Cancer A high-fiber diet of fruits and vegetables has anti-cancer benefits, especially against colon, liver, and lung cancer. More research is needed on spirulina and its ability to help prevent cell carcinogenesis and destroy cancerous cells. A 2014 study concluded that spirulina "...And its components significantly reduce the prevalence of experimental pancreatic cancer," he said". A study conducted in 2015 confirmed the main effect of spirulina, which is antioxidants and phycocyanin, and that they can destroy cancerous cells in the pancreas. In other words, studies have shown that these compounds in spirulina stopped cancerous pancreatic cells from growing and were able to destroy existing cells. Other studies have shown that spirulina can have anti-cancer properties against oral cancer (particularly squamous cell), a cancer that has become more prevalent over the past two decades. A study conducted showed Application of Chlamydomonas in Cancer Therapy Chlamydomonas is a single-celled green plant that is a common freshwater green algae. It is known as green yeast because it has characteristics similar to yeast, such as a simple growth cycle, fast growth, short generation time, monoclonal formation on a tablet, or liquid culture. Chlamydomonas can show active mobility and oxygen-producing photosynthetic activity, which suggests that Chlamydomonas can be used in the manufacture of microswimmers and artificial photosynthetic systems that can generate oxygen and thus improve cancer hypoxia and achieve cancer suppression. Chlamydomonas reinhardtii is a light-strategic green microalga that senses visible light and swims rapidly toward it. In C. reinhardtii, hydroxyproline-containing glycoproteins are dispersed on the negatively charged outermost layer, and positively charged nanomaterials (eg, polymers and magnetic materials) can adhere to the surface. Likewise, carbodiimide chemistry-mediated chemical conjugation allows for surface functionalization, and these advantages allow the microbe to be used as a microswimmer for anticancer applications and as a basis for photosynthesis. Application of Chlorella in Cancer Therapy Chlorella is a unicellular genus of green algae belonging to the chloroplasts. They are usually spherical in shape, 2 to 10□m in diameter and have no flagella. Chlorella contains chlorophyll-a, b (chlorophyll), and green plastid. During photosynthesis, their numbers multiply very quickly, requiring carbon dioxide, water, sunlight, and a small amount of minerals to reproduce Overview The name chlorella comes from the Greek (□□□□□□ (chloros), which means green, and from the Latin (ella), which means small. German biochemist Otto Warburg, who won the Nobel Prize in Medicine or Physiology for his 1931 research on cellular respiration, studied the process of photosynthesis in chlorella. In 1961, Melvin Calvin at the University of California won the Nobel Prize in Chemistry for his research using chlorella. Many people believe that chlorella can be a potential source of food and energy because it has an efficiency during the photosynthesis process that may, in theory, reach 8%, which exceeds the efficiency rate of sugarcane. As a medical alternative Chlorella algae is considered a source of essential nutrients.Chlorella has a very large percentage of essential and important amino acids for the human body, other unnecessary acids, and many minerals such as iron, calcium, magnesium, zinc, potassium, and sulfur, in addition to proteins and many vitamins such as vitamin E, vitamin B, C, and A.It is one of the plants.It is richer in chlorophyll and vitamin B12 and contains porphyrin, a substance that activates cellular metabolism. Chlorella is consumed as a health supplement in the United States and Canada and as a nutritional supplement in Japan. Chlorella is thought to have many health effects, including aiding in cancer treatment. But the American Cancer Society stated that there are still no scientific studies

confirming the effectiveness of chlorella in treating or preventing cancer or any other disease in humans. Chlorella algae, currently manufactured in the form of nutritional tablets, are available in pharmacies, cleanse the body of toxins, strengthen immunity, and increase the body's resistance to diseases. Health problems A 2002 study reported that chlorella cell walls contain lipopolysaccharide, which is also found in Gram-negative bacteria. This can affect the immune system and cause infections. However, other studies have shown that the lipopolysaccharide found in chlorella may be different from that found in negative bacteria. Aquariums Chlorella can cause water problems such as opaque green in aquariums. Chlorella can grow due to its high levels of phosphate, nitrates and sunlight. Reducing phosphates and nitrates and placing sinks in places away from sunlight helps alleviate the problem. Application of Diatoms in Cancer Therapy Diatoms are unicellular photosynthetic algae encased in siliceous outer walls. Siliceous cell walls are also called shells. Shell is a porous material in nature composed of silica, and mesoporous diatoms are mainly used in biosensing, photocatalysis and drug delivery. Natural silica is biocompatible, thermally stable, and chemically inert compared to synthetic silica.39 Since diatoms are highly porous, they provide multiple adsorption sites for chemotherapeutic agents and other nanoparticles, making them useful for cargo delivery. Diatoms can also act directly as physisorbents, and surface chemical modifications of diatoms have been widely studied for cancer localization in animal models. Diatom cells as nanoparticles for chemotherapy drugs can kill cancer cells very precisely without harming normal cells. Australian scientists have modified diatoms so that antibodies and antigen-binding proteins are created on the surface of the shell. The shell surface produces binding proteins, and when the base-modified diatoms loaded with chemotherapy drugs are injected into patients, the antibodies only bind to molecules on cancer cells, delivering the drugs directly to the target cells.40 To deliver chemotherapeutic drugs to cancer cells, Delalat et al used diatom microalgae-derived nanoporous biosilica.40 Todd et al addressed the problem of in vivo delivery in complex environments by using diatoms as novel silica carriers.41 Diatoms are single-celled photosynthetic algae with silica shells encapsulated in porous 3D nanostructures called "truncates". The shells of diatom truncates consist of biosilica self-assembled into complex porous shells with unique properties, such as customizable surface chemistry, thermal stability and high mechanical properties for chemical reactions. Diatom truncated bodies of richly available mineral deposits (diatomaceous earth or diatomaceous earth; DE) are used for the manufacture of diatom silica synthetic porous silica natural substitutes for biomedical, environmental, agricultural and energy applications. Shaheer et al summarized the applications of natural DE silica materials in biomedicine, focusing on drug delivery biosensing, tissue engineering and coagulation.42 Maher et al mechanically fragmented and transformed diatom silica structures into a novel mesoporous biodegradable silicon nanoparticle (SiNP), a drug carrier, by a magnesium thermal reduction process. The pH-dependent and sustained release of SiNPs loaded with adriamycin enhances the cytotoxicity of this drug in vitro. It has a significant increase in the cytotoxicity of cancer cells and considerable potential as a therapeutic diagnostic nanocarrier for chemotherapy.43,44