



CIC C1q / CIC C3d / CH50

Circulating Immunocomplex

Enzyme immunoassays for the quantitative determination of:

- C1q circulating Immune complexes (CIC C1q)
- C3d circulating Immune complexes (CIC C3d)
- CH50 functionality test of complement (CH50)

The availability of a panel of in vitro techniques for measuring immunocomplexes (IC) can now offer a set of tools to clinicians for a deep approach to immune-mediated diseases. Among such techniques, the helpful ones can be considered those that measure the total hemolytic complement titer (CH50), the binding of C1q, C3d by ICs.

The sensitivity and specificity of a reduced CH50 limit the value of using this test for vasculitis screening unless painful, persistent urticarial lesions or purpura is observed. Thus, the CH50 has definite limitations but serves as a cost-effective, screening test before applying other fine techniques to identify ICs disease. However, WHO collaborative study for the evaluation of 18 of the methods⁹ most frequently used for detection of circulating ICs presented that optimal screening for CICs might be achieved by parallel application of several different methods, using reagents of different specificity.

Having in mind the above statement, we could suggest that simultaneous use of C1q-ELISA and C3d-ELISA would be useful for CIC quantitative assessment data interpretation and help to explain the nature and pathogenic importance of CIC material detected in individual diseases. Effectively, each IC assay detect only certain classes and subclasses of immunoglobulins in IC material, size and conformation of complex, or fixed complement protein.

The detection of immune complexes has not been shown to be essential in any clinical conditions but may be helpful in monitoring disease activity in systemic lupus erythematosus (SLE) and may provide useful diagnostic information in two rare syndromes, Lyme arthritis and SLE-related syndrome, or other vasculitis.

C1q is involved in the classical complement pathway. The classical pathway is triggered by activation of the C1-complex (which consists of one C1q molecule and two C1r and C1s molecules), either by C1q's binding to antibodies from classes M and G, complexed with antigens, or by its binding C1q to the surface of the pathogen.^{1,2,3}

CIC C3d Circulating immune complexes (CIC), including C3d, are present in many individuals with systemic lupus Erythematosus (SLE) and Rheumatoid Arthritis (RA), especially with any of the vasculitis complications. Levels of CICs have been reported to show correlation with disease activity in that higher levels are reported during active phases of the disease.^{4,5}

CH50 The primary utility of the CH50 in the practice of an allergist-immunologist is to screen for complement deficiency associated immunodeficiency (primarily classic or terminal complement component deficiencies).^{6,7,8} Absent or significantly reduced individual complement components may result in infections, Neisseria meningitis, or sepsis. A reduced CH50 in this situation warrants quantification and functional assays of individual complement components. Reduction of the CH50 occurs when individual complement component(s) are deficient or consumed.

Features and benefits

- Ready to use standard curve
- Short incubation time
- Sera control included
- Differentiation between alternative and classical complement activation
- Good correlation vs gold standard methods
- Highly sensitive and specific detection of circulating immune complexes
- No interference with monomeric immunoglobulins, endogenous C1q, albumin, DNA or heparin

Specifications

Format	ELISA (CH50 colorimetric)
Calibrator	CIC C3q: Ready to Use – 3 vials – 1.5 mL each – 3 concentration levels CIC C3d: Ready to Use – 5 vials – 1.5 mL each – 3 concentration levels CH50: Ready to Use – 1 vial – 0.6 mL 1 concentration level
Controls	CIC C3q: Ready to Use – 2 vials – 1.5 mL each CIC C3d: Ready to Use – 2 vials – 1.5 mL each CH50: Ready to Use – 2 vials – 0.6 mL each
Assay Range	CIC C1q: 1.0 - 64.0 gEq/mL CIC C3d: 1.0 - 64.0 gEq/mL CH50: N.A.
Sensitivity	CIC C1q: 1.0 gEq/mL CIC C3d: 1.0 gEq/mL CH50: N.A.
Sample Volume	CIC C1q: 10 µL CIC C3d: 10 µL CH50: 50 µL
Sample Type	CIC C1q: Serum/Plasma CIC C3d: Serum/Plasma CH50: Serum

Ordering information

 Product Name	Description	Code
CIC C1q	96 wells	DK0016
CIC C3d	96 wells	DK0017
CH50	96 wells	DK0040



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References

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