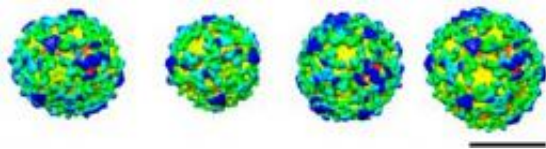


# 'Transformer' protein makes different sized transport pods

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Subtle differences between the structures of these vesicles revealed a molecular version of the robots from Transformers. Credit: EMBL/M.Faini

These spheres may look almost identical, but subtle differences between them revealed a molecular version of the robots from Transformers. Each sphere is a vesicle, a pod that cells use to transport materials between different compartments.

The images, produced by Marco Faini from John Briggs' lab at the European Molecular Biology Laboratory (EMBL), in Heidelberg, Germany, are the first high-resolution view of the three-dimensional structure of such a pod. They show a particular type of vesicle that is encased by a protein called COPI, and whose structure had never been seen before.

Several copies of the COPI protein attach to each other to form a coat around the vesicle's membrane. Briggs and colleagues were surprised to find that the COPI [building blocks](#) are capable of a 'transformer' act: they can change shape to connect to more or fewer copies of themselves.

So by changing the shape of individual COPI blocks, the cell could create vesicles of different shapes and sizes, for instance to transport different kinds of cargo.

Previously, scientists had been able to create and determine the [structure](#) of 'cages' formed by parts of the [protein](#) coats that encase other types of vesicles, but this study, published online today in *Science*, was the first to obtain high-resolution images of complete vesicles, budded from a membrane.

Provided by European Molecular Biology Laboratory

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