

WHERE THE PLASTIC GOES



An underwater scene with a blue tint, showing several plastic bottles and fragments of plastic debris floating in the water. A bright light source, possibly the sun, is visible in the upper left, creating a lens flare effect. The water surface is visible in the lower right, showing ripples and reflections.

The ocean is like a huge soup pot, in which human beings are constantly adding plastic "seasoning", and more specific and huge numbers are constantly being thrown out.

In the five years from 2007 to 2013, researchers from the five ring current Institute of the United States carried out 24 times of plastic debris fishing from five subtropical "Circulation", the Australian coast, the bay of Bengal and the Mediterranean Sea by trawling. After screening and analyzing one by one, the scientists made a list of plastic pollution in these waters, including buoys, fishing lines, fishing nets, buckets, bottles and bags.

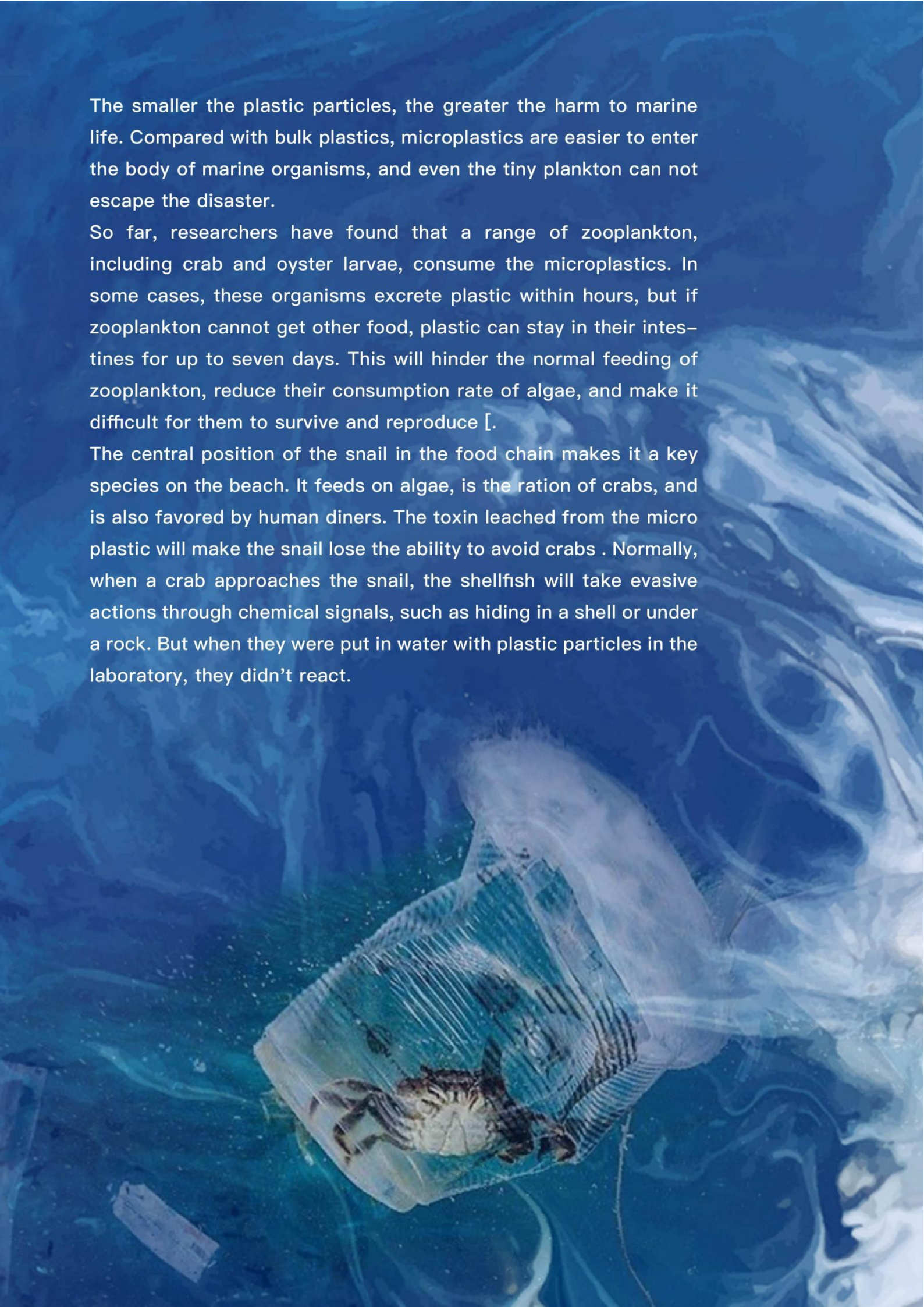
After counting these pieces of plastic, it was found that only 7% of the total was large plastic. Many plastic products will decompose under the impact of sunlight and waves, and finally decompose into the size that can only be seen under a microscope.

