



Human Complement C3 ELISA Kit

Vertrieb:

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Hinweis/Note:

Der Packungsbeileger dient nur als erste Information.
Der relevante Packungsbeileger liegt der Ware bei.

The datasheet is only a first information.
The relevant datasheet is included with the product.

For any questions regarding troubleshooting or performing the assay, please contact our support team at support@assaypro.com.

Thank you for choosing Assaypro.

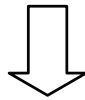
Symbol Key



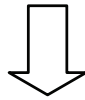
Consult instructions for use.

Assay Summary

Add 50 μ l of Standard/ Sample per well.
Incubate 2 hours.



Wash, then add
50 μ l of Biotinylated Antibody per well.
Incubate 1 hour.



Wash, then add
50 μ l of SP Conjugate per well.
Incubate 30 minutes.



Wash, then add
50 μ l of Chromogen Substrate per well.
Incubate 15 minutes.



Add 50 μ l of Stop Solution per well.
Read at 450 nm immediately.

AssayMax Human Complement C3 ELISA Kit

Catalog No. EC3201-1
Sample Insert/Reference Only

Introduction

Complement component 3 (C3) plays a central role in all three complement activation pathways. The C3 precursor contains 1663 amino acids and has a molecular weight of about 180 kDa (1). Human C3 has 77% identity to mouse C3 at the amino acid level (2). C3 is cleaved by C3 convertase into two activated fragments C3a and C3b. The anaphylatoxin C3a is a vasoactive peptide and a mediator of local inflammatory processes (3). The C3b fragment in complex with a receptor can bind covalently to pathogen surfaces to promote phagocytosis (4, 5). Acquired C3 deficiency is associated with severe recurrent meningococci and pneumococci infections (6). Plasma C3 and C3a levels are elevated in cryptogenic and large-vessel disease subtypes of ischemic stroke (7).

Principle of the Assay

The AssayMax Human Complement C3 ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for detection of human complement C3 in urine, milk, saliva, CSF, and cell culture samples. This assay employs a quantitative sandwich enzyme immunoassay technique that measures human complement C3 in less than 4 hours. A polyclonal antibody specific for human complement C3 has been pre-coated onto a 96-well microplate with removable strips. Complement C3 in standards and samples is sandwiched by the immobilized antibody and biotinylated polyclonal antibody specific for complement C3, which is recognized by a streptavidin-peroxidase conjugate. All unbound material is then washed away and a peroxidase enzyme substrate is added. The color development is stopped and the intensity of the color is measured.

Caution and Warning

- **Prepare all reagents (working diluent buffer, wash buffer, standards, biotinylated antibody, and SP conjugate) as instructed, prior to running the assay.**
- **Prepare all samples prior to running the assay. The dilution factors for the samples are suggested in this protocol. However, the user should determine the optimal dilution factor.**

- **Spin down the SP conjugate vial and the biotinylated antibody vial before opening and using contents.**
- This kit is for research use only.
- The kit should not be used beyond the expiration date.
- The Stop Solution is an acidic solution.

Reagents

- **Human Complement C3 Microplate:** A 96-well polystyrene microplate (12 strips of 8 wells) coated with a polyclonal antibody against human complement C3.
- **Sealing Tapes:** Each kit contains 3 precut, pressure sensitive sealing tapes that can be cut to fit the format of the individual assay.
- **Human Complement C3 Standard:** Human complement C3 in a buffered protein base (3.2 µg, lyophilized).
- **Biotinylated Human Complement C3 Antibody (50x):** A 50-fold concentrated biotinylated polyclonal antibody against complement C3 (140 µl).
- **MIX Diluent Concentrate (10x):** A 10-fold concentrated buffered protein base (30 ml).
- **Wash Buffer Concentrate (20x):** A 20-fold concentrated buffered surfactant (30 ml, 2 bottles).
- **Streptavidin-Peroxidase Conjugate (SP Conjugate):** A 100-fold concentrate (80 µl).
- **Chromogen Substrate:** A ready-to-use stabilized peroxidase chromogen substrate tetramethylbenzidine (8 ml).
- **Stop Solution:** A 0.5 N hydrochloric acid to stop the chromogen substrate reaction (12 ml).

