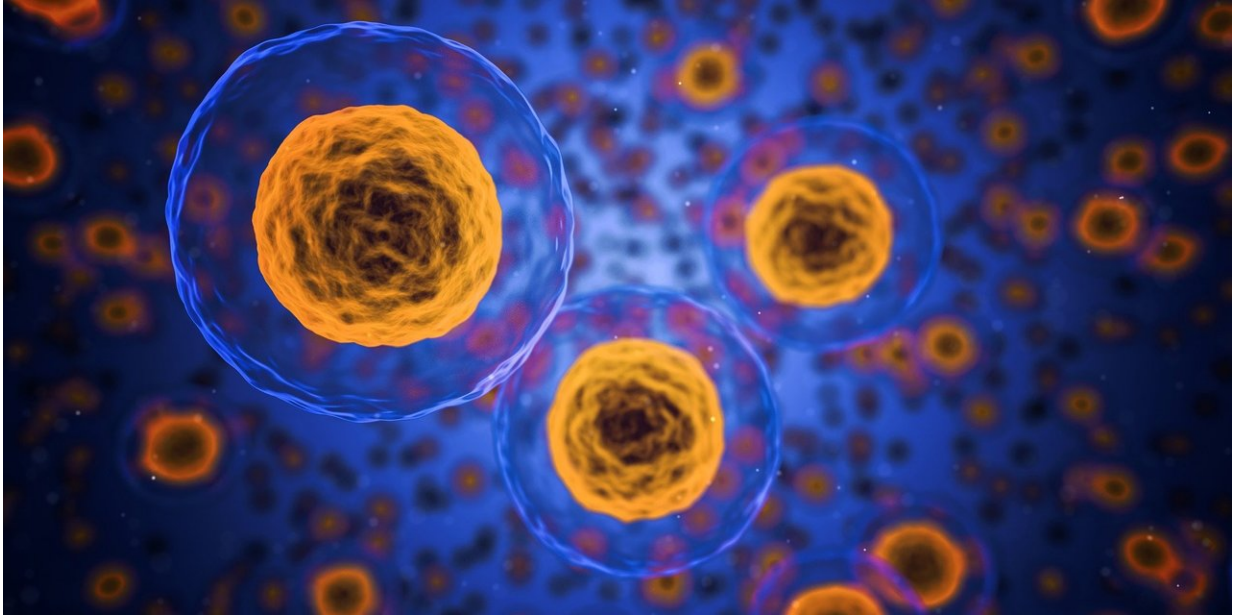


The exocyst dynamo

December 17 2018, by Bill Snyder



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The exocyst is a protein complex essential for life, that is comprised of eight subunits and is a crucial component in vesicle trafficking.

The mechanisms by which exocysts assemble and deliver vesicles containing important biological materials to the [cell surface](#) has been unclear, especially in [mammalian cells](#). Much of this is because previous studies using gene overexpression can produce artifacts.

Now, using CRISPR/Cas9-mediated gene editing, high-speed single

molecule sensitive imaging and fluorescence cross-correlation spectroscopy, Mukhtar Ahmed, Ph.D., and colleagues have found that the mammalian exocyst functions as a remarkably dynamic two-part complex, thus providing a new mechanism of how the exocyst functions.

The researchers also discovered that the exocyst subcomplexes, each composed of four subunits, assemble and localize to the plasma membrane independently of each other. The study was published last week in the journal *Nature Communications*.

The authors said that the methods they employed are applicable to any protein complexes in the cell and have the potential to revolutionize our understanding of cell dynamics.

More information: Syed Mukhtar Ahmed et al. Exocyst dynamics during vesicle tethering and fusion, *Nature Communications* (2018). [DOI: 10.1038/s41467-018-07467-5](https://doi.org/10.1038/s41467-018-07467-5)

Provided by Vanderbilt University

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