Build a Paper Model of Zika Virus with Neutralizing Antibodies

RCSB PDB PROTEIN DATA BANK
rcsb.org

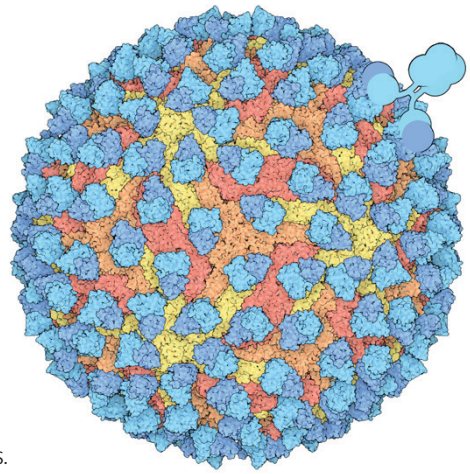
Managed by
RUTGERS
UC San Diego

Zika virus infects people around the globe. For most, the virus causes a mild illness that is quickly fought off by the immune system.

But a connection between Zika infection in pregnant women and birth defects has underscored the need to find ways to fight the disease. Zika is spread by mosquitoes, so our primary defense is to remove breeding sites and to take measures to avoid being bitten.

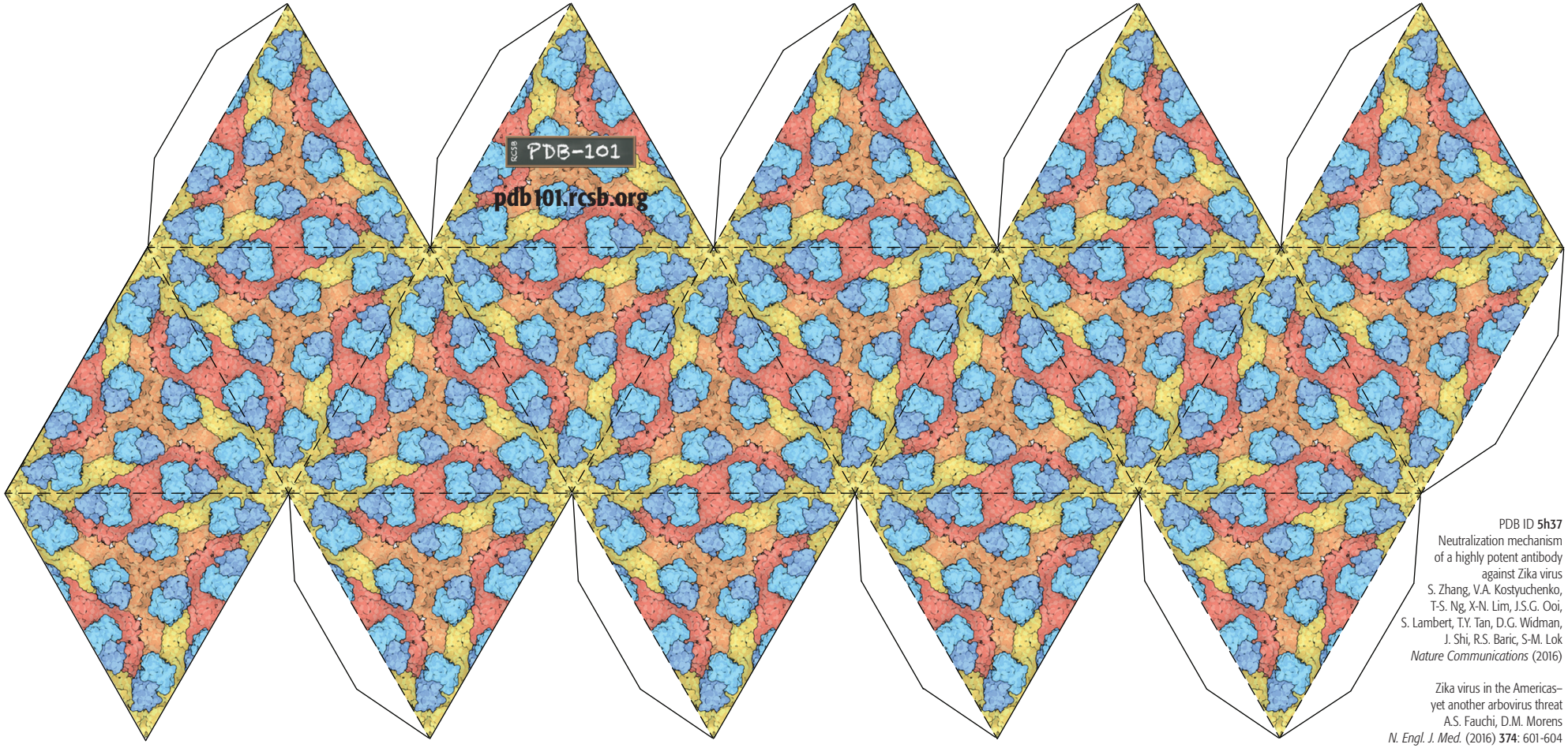
Researchers are studying the binding of human antibodies to Zika virus with the goal of developing a vaccine to fight Zika infection. This structure (based on PDB entry **5h37**), determined by electron microscopy, includes the proteins that coat the surface of the virus, shown in yellow, orange and red, and many copies of the virus-binding portion of an antibody Fab, shown in blue.

In the image on the right, one entire antibody is shown schematically (upper right) This antibody was originally identified because it neutralizes dengue virus. Researchers subsequently found that it is also effective against Zika virus.



To build the model, cut out the structure below along the solid lines, and fold along the dashed lines. Then tape or glue the flaps into place to form an icosahedron.

Visit PDB-101 **pdb101.rcsb.org** to learn more about Zika virus and build a model without antibodies.



PDB ID **5h37**
Neutralization mechanism of a highly potent antibody against Zika virus
S. Zhang, V.A. Kostyuchenko, T-S. Ng, X-N. Lim, J.S.G. Ooi, S. Lambert, T.Y. Tan, D.G. Widman, J. Shi, R.S. Baric, S-M. Lok
Nature Communications (2016)

Zika virus in the Americas–yet another arbovirus threat
A.S. Fauchi, D.M. Morens
N. Engl. J. Med. (2016) **374**: 601-604