Storage Condition

- Upon arrival, immediately store components of the kit at recommended temperatures up to the expiration date.
- Store SP Conjugate and Biotinylated Antibody at -20°C.
- Store Microplate, Diluent Concentrate (10x), Wash Buffer, Stop Solution, and Chromogen Substrate at 2-8°C.
- Unused microplate wells may be returned to the foil pouch with the desiccant packs and resealed. May be stored for up to 30 days in a vacuum desiccator.
- Diluent (1x) may be stored for up to 30 days at 2-8°C.
- Store Standard at 2-8°C before reconstituting with Diluent and at -20°C after reconstituting with Diluent.

Other Supplies Required

- Microplate reader capable of measuring absorbance at 450 nm.
- Pipettes (1-20 μ l, 20-200 μ l, 200-1000 μ l, and multiple channel).
- Deionized or distilled reagent grade water.

Sample Collection, Preparation and Storage

- **Urine:** Collect urine using sample pot. Centrifuge samples at 800 x *g* for 10 minutes. Dilute samples 1:2 into MIX Diluent or within the range of 1:2 to 1:8, and assay. The undiluted samples can be stored at -20°C or below for up to 3 months. Avoid repeated freeze-thaw cycles.
- **Saliva:** Collect saliva using sample pot. Centrifuge samples at 800 x *g* for 10 minutes. Dilute samples 1:100 into MIX Diluent and assay. The undiluted samples can be stored at -20°C or below for up to 3 months. Avoid repeated freeze-thaw cycles.
- **Cell Culture Supernatants:** Centrifuge cell culture media at 3000 x *g* for 10 minutes to remove debris. Collect supernatants and assay. Store samples at -20°C or below. Avoid repeated freeze-thaw cycles.
- **Milk:** Collect milk using sample tube. Centrifuge samples at 800 x *g* for 10 minutes. Milk dilution is suggested at 1:2000 into MIX Diluent; however, the user should determine the optimal dilution factor, and assay. The undiluted samples can be stored at -20°C or below for up to 3 months. Avoid repeated freeze-thaw cycles.
- **CSF:** Collect cerebrospinal fluid (CSF) using sample tube. Centrifuge samples at 3000 x *g* for 10 minutes. Dilute samples 1:1000 into MIX Diluent and assay. The undiluted samples can be stored at -80°C for up to 3 months. Avoid repeated freeze-thaw cycles.

Reagent Preparation

- Freshly dilute all reagents and bring all reagents to room temperature before use.
- **MIX Diluent Concentrate (10x):** If crystals have formed in the concentrate, mix gently until the crystals have completely dissolved. Dilute the MIX Diluent Concentrate 1:10 with reagent grade water. Store for up to 30 days at 2-8°C.
- **Standard Curve:** Reconstitute the 3.2 μ g of Human Complement C3 Standard with 5 ml of MIX Diluent to generate a 640 ng/ml standard stock solution. Allow the standard to sit for 10 minutes with gentle agitation prior to making dilutions. The standard stock solution (640 ng/ml) should be further diluted 1:16 with MIX Diluent to generate a 40 ng/ml standard working solution. Prepare duplicate or triplicate standard points by serially diluting the standard working solution (40 ng/ml) 1:2 with MIX Diluent to produce 20, 10, 5, 2.5, 1.25, and 0.625

ng/ml solutions. MIX Diluent serves as the zero standard (0 ng/ml). Any remaining solution should be frozen at -20°C and used within 30 days.