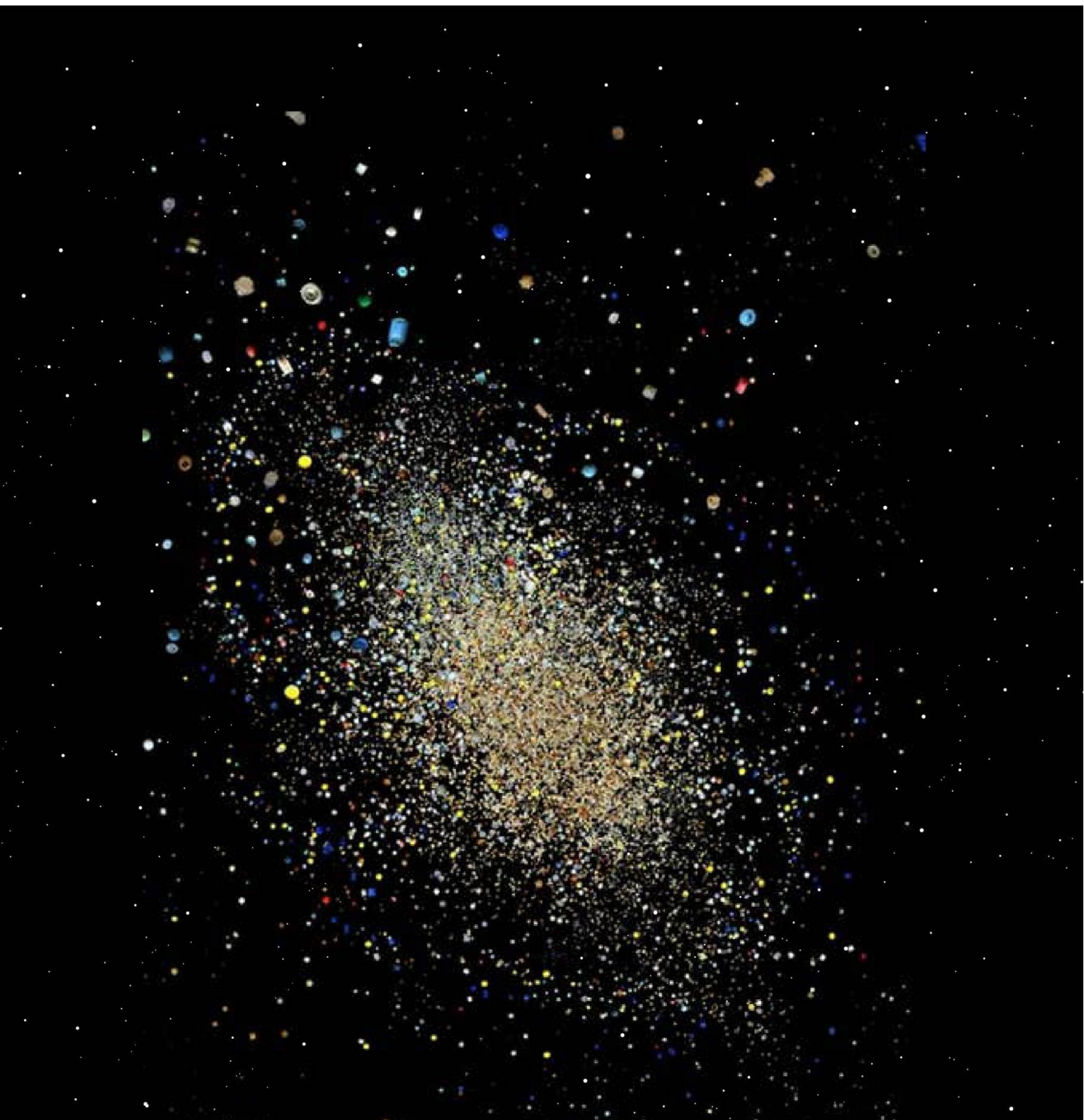
Using computer simulation to analyze these findings, the researchers came to an amazing number: there are at least 5.25 trillion pieces of plastic in the global ocean (from small particles with diameter less than 1 nm to large pieces with diameter more than 20 cm), and the total weight of marine plastic pollutants is about 269000 tons.

The smaller the plastic particles, the greater the harm to marine life. Compared with bulk plastics, microplastics are easier to enter the body of marine organisms, and even the tiny plankton can not escape the disaster.

