
PRESS RELEASE

Project: **Protective human antibodies target West Nile and related viruses**

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Scientists at the Institute for Research in Biomedicine, partners at Stanford, Masaryk and Zurich University, Pasteur Institute in Novi Sad and physicians in Serbia, report in *Immunity* that monoclonal antibodies from convalescents protect against West Nile and related orthoflaviviruses, supporting future prophylactic and therapeutic strategies.

West Nile virus (WNV) is transmitted by mosquitoes and is increasingly relevant for Europe and worldwide. It can cause severe brain infection and death, yet there is no specific antiviral treatment or approved human vaccine. A collaborative study published in *Immunity* analyzed blood from WNV convalescents in Serbia to understand antibody immune responses and identify protective human monoclonal antibodies with potential to prevent or treat WNV and related orthoflavivirus infections.

Davide Robbiani's Laboratory at the Institute for Research in Biomedicine (IRB, affiliated with Università della Svizzera italiana) in Bellinzona, Switzerland, together with international collaborators, identified monoclonal antibodies that may help address this unmet medical need.

Among them, antibody W010 recognizes a distinct site on the virus envelope domain III, a key surface protein involved in viral attachment and infection. W010 protected mice when administered before and even 5 days after exposure to WNV. A second antibody, W014, showed broader cross-neutralization against pathogenic orthoflaviviruses, including Japanese encephalitis, Murray Valley encephalitis, Saint Louis encephalitis and Usutu viruses.

The findings define vulnerable sites on WNV that could inform vaccine development, and highlight antibody candidates with prophylactic and therapeutic potential. They may also guide interventions for a wider group of encephalitic orthoflavivirus infections.

Link to the publication: [https://www.cell.com/immunity/fulltext/S1074-7613\(26\)00224-4](https://www.cell.com/immunity/fulltext/S1074-7613(26)00224-4)

“Molecular reconstruction of WNV and mechanism of binding by virus neutralizing antibodies reported in the study. Credit: Christopher Barnes and Zaira Contejean, Stanford University”