Standard Point	Dilution	[C3] (ng/ml)
P1	1 part Standard (640 ng/ml) + 15 parts MIX Diluent	40.00
P2	1 part P1 + 1 part MIX Diluent	20.00
P3	1 part P2 + 1 part MIX Diluent	10.00
P4	1 part P3 + 1 part MIX Diluent	5.000
P5	1 part P4 + 1 part MIX Diluent	2.500
P6	1 part P5 + 1 part MIX Diluent	1.250
P7	1 part P6 + 1 part MIX Diluent	0.625
P8	MIX Diluent	0.000

- **Biotinylated Human Complement C3 Antibody (50x):** Spin down the antibody briefly and dilute the desired amount of the antibody 1:50 with MIX Diluent. Any remaining solution should be frozen at -20°C.
- **Wash Buffer Concentrate (20x):** If crystals have formed in the concentrate, mix gently until the crystals have completely dissolved. Dilute the Wash Buffer Concentrate 1:20 with reagent grade water.
- **SP Conjugate (100x):** Spin down the SP Conjugate briefly and dilute the desired amount of the conjugate 1:100 with MIX Diluent. Any remaining solution should be frozen at -20°C.

Assay Procedure

- Prepare all reagents, standard solutions, and samples as instructed. Bring all reagents to room temperature before use. The assay is performed at room temperature (20-25°C).
- Remove excess microplate strips from the plate frame and return them immediately to the foil pouch with desiccants inside. Reseal the pouch securely to minimize exposure to water vapor and store in a vacuum desiccator.
- Add 50 µl of Human Complement C3 Standard or sample per well. Cover wells with a sealing tape and incubate for 2 hours. Start the timer after the last addition.
- Wash five times with 200 µl of Wash Buffer manually. Invert the plate each time and decant the contents; hit 4-5 times on absorbent material to completely remove the liquid. If using a machine, wash six times with 300 µl of Wash Buffer and then invert the plate, decanting the contents; hit 4-5 times on absorbent material to completely remove the liquid.
- Add 50 µl of Biotinylated Human Complement C3 Antibody to each well and incubate for 1 hour.
- Wash the microplate as described above.

- Add 50 μ l of Streptavidin-Peroxidase Conjugate to each well and incubate for 30 minutes. Turn on the microplate reader and set up the program in advance.
- Wash the microplate as described above.
- Add 50 μ l of Chromogen Substrate per well and incubate for about 15 minutes or till the optimal blue color density develops. Gently tap plate to ensure thorough mixing and break the bubbles in the well with pipette tip.
- Add 50 μ l of Stop Solution to each well. The color will change from blue to yellow.
- Read the absorbance on the microplate reader at a wavelength of 450 nm **immediately**. If wavelength correction is available, subtract readings at 570 nm from those at 450 nm to correct optical imperfections. Otherwise, read the plate at 450 nm only. Please note that some unstable black particles may be generated at high concentration points after stopping the reaction for about 10 minutes, which will reduce the readings.

