



Mosquito and tick-borne viruses are increasing globally, leading to severe health issues such as brain damage and excessive bleeding. Recent epidemics have emerged due to these vectors spreading to new regions with vulnerable populations and increased travel leading to more infections in non-endemic countries. There is an urgent need for reliable diagnostic assays, as traditional serology is challenging due to cross-reactivity of patient antibodies among the flavivirus proteins. Using the non-structural protein NS1, secreted by Flaviviruses (such as Zika, Dengue, West Nile fever, and Tick-borne encephalitis) is suggested as a more specific antigen for detecting immune responses. (Mora-Cárdenas et al. (2020).

Non-structural protein (NS1) is a multi-functional protein, conserved across Flavivirus species. It plays a distinct function in immune evasion, pathogenesis, and viral replication. NS1 is highly immunogenic in its secreted, hexameric form, and is strongly expressed during acute phase, primary infections, making it an ideal marker for diagnostics. For a more detailed overview of NS1's structure and function, you can read [our NS1 blog post](#).

NS1-capture diagnostics can also reduce cross-reactivity issues, as monoclonal antibodies against this protein can be highly specific, enabling development of "sandwich" assays which eliminate cross-reactivity.

However, developing monoclonal antibodies (mAbs) that are highly specific to the NS1 of a given flavivirus, without cross-reactivity with other members of the same serocomplex, remains a major challenge (Ceconi et al., 2024).

The Native Antigen Company offers a comprehensive selection of mammalian-expressed NS1 proteins suitable for generating highly specific and well-characterized antibodies. We supply antibodies with high specificity for various flaviviruses, giving customers a variety of reagents to choose from for their specific needs. Our antibodies are ideal for use in ELISA, Immunofluorescence, and Western Blot applications.

Our wide selection of anti-NS1 antibodies are highly specific and well characterised making them excellent reagents for antigen-capture immunoassay development.

Follow these links for our comprehensive flavivirus portfolio including NS1 antigens and antibodies.

<a href="#">Dengue Virus</a>	<a href="#">Zika Virus</a>	<a href="#">Tick-borne Encephalitis Virus</a>	<a href="#">Yellow Fever Virus</a>	<a href="#">Powassan Virus</a>	<a href="#">Japanese Encephalitis Virus</a>
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You can also find more details by referring to our Flavivirus products factsheet [here](#).

## NEW Anti- Tick-Borne Encephalitis Virus Antibodies

The Native antigen company is committed to expanding its portfolio of NS1 antigens and antibodies to support research into vaccines and diagnostics and is pleased to announce the launching of three new Anti-Tick-Borne Encephalitis Virus Antibodies.

MAB12534: [Mouse Anti-Tick-Borne Encephalitis Virus NS1 \(IH4\)](#)

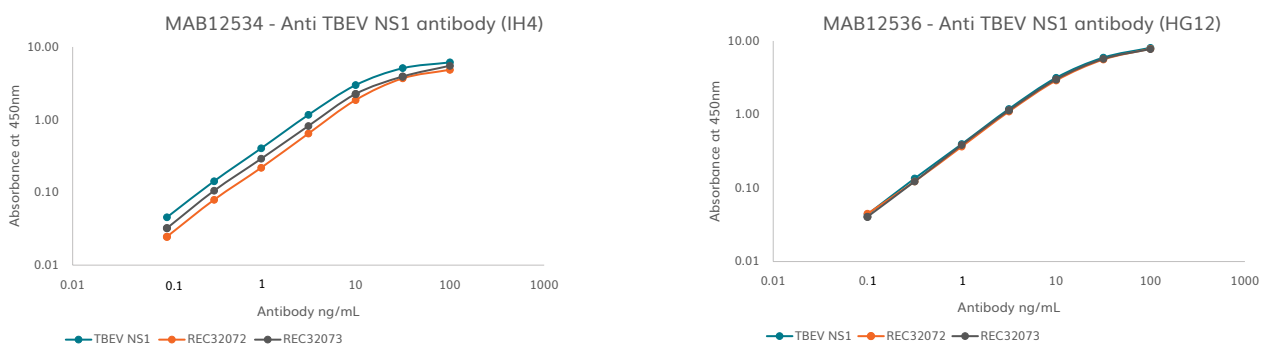
MAB12535: [Mouse Anti-Tick-Borne Encephalitis Virus NS1 \(HG12\)](#)

MAB12536: [Mouse Anti-Tick-Borne Encephalitis Virus NS1\(EF10\)](#)

See the full panel of our Anti- Tick-Borne Encephalitis Virus Antibodies [here](#).

These antibodies have been tested against our renowned mammalian-expressed, recombinant TBEV N1 proteins collection: TBEV-NS1: [Tick-Borne Encephalitis Virus \(European\) NS1 Protein](#), REC32073: [Tick-Borne Encephalitis Virus \(Far Eastern\) NS1 Protein](#), and REC32072: [Tick-Borne Encephalitis Virus \(Siberian\) NS1 Protein](#).

Read our blog [Tick-borne encephalopathy virus \(TBEV\) resurgence and increased diagnostic surveillance](#) for more information.