So far, researchers have found that a range of zooplankton, including crab and oyster larvae, consume the microplastics. In some cases, these organisms excrete plastic within hours, but if zooplankton cannot get other food, plastic can stay in their intestines for up to seven days. This will hinder the normal feeding of zooplankton, reduce their consumption rate of algae, and make it difficult for them to survive and reproduce [.

The central position of the snail in the food chain makes it a key species on the beach. It feeds on algae, is the ration of crabs, and is also favored by human diners. The toxin leached from the micro plastic will make the snail lose the ability to avoid crabs . Normally, when a crab approaches the snail, the shellfish will take evasive actions through chemical signals, such as hiding in a shell or under a rock. But when they were put in water with plastic particles in the laboratory, they didn't react.

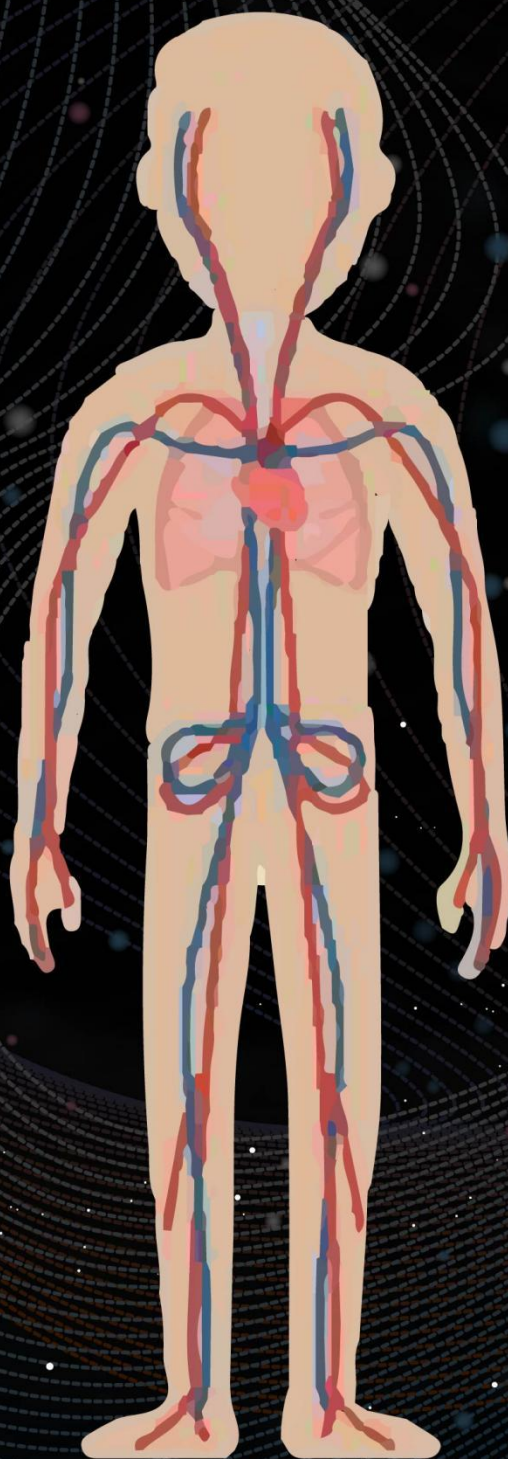


A large, dense cloud of multi-colored microplastic particles, including blue, yellow, red, and white, is shown against a black background. The particles are of various sizes and shapes, creating a textured, nebula-like appearance.

At the recent meeting of the European Society of Gastroenterology, researchers reported that up to nine kinds of micro plastics with diameters between 50 and 500 microns were detected in human feces for the first time. This study shows that plastic will eventually reach the human stomach. This may not be good news for us.

What's more worrying is that micro plastics are everywhere. These 5mm or rice sized plastics come from degraded plastic fragments, synthetic fibers and plastic balls. Some studies have found that marine organisms such as tuna and lobster have a lot of micro plastics in their bodies, and they are also found in 83% of tap water samples around the world.

