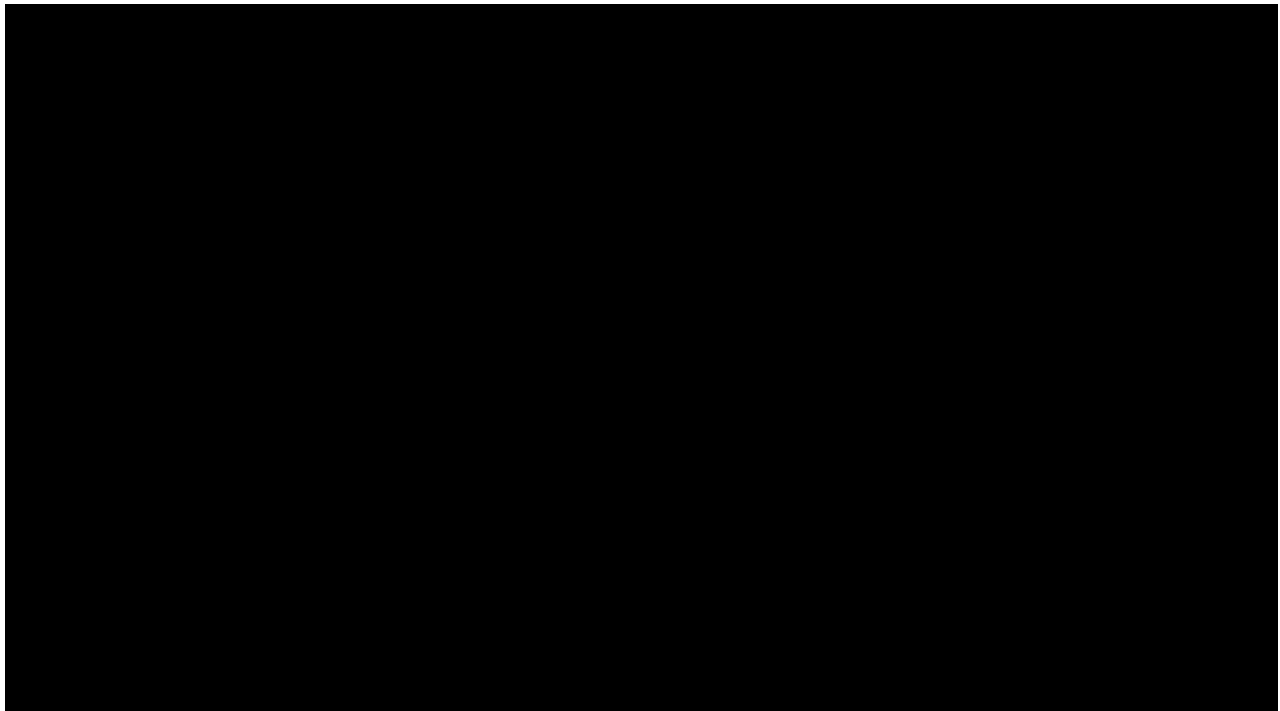
# This Alaskan Frog Can Survive Getting Frozen and Thawed



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While human cryogenics is still in its pie-in-the-sky, butt-of-the-joke phase, a frog that lives in Alaska's subzero temperatures can pull off a surprisingly similar feat. Scientists have now documented the wood frog surviving through its longest and coldest states ever. This frog could someday hold the key to preserving organs for transplant and maybe just maybe even human cryogenics.

In this [latest study](#), scientists found that wood frogs could, remarkably, be frozen for an average of 193 days in temperatures as low as 0 degrees F. As temperatures rise in spring, they thaw out and hop away, not any worse for the wear.

The frogs have figured out one solution to the bane of cryogenics. As water freezes outside of the cells first, it draws water from the cells until they're shrunken down. The sharp edges of ice crystals tear also through cell structures. The trick then is essentially to freeze without freezing—to get to subzero temperatures without turning solid.

When it gets cold, the wood frog begins building up reserves of glucose in its tissues. It then packs its cells with glucose, preventing any water from icing up inside its cells. This might sound like antifreeze and, in fact, commercial antifreeze is made of a similar sugar alcohol called ethylene glucose. Other molecules like urea and antifreeze glycolipid are also likely to be involved. The frogs have evolved this cellular mechanism to get antifreeze into their tissues, and it is not easy to recreate artificially, but that doesn't mean we aren't trying.

There are benefits to getting supercold—with little to no cellular metabolism at that temperature, the frog can survive the winter with food and transplant organs can stay viable for longer. Scientist have used findings from the wood frog to study [how to preserve organs in rats](#) and eventually, perhaps, even humans. Attempts to freeze humans by companies such as Alcor focus on finding the right nontoxic antifreeze, also called cryoprotectant, that works at even lower temperatures than for the frogs. Don't expect to see any defrosted humans soon, though you'll find plenty of defrosted frogs in the Arctic Circle. [[Journal of Experimental Biology via Discover](#)]

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