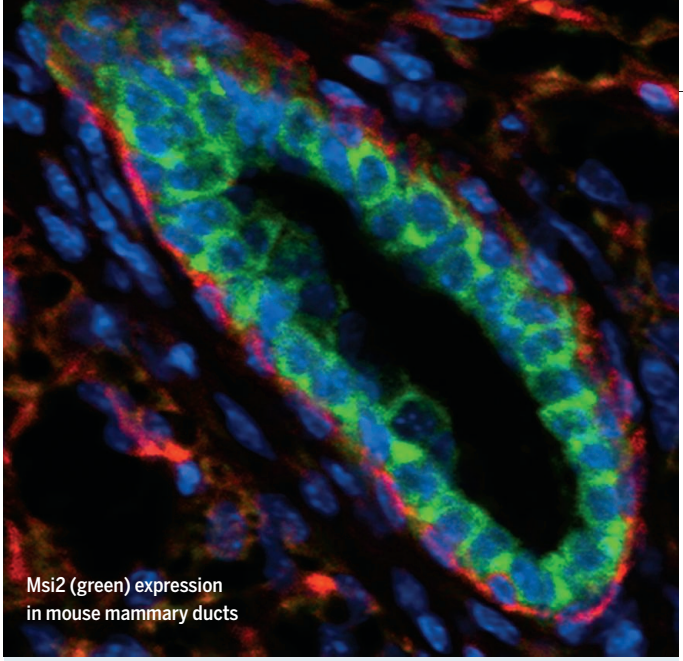


Msi2 (green) expression in mouse mammary ducts

CANCER

Blocking tumor cell transitions

A process called the epithelial-to-mesenchymal transition allows cancer cells to invade nearby tissue and metastasize. Katz *et al*. investigated the molecular underpinnings of this process and determined that tumors with a more epithelial gene signature expressed higher amounts of the Musashi (Msi) family of RNA-binding proteins as compared to tumors with a more mesenchymal profile. High amounts of Msi proteins locked mammary cells in a state that was less mobile and incapable of differentiation. Reducing Msi expression allowed breast cancer cells to transition into a mesenchymal-like form. Msi proteins may impose an undifferentiated state on cancers, as these proteins are also abundant in neural stem cells. — LC

eLife **3**, e03915 (2014).

ENDOSOMAL SORTING

The ER gets in on an endocytic sorting act

Endosomes are organelles that carry protein cargo from the plasma membrane and the extracellular fluid into cells. Although endosomes closely associate with the endoplasmic reticulum (ER) in cells, scientists don't understand why. Rowland *et al.* now identify the ER as an unexpected player in the sorting of cargo in the endosome and when endosomes divide (fission). Studying this process in mammalian cells, the authors found that an ER tubule crosses over the endosomal membrane, forming a stable contact at positions where endosomes first constrict and then divide. Such ER wrapped-endosomal contact sites prevent cargo from diffusing inappropriately. Interfering with ER dynamics reduced the efficiency of endosome fission. — SMH

Cell **159**, 1027 (2014)

NEUROSCIENCE

Brains in synchrony help us to communicate

Humans are social beings and often understand each other quite well; however, we still only have a limited knowledge of the brain mechanisms that underlie this astonishing ability. To better understand this, Stolk *et al*. scanned the brains of pairs of people that worked together to complete a specific task by communicating only through a visual display. The participants' brain activity synchronized in an area called the right superior temporal gyrus when they completed familiar but not unfamiliar tasks. These results suggest that establishing mutual understanding relies on spatially and temporally coherent brain activity between the two people communicating. — PRS

Proc. Natl. Acad. Sci. U.S.A. **111,** 18183 (2014).

STAR CLUSTERS

An entire family with the same birthday?

Astronomers often read the history of a star cluster in the shapes that emerge when its members are plotted in color-magnitude space. Tight curves suggest a population with very similar ages, whereas more extended features imply a broader range of ages. Li *et al.* consider the main-sequence turn-off—where stars have exhausted hydrogen in their cores—for the massive cluster NGC 1651 and demonstrate the feature's breadth with plots of Hubble Space Telescope photometry. Surprisingly, their models show that the spread can be manifested only if the population shares one common age. Five other massive clusters show the same phenomenon, which the authors interpret as evidence of populations composed of rapidly rotating stars, which should revise interpretations of color-magnitude diagrams. — MMM

Nature 10.1038/nature13969 (2014).

MATERIALS SCIENCE

For stability just add some debris?

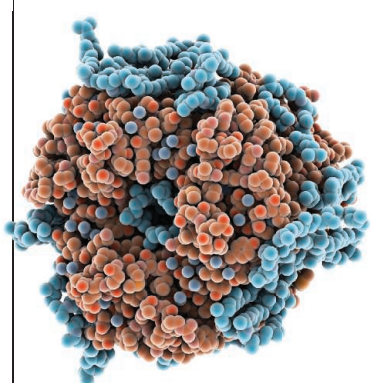
Graphene oxide membranes are made by dissolving graphene sheets—the oxidative exfoliation product of graphite—in water and then filtering the solution to form a stacked film. These membranes can exhibit long-term stability in aqueous environments, though, so why are they stable when their parent sheets are soluble? Yeh *et al.* attribute this stability to the introduction of multivalent cations during the purification process. For example, if anodized aluminum oxide filter discs are used during processing, the discs can corrode, releasing aluminum ions that crosslink the graphene oxide membranes and make them stable in water. In contrast, membranes prepared using Teflon filter discs readily disintegrated. Multivalent cations, such as Mn^{2+}, also can give them additional stability. — MSL

Nat. Chem. 10.1038/nchem.2145 (2015).

LIPID CHEMISTRY

A more stable phase via triangulation

Cell membranes house many important proteins that are hard to study outside their native environment. Salvati Manni *et al.* now have devised a special building block that stabilizes artificial, membrane-like phases



Bacteriorhodopsin, which can be crystalized ex-vivo at low temperatures

at low temperature. Their approach potentially opens the door to more detailed studies of temperature-sensitive membrane proteins. Biological membranes assemble from lipid molecules. The authors induced low-temperature stability by incorporating a rigid triangular ring, or cyclopropyl group, into a more conventional lipid structure. They validated the result by x-ray analysis of embedded bacteriorhodopsin protein at 4°C. — JSY

Angew. Chem. Int. Ed. 10.1002/anie.201409791 (2014).