

Name:	Guinea Pig Serum
Catalog Number:	GPS
Sizes Available:	1.0 mL/vial
Concentration:	>45 mg protein/mL (see Certificate of Analysis for actual conc.)
Form:	Frozen liquid
Activity:	>500 CP50 Units/mL active classical pathway >50 AP50 Units/mL active alternative pathway Lot specific titers provided in the Certificate of Analysis
Buffer:	None
Preservative:	None, 0.22 µm filtered. Not certified as sterile.
Storage:	-70°C or below. Minimize freeze/thaw cycles.
Source:	Normal guinea pig blood
Precautions:	Use normal precautions for handling animal blood products.
Origin:	Manufactured in the USA.

General Description

Normal guinea pig serum is tested for complement activity and certified to possess functional classical and alternative pathways of activation. GPS was prepared from male mixed breed guinea pigs. Each sample of blood was collected without anticoagulants and after coagulation the liquid portion was separated by centrifugation. Serum was filtered through a 0.22 µm filter, aliquoted and frozen at -80°C.

Guinea pig complement was used in the first few decades of complement research because it exhibits 4 to 5-fold higher titers of classical pathway activity against EA in CH50 assays than human serum. In addition, a C4 deficient line of guinea pigs (CompTech product C4-D guinea pig serum #A305) was discovered in 1970 allowing unique research to be done (e.g. the discovery or re-discovery of the alternative pathway) (Ellman, L., et al. (1970)). Later a line of C2 deficient guinea pigs was also discovered (Bitter-Suermann, D., et al. (1981)). In addition, GPS is considerably more stable than mouse or rat complement making it easier to work with.

All testing for complement activity in GPS was performed on the once frozen and subsequently thawed samples to guarantee that the functional activity reported is what customers will receive when their samples are thawed. Complement activity is stable for several years if GPS is stored at -70°C or below continuously. Guinea pig complement is not as stable as human complement in normal human serum and some degradation of activity may be observed if the GPS is allowed to remain thawed for more than a few hours even if it is kept on ice. While it is better to freeze it overnight below -70°C, some loss of activity may occur following this additional freeze thaw cycle.

Physical Characteristics

GPS is a clear, straw-colored liquid containing all proteins of normal guinea pig serum. Although the GPS is filtered through 0.22 µm sterile filters and is aliquoted into sterile containers, it is not packed under strictly sterile conditions and is therefore not certified as sterile.

Function

GPS is tested for classical pathway hemolytic activity using antibody-sensitized sheep erythrocytes (CompTech #B200) and for alternative pathway function using rabbit

erythrocytes (CompTech #B300). The Certificate of Analysis provided with each lot gives a description of the assays and specific titers for the serum.

Assays

The unit of classical pathway activity is the CH50. One CH50 unit is defined as the input of GPS yielding 50% lysis of 1×10^8 EA (CompTech #B200) when incubated for 60 minutes at 37°C in a total reaction volume of 1.5 mL GVB++. The guinea pig classical pathway is normally 4- to 5-fold more active toward EA cells (higher CH50 units per mL) than the classical pathway in normal human serum.

The unit of alternative pathway activity is the AP50. One AP50 unit is defined as the input of GPS yielding 50% lysis of 1.5×10^7 rabbit erythrocytes (Er, CompTech #B300) when incubated for 30 minutes at 37°C in a total reaction volume of 75 μ L GVB° containing a final Mg-EGTA concentration of 13 mM. The guinea pig alternative pathway is normally approximately 2-fold less active (fewer AP50 units per mL) than that in normal human complement standard serum.

Applications

GPS is used to provide a source of guinea pig complement for hemolytic assays. This GPS complement serum has been pre-tested and certified to exhibit fully functional classical and alternative pathway complement activation.

Precautions/Toxicity/Hazards

The source is guinea pig blood, therefore precautions appropriate for handling any animal blood-derived product must be used.

MSDS is available upon request.

References

Bitter-Suermann, D., Hoffmann, T. Burger, R. and Hadding, U. (1981) Linkage of total deficiency of the second component (C2) of the complement system and of genetic C2-polymorphism to the major histocompatibility complex of the guinea pig. *J. Immunol.* 127:608-612.

Ellman, L., Green, I., and Frank, M. (1970) Genetically controlled total deficiency of the fourth component of complement in the guinea pig. *Science* 170:74-75.