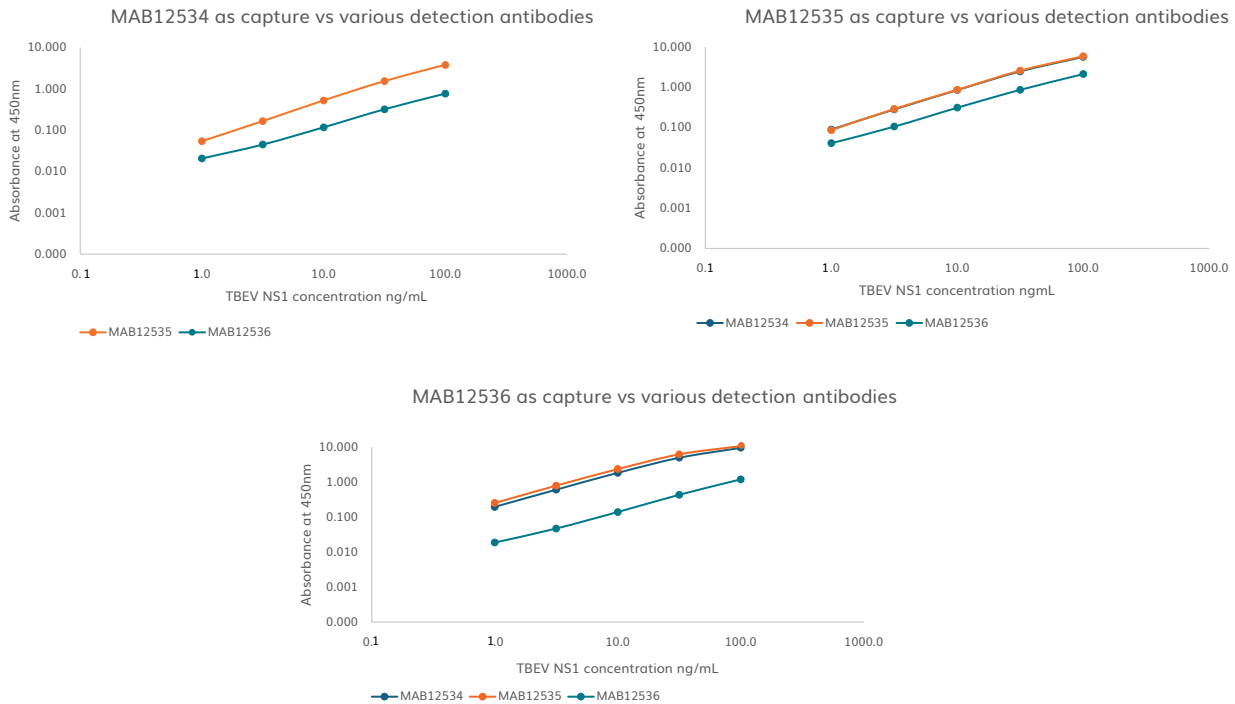


**Figure 1:** Assessment of Anti- Tick-Borne Encephalitis Virus Antibodies reactivity to TBEV NS1 antigens (The Native Antigen Company TBEV-NS1, REC32072, REC32073) utilising an antigen-down ELISA



## Matched Pair Antibodies

Matched pair antibodies, consisting of a capture antibody and a detection antibody, are essential for creating highly sensitive and specific immunoassays. The Native Antigen Company upholds its commitment to quality with its latest product line of [matched pair antibodies](#). Our new Anti-Tick-Borne Encephalitis Virus antibodies have been thoroughly evaluated as pairing antibodies and can be used to develop ELISA or LFA for measuring NS1 levels with high specificity. This simplifies assay development and ensures a seamless process for our customers.



**Figure 2.** Analysis of matched pair antibody for TBEV NS1 (The Native Antigen Company TBEV-NS1) detection via classic sandwich ELISA

For a comprehensive list of evaluated matched-pair anti-NS1 antibodies, please refer to the [matched-pair tool](#) on our website. If you have any specific questions, do not hesitate to contact us at [nac.contact@lgcgroup.com](mailto:nac.contact@lgcgroup.com) regarding any of our antigens, antibodies, or assay development components.

## Custom solutions

If you have a unique need in the space of viral antigens or antibodies, we can offer our experience to collaborate in a bespoke development project. Our specialized team can produce native and recombinant antigens, antibodies, and viral lysates, and downstream processing. We operate to BSL-2 standards and offer multiple validated options for inactivating viruses, as well as multiple conjugation options.

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## References

Mora-Cárdenas E, Aloise C, Faoro V, Knap Gašper N, Korva M, et al. (2020) Comparative specificity and sensitivity of NS1-based serological assays for the detection of flavivirus immune response. *PLOS Neglected Tropical Diseases* 14(1): e0008039

Cecconi, M., Ariën, K. K., & Delputte, P. (2024). Diagnosing arthropod-borne flaviviruses: Non-structural protein 1 (NS1) as a biomarker. *Trends in Microbiology*, 32(7), 678-696.