

Acetylcholine Receptor Autoantibody (AChRAb) – Blocking

RADIOIMMUNOASSAY

NEUROIMMUNOLOGY

ASSAY CHARACTERISTICS

Semi-Quantitative

TOTAL RUNNING TIME

4 Hours and 30 Minutes

SPECIMEN MATRIX

Human Serum

REFERENCE RANGE

Normal Individuals: ≤ 20% Inhibition

PRECISION

Intra-Assay		Inter-Assay	
Dose (% Inhib)	% CV	Dose (% Inhib)	% CV
15.0	7.7	16.0	9.8
26.0	5.0	25.0	12.2
54.0	3.9	56.0	3.0

PATIENT GROUP NUMBER OF PATIENTS POSITIVE FOR ACHRAB %

Myasthenia Gravis	27/52	52%
Graves' Disease	0/10	0%
Hashimoto's Thyroiditis	0/5	0%
Rheumatoid Arthritis	0/10	0%
Type 1 Diabetes	0/13	0%
Systemic Lupus Erythematosus	0/5	0%
Addison's Disease	0/5	0%
Lambert-Eaton Myasthenic Syndrome	0/2	0%
Healthy Blood Donors	0/70	0%

CLINICAL SENSITIVITY & SPECIFICITY

Sensitivity:	52%
Specificity:	100%

ORDERING INFORMATION

KR7590 — 100 Tube Kit

The KRONUS Blocking Acetylcholine Receptor Autoantibody (AChRAb) RIA Assay Kit is for the semi-quantitative determination of blocking antibodies to the acetylcholine receptor in human serum, and is useful as an aid in the diagnosis of myasthenia gravis (MG).

Myasthenia gravis (MG) is a neuromuscular disorder characterized by muscle weakness, which in most cases is a result of autoantibody-mediated loss of functional acetylcholine receptors in the neuromuscular junction. Anti-AChR antibodies can be detected in approximately 90% of myasthenics, and although antibody titers of patients with MG are always significantly elevated versus normal donors, the absolute titer of anti-AChR antibody does not appear to correlate closely with age, sex, steroid therapy or duration of symptoms.

Human muscle acetylcholine receptors (AChR) exist as two developmentally regulated subtypes: adult and fetal. Adult and fetal receptor subtypes differ by one of their subunits (the γ subunit in the fetal receptor is replaced by the ϵ subunit in the adult receptor). The vast majority of AChRAb in the sera of patients with myasthenia gravis recognize the fetal form of AChR; however, some MG patient sera contain antibodies that bind specifically to the adult form of the receptor.

Consequently, a carefully balanced mixture of detergent-solubilized fetal and adult forms of the receptor is the optimal preparation for AChRAb assays. This mixture of receptors, labeled with ^{125}I -labeled alpha-bungarotoxin, provides the basis for the KRONUS AChRAb RIA kits.



For In Vitro Diagnostic Use



ASSAY PROCEDURE

Sample Volume: 20 µL per Tube

References and Samples into Labeled Tubes: 20 µL

Acetylcholine Receptor Reagent: 25 µL
Gently Vortex Tubes
1 Hour Incubation at Room Temperature

¹²⁵I Alpha-Bungarotoxin: 25 µL
Gently Vortex Tubes
2 Hour Incubation at Room Temperature

Con A-Sepharose: 100 µL
Gently Vortex Tubes
1 Hour Incubation at Room Temperature

Wash Buffer: 1 mL [Repeat]
Gently Vortex Tubes
Centrifuge for 15 Minutes at 2 - 8° C

Decant and Drain:
Count Radioactivity of Pellets for 2 Minutes

Total Assay Time is Approximately 4 Hours and 30 Minutes

REFERENCES

1. Vincent A, Newsom-Davis J. Acetylcholine receptor antibody as a diagnostic test for myasthenia gravis: results in 153 validated cases and 1967 diagnostic assays. *J Neurol Neurosurg Psychiatry*. 1985 Dec;48(12):1246–1252.
2. Lindstrom JM, Seybold ME, Lennon VA, Whittingham S, Duane DD. Antibody to acetylcholine receptor in myasthenia gravis. Prevalence, clinical correlates, and diagnostic value. *Neurology*. 1976 Nov;26(11):1054–1059.
3. Peter, J. B. 1991. Thyroid antibodies, In: J. B. Peter (Ed.), *Use and Interpretation of Tests in Clinical Immunology*, Eighth edition. Specialty Laboratories, Inc., Santa Monica, CA. pp. 242-243.
4. Männistö T, Surcel HM, Bloigu A, Ruukonen A, Hartikainen AL, Järvelin MR, Pouta A, Vääräsmäki M, Suvanto-Luukkonen E. The effect of freezing, thawing, and short- and long-term storage on serum thyrotropin, thyroid hormones, and thyroid autoantibodies: implications for analyzing samples stored in serum banks. *Clin Chem*. 2007 Nov;53(11):1986-1987.



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