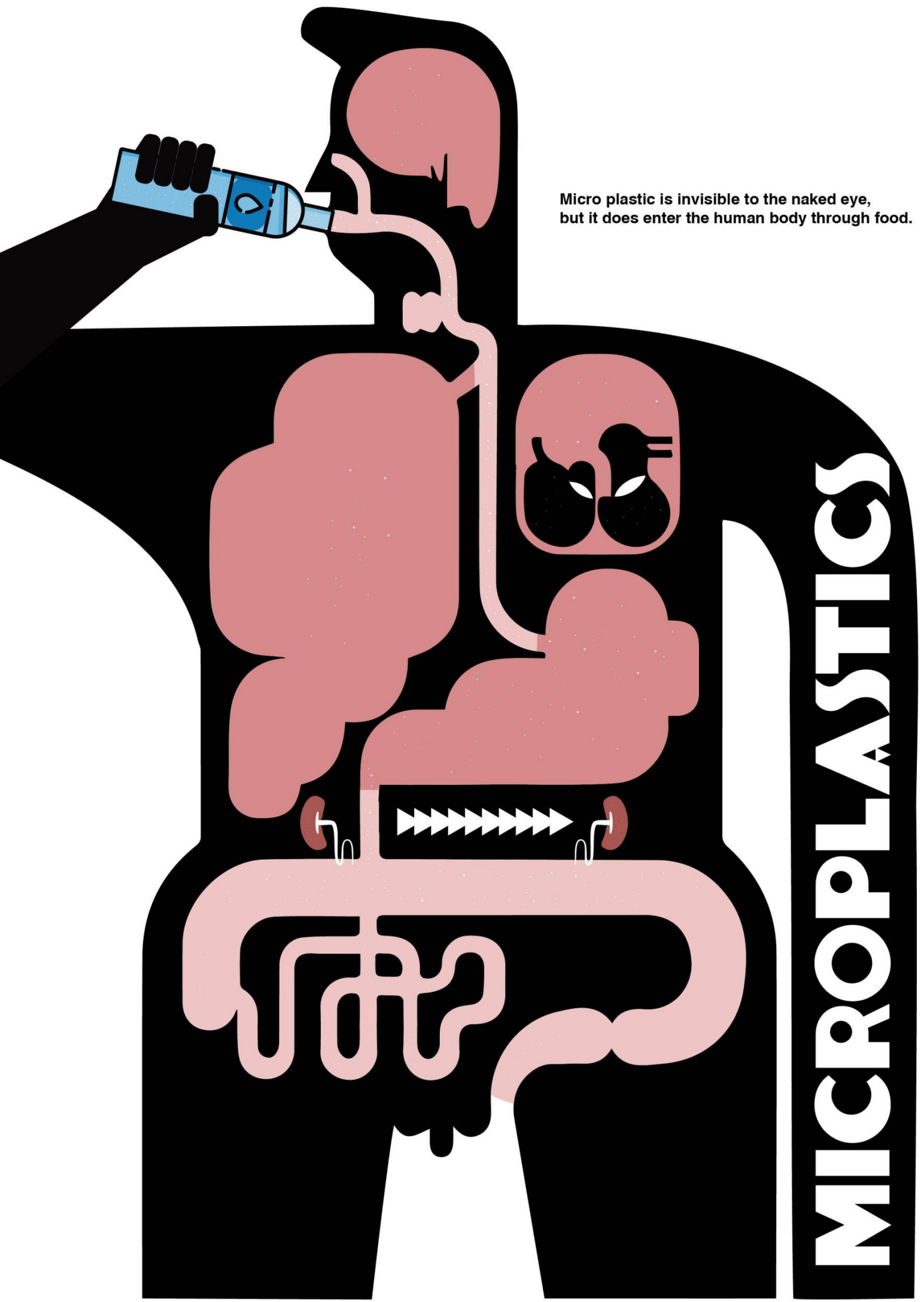
Experts say the exact source of these micro plastics is still uncertain, and whether they can remain in the human body also needs further research. However, it should be noted that the smallest microplastics can enter the blood, lymphatic system and even the liver, and the microplastics in the intestine may also affect the immune response of the digestive system.



