

Voltage-Gated Potassium Channel Antibodies

Synonyms

Potassium channel antibodies, K⁺ channel antibodies, VGKC, VGKC-complex antibodies, [CASPR2](#), [LGI1](#)

Clinical Indication

Investigation of possible:

- Acquired neuromyotonia/peripheral nerve hyperexcitability (PNH)
- Morvan's syndrome*
- Limbic encephalitis (paraneoplastic and idiopathic)*
- Facio-brachial dystonic seizures

*can be associated with thymoma or small cell lung carcinoma

Traditionally a screening assay has been used to test for all VGKC antibodies, however, clinical studies looking at the outcome for patients who show positive VGKC antibodies by RIA but who are negative for LGI1 or CASPR by IIF, have found that these patients predominantly have a generic autoimmune / inflammatory phenotype, rather than true limbic encephalitis (Van Sonderen et al 2016, Yeo et al 2018).

In light of these findings, from **19 October 2020**, the Oxford Immunology Laboratory is recommending that LGI1/CASPR2 antibody testing is conducted as a first line test when investigating a patient for VGKC antibodies.

It is essential to provide relevant clinical information.

Part of Profile / See Also

Request Form

Combined Pathology manual blood form or ICE/Medway request

Availability / Frequency of Analysis

Referred test: Analysed by Immunology, Oxford University Hospital 8782

Turnaround Time

6 weeks

Patient Preparation

Sample Requirements

Please note a separate sample is required when Immunology tests are requested in addition to Biochemistry tests

Specimen Type

Serum

Volume

7 ml

Container



Yellow top (SST) tube



Paediatric Yellow Top (SST) tube

Reference Range & Units

0 - 69 pML⁻¹ = negative

70 – 130 pML⁻¹ = equivocal

>130 pML⁻¹ = positive

Interferences

None known

Interpretation & Clinical
Decision Value (if applicable)

Equivocal results: the assay is not statistically powerful enough to differentiate disease from control, meaning the result is unhelpful in differential diagnosis and clinical management. Results should be interpreted with other laboratory results and the clinical picture.

VGKC antibodies have been renamed VGKC-complex antibodies, as they are known to be tightly complexed with other proteins and this radioimmunoprecipitation assay recognises these complexed proteins as well as the VGKCs. The most common complex proteins discovered so far are LGI1 (associated with limbic encephalitis) and CASPR2 (associated with Morvan syndrome). However, not all the complex proteins have been identified so testing for VGKC-complex antibodies is recommended as the first step.

VGKC antibodies are often a part of acute onset diseases and re-testing within a few weeks may be appropriate, depending on clinical features. Patient titres can rise quite steeply from a low level to positive/strong positive. It is also reasonable to re-test after treatment to see the effect on antibody level

References

<https://www.ouh.nhs.uk/immunology/diagnostic-tests/tests-catalogue/potassium-channel-antibodies.aspx>

Test code

KCH

Lab Handling

Aliquot and store at 4-8°C prior to testing and at -20°C or below for up to 1 month after receipt.