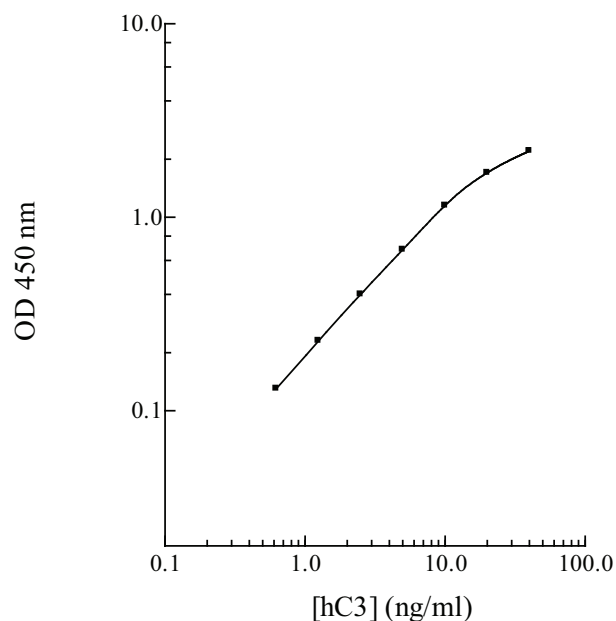
Data Analysis

- Calculate the mean value of the duplicate or triplicate readings for each standard and sample.
- To generate a standard curve, plot the graph using the standard concentrations on the x-axis and the corresponding mean 450 nm absorbance on the y-axis. The best-fit line can be determined by regression analysis using log-log or four-parameter logistic curve-fit.
- Determine the unknown sample concentration from the Standard Curve and multiply the value by the dilution factor.

Standard Curve

- The curve is provided for illustration only. A standard curve should be generated each time the assay is performed.

Human Complement C3 Standard Curve



Performance Characteristics

- The minimum detectable dose of complement C3 is typically ~ 0.6 ng/ml.
- Intra-assay and inter-assay coefficients of variation were 4.7% and 7.3% respectively.

Linearity

	Average Percentage of Expected Value
Sample Dilution	Urine
No Dilution	93%
1:2	98%
1:4	103 %

	Average Percentage of Expected Value
Sample Dilution	Saliva
1:50	91%
1:100	99%
1:200	104%

	Average Percentage of Expected Value
Sample Dilution	Milk
1:1000	97%
1:2000	98%
1:4000	102%

Recovery

Standard Added Value	1.25 – 20 ng/ml
Recovery %	88 – 111%
Average Recovery %	97%

Cross-Reactivity

Species	% Cross Reactivity
Canine	None
Bovine	None
Monkey	90%
Mouse	None
Rat	None
Swine	None
Rabbit	None
Human	100%

References

- (1) Morris KM *et al.* (1982) *Science* 215:399-400
- (2) de Bruijn MH and Fey GH (1985) *Proc. Natl. Acad. Sci. U.S.A.* 82(3):708-712
- (3) Hugli TE (1975) *J Biol Chem.* 250(21):8293-8301
- (4) Wiesmann C *et al.* (2006) *Nature.* 444(7116):217-220
- (5) Janssen BJ *et al.* (2006) *Nature.* 444(7116):213-216
- (6) Ram S *et al.* (2010) *Clin Microbiol Rev.* 23(4):740-780
- (7) Stokowska A *et al.* (2011) *Cerebrovasc Dis.* 32(2):114-122

Version 1.8

Related products

- EC1101-1 AssayMax Human Complement C1q ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)
- EC1102-1 AssayMax Human Complement C1r ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)
- EC1111-1 AssayMax Human Complement C1 ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)
- EC2001-1 AssayMax Human Complement C2 ELISA Kit (Plasma, Serum, Saliva, and Cell Culture samples)
- EC2101-1 AssayMax Human Complement C3 ELISA Kit (Plasma and Serum samples)
- EC3301-1 AssayMax Human Complement C3b ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, Cell Culture, and CSF samples)
- EC2102-1 AssayMax Human Complement C4 ELISA Kit (Plasma and Serum samples)
- EC3202-1 AssayMax Human Complement C4 ELISA Kit (Urine, Milk, Saliva, and Cell Culture samples)
- EC2202-1 AssayMax Human Complement C4BP ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, CSF, and Cell Culture samples)
- EC5101-1 AssayMax Human Complement C5 ELISA Kit (Plasma, Serum, Milk, Saliva, and Cell Culture samples)
- EC6101-1 AssayMax Human Complement C6 ELISA Kit (Plasma, Serum, Urine, Milk Saliva, and Cell Culture samples)
- EC7101-1 AssayMax Human Complement C7 ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)
- EC8101-1 AssayMax Human Complement C8 ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)
- EC9101-1 AssayMax Human Complement C9 ELISA Kit (Plasma, Serum, Urine, Milk, Saliva, and Cell Culture samples)