FOOD CHAIN



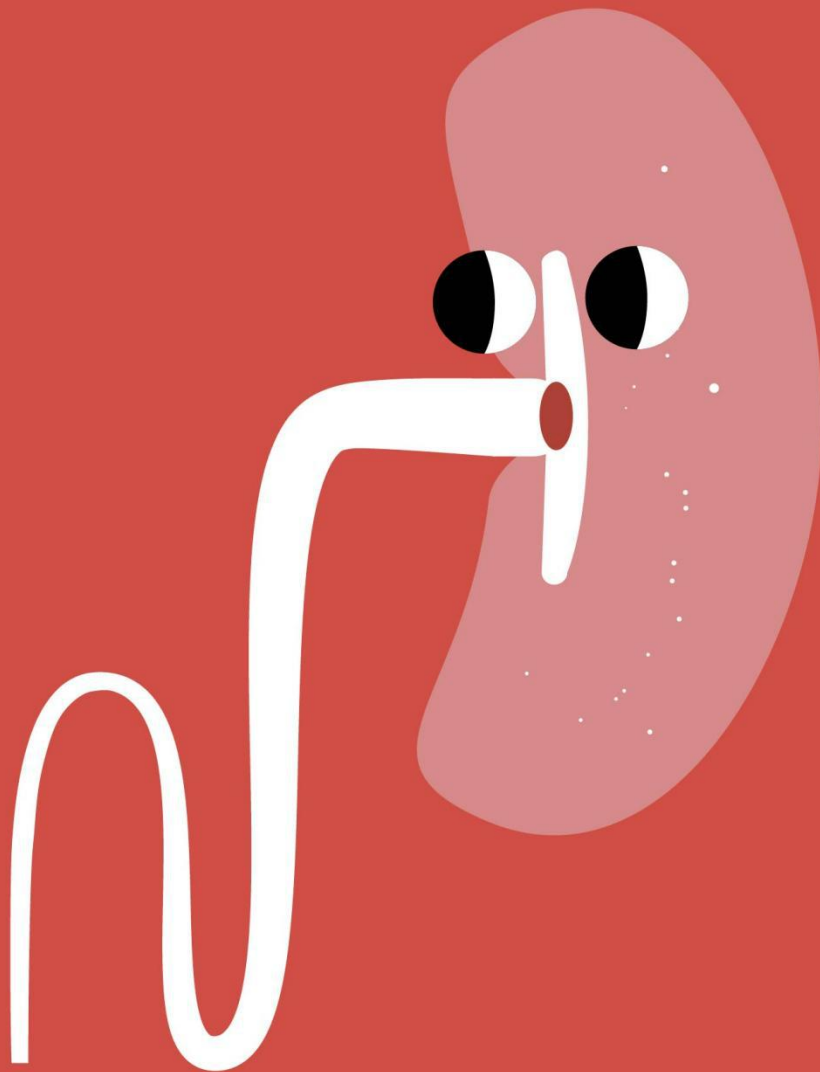
Therefore, it is very possible for human to ingest microplastics through the food chain or other ways. According to the diaries provided by eight subjects from different countries who participated in the study, they all ate plastic packaged food, drank bottled water, and six of them also ate seafood. There are 20 particles per 10 grams of fecal samples. The most common particles are polypropylene (PP) and polyethylene terephthalate (PET), which are the main components of plastic bottles and caps.



Micro plastic is invisible to the naked eye,
but it does enter the human body through food.

