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Plants and animals have had many thousands or millions of years to cope with infection, temperature and structural challenges, and they can pass their secrets along to us, especially now that we have the modern tools to investigate them. Scientists value the biodiversity of the natural world, for inspiration in the research and development of new products, including medicines and materials. There are new discoveries every day:

Bats are a natural reservoir for deadly viruses, such as Ebola and SARS, but they often survive infection with these viruses. Bats are the only mammal that can fly, and their lifespan is notably longer than other mammals their size. Scientists have found that bats have a number of specialized genetic adaptations that boost their immunity and longevity, making them extremely valuable for research into the treatment of viral disease.

Read more: G. Zhang, C. Cowled, Z. Shi, Z. Huang, K. A. Bishop-Lilly, X. Fang, J. W. Wynne, Z. Xiong, M. L. Baker, W. Zhao, M. Tachedjian, Y. Zhu, P. Zhou, X. Jiang, J. Ng, L. Yang, L. Wu, J. Xiao, Y. Feng, Y. Chen, X. Sun, Y. Zhang, G. A. Marsh, G. Cramer, C. C. Broder, K. G. Frey, L.-F. Wang, J. Wang. **Comparative Analysis of Bat Genomes Provides Insight into the Evolution of Flight and Immunity.** *Science*, 2012; DOI: [10.1126/science.1230835](https://doi.org/10.1126/science.1230835)

A protein that is found in sunflower seeds is being genetically engineered into a safe carrier that can get drugs to the right tissues in the body. Researchers from the University of Pennsylvania have a new approach for making vesicles and fine-tuning their shapes, assembling them into other useful structures.

Read more: K. B. Vargo, R. Parthasarathy, D. A. Hammer. **Self-assembly of tunable protein suprastructures from recombinant oleosin.** *Proceedings of the National Academy of Sciences*, 2012; DOI: [10.1073/pnas.1205426109](https://doi.org/10.1073/pnas.1205426109)

The death cap mushroom (*Amanita phalloides*), contains the fatal α -amanitin., a substance that will destroy any cell, partly because it is small enough to evade immune cells. Take the deadly fungal toxin and bond it to an antibody which recognizes a specific molecule on a cancer cell. Then, “Like a guided missile, the antibody carries its poisonous load to target cancer cells. The poison-loaded antibody arrested the growth of various types of cancer cells in the culture dish and even caused the complete disappearance of transplanted pancreatic tumors in experimental mice.”

Read more: G. Moldenhauer, A. V. Salnikov, S. Luttgau, I. Herr, J. Anderl, H. Faulstich. **Therapeutic Potential of Amanitin-Conjugated Anti-Epithelial Cell Adhesion Molecule Monoclonal Antibody Against Pancreatic Carcinoma.** *JNCI Journal of the National Cancer Institute*, 2012; DOI: [10.1093/jnci/djs140](https://doi.org/10.1093/jnci/djs140)