

Deactivating viruses using self-assembling DNA Origami Shells

S. Fraden¹, G. Grason², R. Hayward², M. Hagan¹, W. Rogers¹, C. Santangelo², H. Dietz³,
¹Brandeis University, ²U. Mass. Amherst, ³Tech. Universität München

Researchers have developed programmable DNA origami building blocks that self-assemble into icosahedral shells, with programmable sizes. The shells can be functionalized with antibodies, enabling them to engulf and neutralize natural viruses. Blocking infection requires just one binding event between the virus and encapsulating shell. In contrast, the traditional antibody approach for virus neutralization must bind hundreds of viral surface proteins due to their high redundancy in attachment to host cell surfaces.