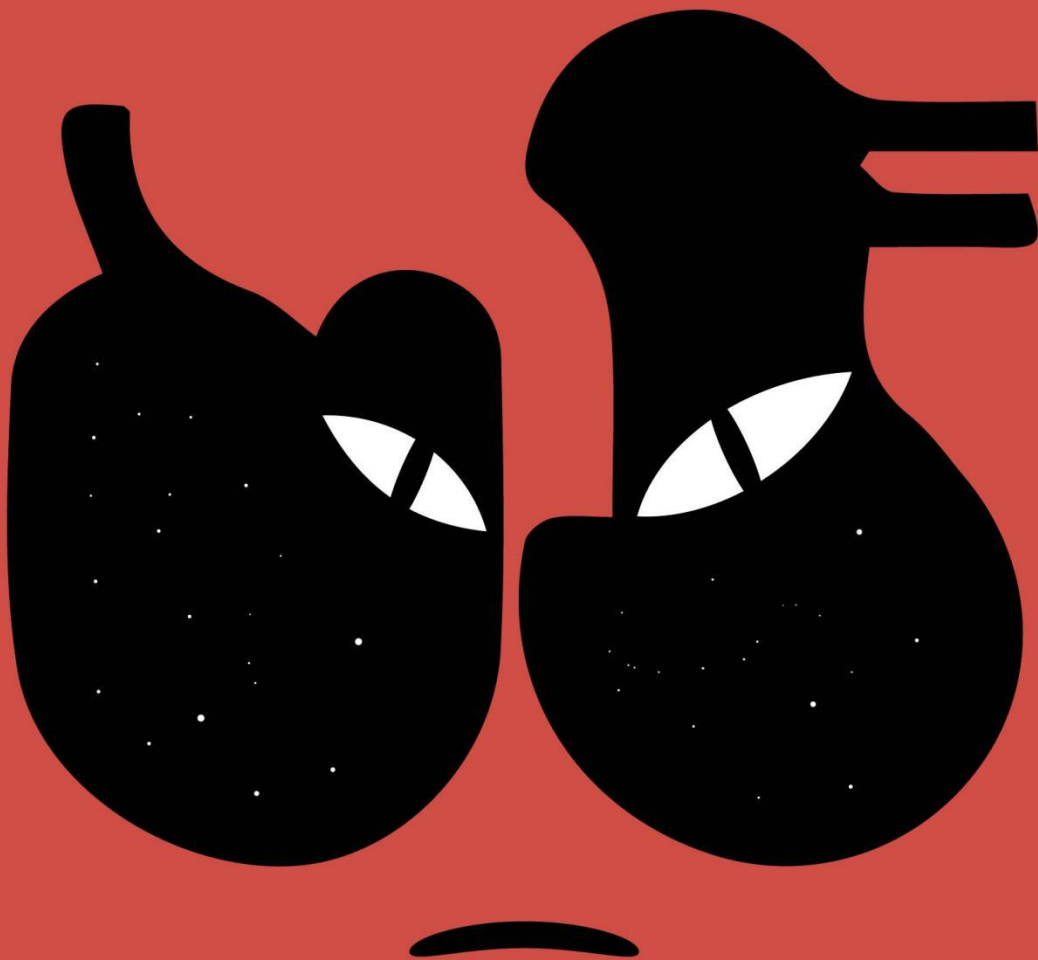
MICROPLASTICS

KIDNEY



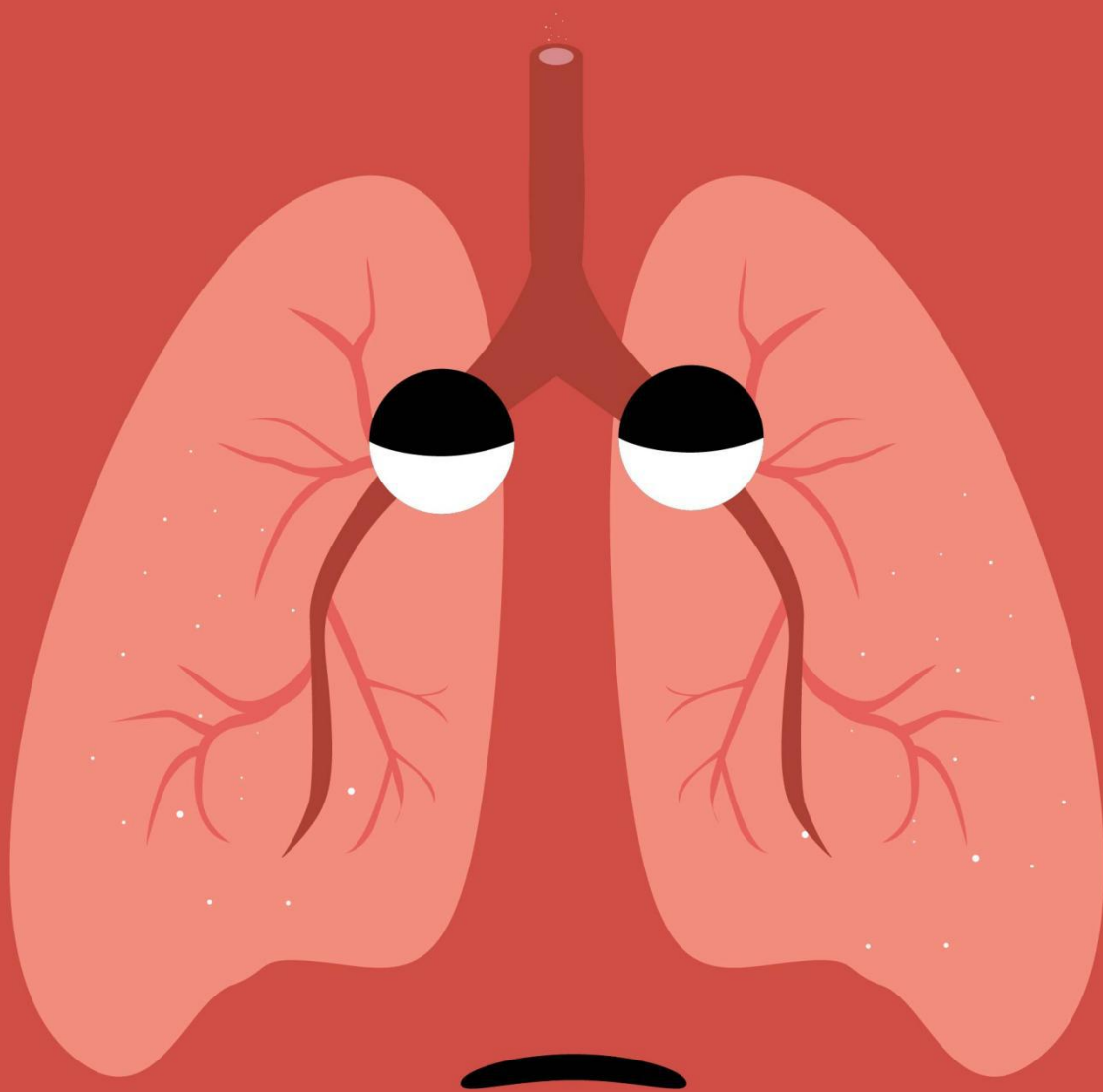
Enter the circulatory system of the human body, the impact on human health.

