Research highlights

DIETARY CLUES TO ENIGMATIC LITTLE WHALE'S TRAVELS

In the Southern Hemisphere, most baleen whales split their time between ample feeding grounds near Antarctica and the warmer waters farther north. But one unusually small species does not, a study has found.

Reaching just 6.5 metres long, the pygmy right whale (*Caperea marginata*) lives off the coast of Australia. Almost everything researchers know about this secretive animal comes from the occasional sighting or beached whale.

To understand the pygmy whale's range, Adelaide Dedden at the University of New South Wales in Sydney, Australia, and her colleagues examined the baleen — bristly filter-feeding plates — of 14 animals.

The team found that the mixtures of isotopes of nitrogen and carbon — elements that whales get only from their prey — did not match those in the kind of food whales would be able to access near Antarctica. Instead, pygmy right whales probably feast between southern Australia and latitudes farther north, suggesting that the animals do not follow the migratory patterns of their larger cousins.

The discovery could help scientists to understand how a changing ocean will affect this poorly understood miniature behemoth.

Front. Mar. Sci. **10**, 1190623 (2023)

JWST SEES RED WITH GLIMPSE OF EARLY QUASAR

The James Webb Space Telescope (JWST) has seen what is probably a quasar from the early Universe.

A quasar is an extremely bright region at the centre of a galaxy, powered by a supermassive black hole. More than one million have been discovered, but only a handful are distant enough that they are seen as they were when the Universe was less than one billion years old. The formation and evolution of these early quasars is therefore poorly understood.

By analysing JWST images (example pictured), Lukas Furtak at Ben-Gurion University of the Negev in Be'er-Sheva, Israel, and his colleagues spotted what could be an early quasar — observed when the Universe was less than 700 million years old. The object is extremely red and compact, and it can be seen three times in one image, owing to its light being deflected by a galaxy cluster.

The researchers argue that the object's properties point to it being a quasar rather than, for example, a massive clump of stars. They say that planned observations could confirm this interpretation.

Astrophys. J. **952**, 142 (2023)

A SINGLE ANTIBODY TACKLES TWO CHILDHOOD VIRUSES

An antibody shows promise in preventing infection by two viruses responsible for common childhood illnesses.

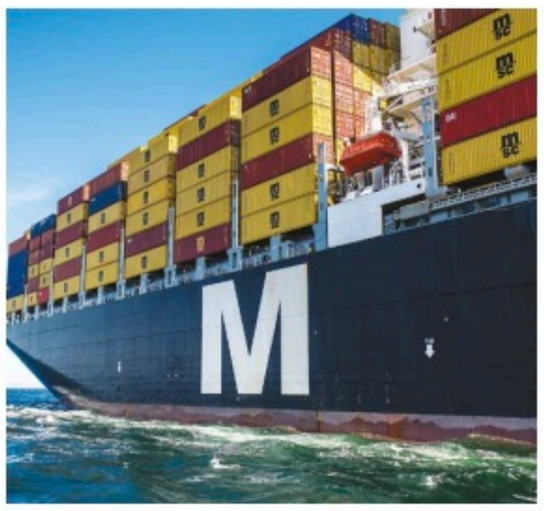
Respiratory syncytial virus (RSV, pictured, gold rods) and human metapneumovirus (hMPV) are close relatives and are leading causes of respiratory infections in children under five. Together, they cause around 134,000 deaths in this age group globally every year.

Xiaolin Wen at Stanford University School of Medicine in California and his colleagues screened a healthy donor's blood for immune cells producing antibodies that could recognize the 'fusion' (F) protein of either RSV or hMPV. Some types of virus use F proteins to help them to fuse with human cells.

What they found was RSV-199, an antibody that recognizes sites shared by the F proteins of both viruses. RSV-199's shape is slightly different when attached to RSV than to hMPV, but it binds strongly to each F protein.

Next, the authors injected cotton rats (*Sigmodon hispidus*) with RSV-199 before giving them either RSV or hMPV. The antibody suppressed the amount of virus in the animals' lungs, in some cases to undetectable levels.

Cell Host Microbe https://doi.org/km7c (2023)



CLIMATE DOWNSIDE OF CUTTING SHIPS' POLLUTION

Cleaning up air pollution from ships can exacerbate global warming.

In 2020, the International Maritime Organization cut the amount of sulfur permitted in fuels burnt by ocean-going ships. The change was intended to reduce air pollution by reducing vessels' sulfur oxide emissions. But studies have suggested that it has also increased global warming, because sulfur particles affect the chemistry of clouds and help to cool Earth's climate.

Michael Diamond at Florida State University in Tallahassee analysed satellite data to explore cloud changes in a shipping corridor in the southeast Atlantic Ocean between 2002 and 2022. The size of atmospheric droplets, which can serve as seeds on which clouds can form, in the corridor decreased after the sulfur regulations came into effect in 2020.

That change meant that clouds did not brighten as much as they would have, had there been more sulfur particles in the air. The net result was less cooling than before the regulations were introduced — an effect that could be happening worldwide.

Atmos. Chem. Phys. **23**, 8259–8269 (2023)

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