Winter Flounder Anti-Freeze Gene

The winter flounder is a fish that lives in shallow waters near the Atlantic coast in North America, where the sea water can become very cold. These fish have a gene which provides instructions to make an anti-freeze protein called AFP. This protein stops the blood of the winter flounder from freezing when it swims in freezing cold water, by preventing ice crystals from forming. Does the ability to prevent something from freezing help you solve your problem?

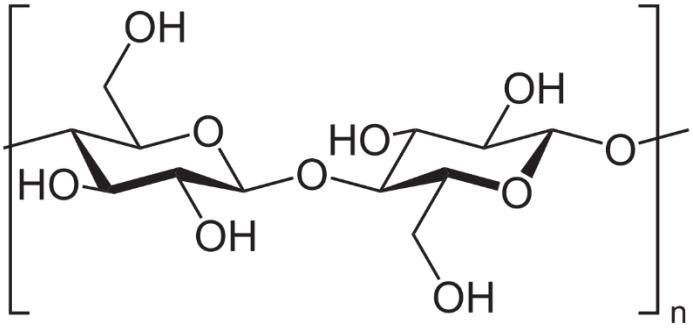
Plant Photosynthesis-Boost Genes

Plants generate food through a process called photosynthesis, which allows them to turn light energy into sugars. Sometimes it takes a while for plants to switch on their photosynthesis at certain points during the day, meaning they might be missing out on light energy they could use to grow more. Switching photosynthesis back on at these points is done by the protein products of three "photosynthesis-boost" genes. Could increasing photosynthesis in your organism by giving them these genes, or more of them, help solve your problem?

Bt Toxin Gene

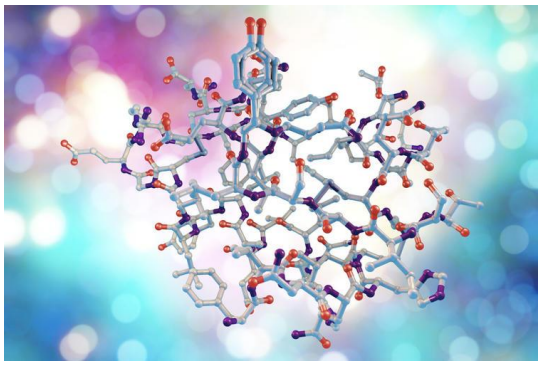
Bt Toxin is a protein produced by a type of bacteria called Bascillus thuringiensis, and is extremely toxic to insects. This isn't that surprising given that the bacteria it comes from belongs to the same family of bacteria as the bacteria that cause the deadly infectious disease anthrax in humans! Can you think of a way that putting the Bt Toxin gene into your organism might solve your issue?

Cellulose Synthase Gene



Cellulose is a molecule found in plants. It's made by the protein cellulose synthase, and it helps provide strength to the walls that surround plant cells. That might sound a bit dull, but cellulose can actually be made into some really useful materials, some of which are biodegradable, and some of which can be used as fuel. Could making your organism make cellulose help solve your problem?

Human Insulin Gene



Insulin is a protein which is made in your pancreas, with instructions provided by the insulin gene. It's released into your blood when you eat something sugary, to help lower your blood sugar. Failure to make and release insulin can lead to health problems. Could having your organism make insulin help solve your problem?

Genes needed to make beta-carotene

Beta-carotene genes are found in plants which produce vegetables such as carrots, bell-peppers and sweet potatoes. These genes allow these plants to make a molecule called beta-carotene. Eating vegetables containing beta-carotene is important as it is needed for us to make vitamin A. Vitamin A is good for your health as it helps keep your immune system healthy; helps you see in dim light (ever heard that carrots help you see in the dark?); and keeps skin healthy. Not being able to eat vegetables containing beta-carotene can therefore be damaging to health. Could putting the genes needed to make beta-carotene into your organism help solve your problem?