HEART



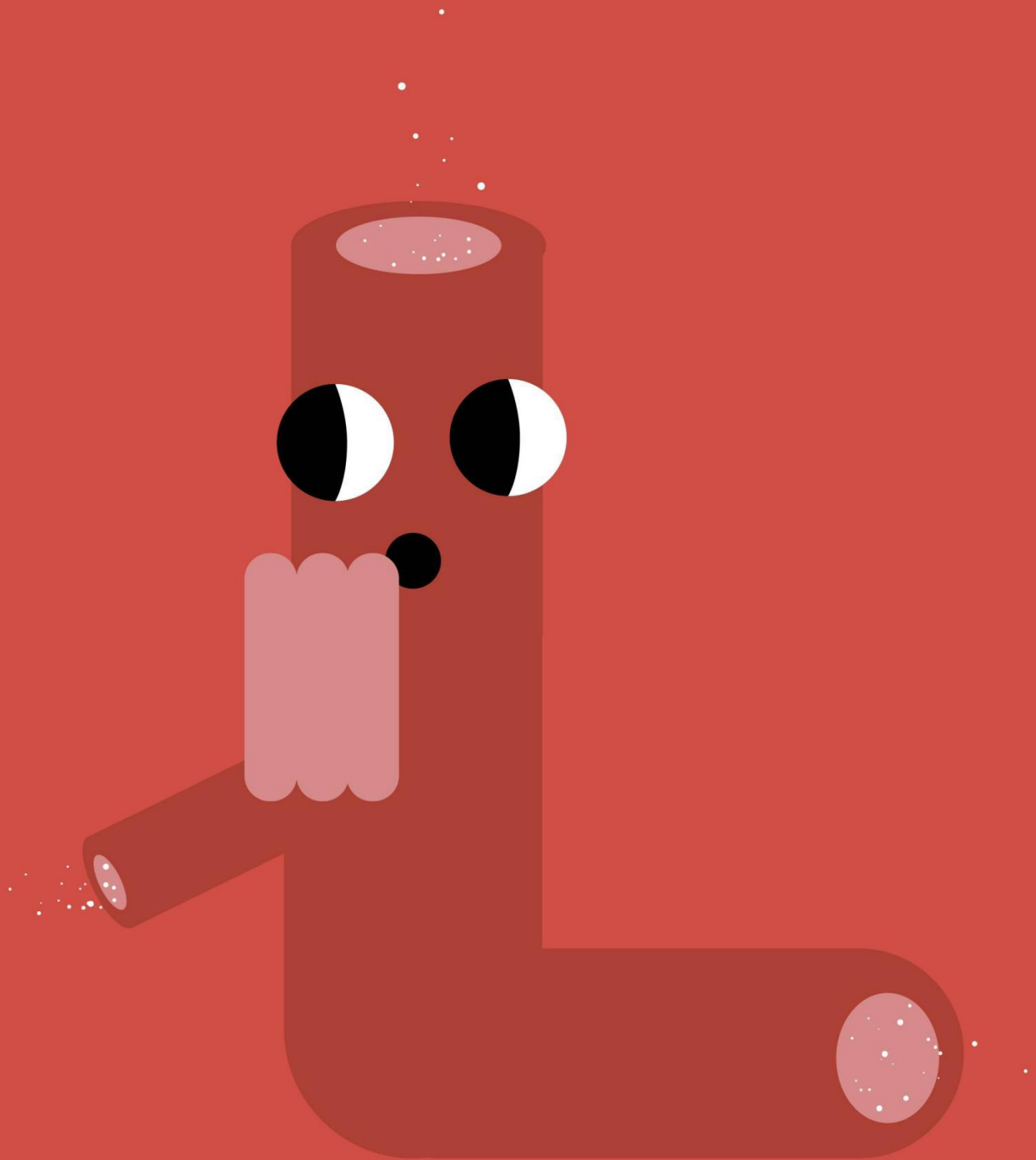
Enter the circulatory system of the human body, the impact on human health.

