**Name:** C4-Deficient Guinea Pig Serum  
**Catalog Number:** A305C  
**Sizes Available:** 1.0 mL/vial  
**Concentration:** >30 mg protein/mL (see Certificate of Analysis for actual conc.)  
**Form:** Frozen liquid  
**Activity:** >1,000,000 C4H50 units/mg C4 added to assay with C4-D GPS  
**Purity:** No C4 detectable by hemolytic assay  
**Buffer:** None added  
**Preservative:** None, 0.22 µm filtered  
**Storage:** -70°C or below. Minimize freeze/thaw cycles  
**Source:** Guinea pigs genetically deficient in C4  
**Precautions:** Use normal precautions for handling animal blood products.  
**Origin:** Manufactured in the USA.

**General Description**

C4-deficient guinea pigs were characterized in 1971 as being completely genetically and functionally deficient in C4 (Ellman, L. et al. (1970); Ellman, L. et al. (1971); Frank, M.M., et al. (1971)). This line of guinea pigs has been maintained and used extensively for the characterization of complement. In fact, these animals were a key element in the rediscovery and detailed characterization of the alternative pathway of complement (Ellman, L. et al. (1971); Frank, M.M., et al. (1971)). The product is tested for the absence of C4 by functional assays for classical pathway activity. C4-D guinea pig serum reconstituted with human C4 is certified to possess a functional classical pathway for complement activation after reconstitution (Morgan, B.P. (2000); Dodds, A.W. and Sim, R.B. (1997)). The absence of C4 would also be predicted to prevent complement activation by the lectin pathway, but the function of this pathway is not tested.

**Physical Characteristics**

C4-D guinea pig serum is supplied as a clear, straw-colored liquid containing all proteins of normal guinea pig serum except complement component C4.

**Function**

The depleted serum is tested for remaining classical pathway activity by hemolytic assays using antibody-sensitized sheep erythrocytes (CompTech #B200). The depleted serum is reconstituted with human C4 (CompTech #A105) and retested to verify that a functional classical and alternative pathways are restored. The Certificate of Analysis provided with each lot gives a description of the assays and specific titers for the depleted and reconstituted sera compared to normal human serum.

**Assays**

The unit of classical pathway activity is the CH50. A similar unit, the C4H50, is used to quantitate the activity of C4 and C4-D guinea pig serum. A C4H50 unit is the amount of functional C4 needed to lyse 50% of 3 x 10^7 EA cells (antibody-sensitized sheep erythrocytes (CompTech #B200)) when that amount of C4 (CompTech #A105) is incubated with the recommended volume of C4-D guinea pig serum in GVB++ (CompTech #B100) in a total volume of 500 µL for 30 min at 37°C. This amount of C4...
indicates the sensitivity of the assay for C4 which is typically less than 2 ng C4 with 10 µL C4-D guinea pig serum. See the Certificate of Analysis for lot specific values.

Applications
C4-D guinea pig serum is used to assay C4 activity in samples and to supply a serum unable to activate complement via the classical pathway. Note that C1 and C2 may still be activated in the absence of C4, but whereas there is a C2 by-pass system there does not appear to be an efficient C4 by-pass mechanism. Low level lysis of EA in C4-D guinea pig serum has been shown to require activation of the early classical and the alternative pathways (Wagner, E. et al. (1999)).

Precautions/Toxicity/Hazards
The source is human serum, therefore precautions appropriate for handling any blood-derived product must be used even though the source was shown by certified tests to be negative for HBsAg and for antibodies to HCV, HIV-1 and HIV-II.
Hazard Code: B  WGK Germany 3
MSDS is available upon request.

References


TECOmedical Group
www.tecomedical.com
e-mail: info@tecomedical.com