LUNG



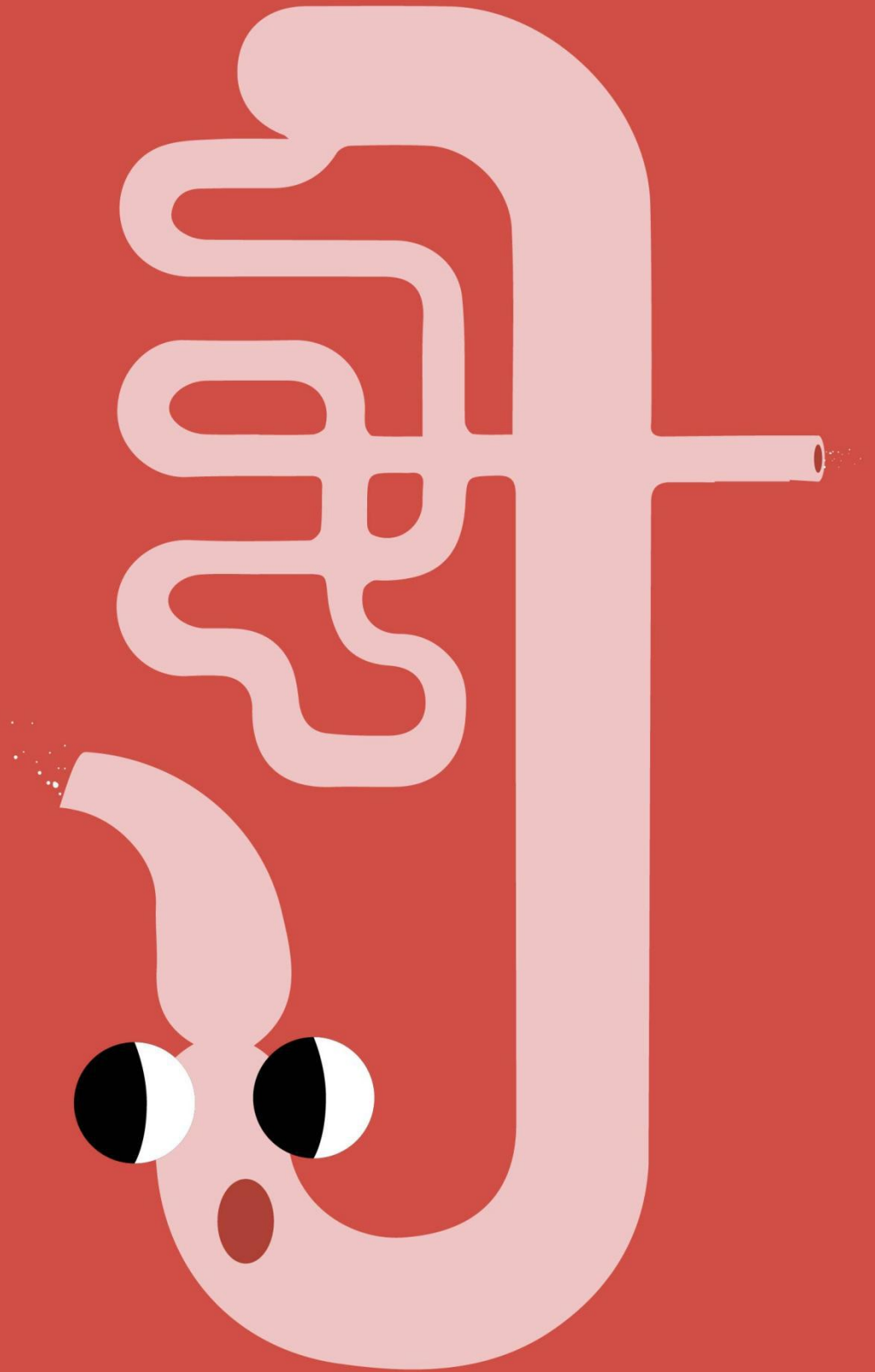
Enter the circulatory system of the human body, the impact on human health.

BLOOD VESSEL



Enter the circulatory system of the human body, the impact on human health.

INTESTINES



Enter the circulatory system of the human body, the impact on human health.



BIODEGRADABLE PLASTICS

Biodegradable plastics are usually made of poly (lactic acid) (PLA) and poly (caprolactone) (PCL). However, these traditional degradable plastics can not be completely and rapidly decomposed in composting process, and may pollute other recyclable plastics. Therefore, their fate is often to be landfilled rather than recycled as common plastics.



"ZERO GARBAGE EARTH"