Name:	**VBS^o (VBS^o without Ca^{++} and Mg^{++})**
Catalog Numbers:	**B114 and B115**
Sizes Available:	**250 mL and 1000 mL**
Composition:	5 mM Veronal, 145 mM NaCl, 0.025 % NaN_3, pH 7.3.
Form:	Liquid
Buffer:	Sodium veronal
Preservative:	Sterile filtered, plus 0.025% sodium azide as a bactericidal agent
Storage:	+4°C If frozen, warm in a 37° C water bath and mix to redissolve salts.
Precautions:	Azide is poisonous to all living organisms.
Origin:	Manufactured in the USA.

General Description

VBS^o is like the traditional buffer used in complement assays (GVB^o) but it lacks the carrier protein gelatin often used in these assays. GVB may be replaced with VBS if gelatin is undesirable or may interfere with the assays. Ca^{++} and Mg^{++} may be added to VBS^o to make VBS^{++} for classical pathway and lectin pathway assays. MgEGTA may be added to VBS^o for alternative pathway assays. EDTA may be added to VBS^o to prepare VBSE to inhibit complement activation. VBS^o is also used for dilution of serum and other assay components in many complement assays especially in alternative pathway assays (Morgan, B.P. (2000; Dodds, A.W. and Sim, R.B. (1997)).

Ordering Requirements

Buffers such as VBS^o, VBS^{++}, $SGVB^{++}$, GVB^{++}, GVB^o, and GVBE need to be ordered by Friday to receive them the next week. They are shipped Monday afternoon by overnight courier for delivery on Tuesday or Wednesday. They can usually be used for 3 months after preparation if kept cold @ 4°C. They are shipped cold but are not harmed at room temperature and must be warmed to 37°C for assays.

Buffer Components

Veronal is used as the buffer because in the mid-1900s this was the only buffer for pH range 7.2-7.4 that did not chelate metal ions and did not inhibit complement reactions as did other buffers. Sodium chloride is present to provide an isotonic environment so that cells do not lyse due to osmotic pressure. Azide is present to prevent bacterial growth.

Physical Characteristics

The buffer is stable at 4°C and should be usable for 3 months from the time of manufacture. The salts in this buffer may crystalize if the buffer is frozen. They can be redissolved easily by heating to 37°C in a water bath or by brief warming in a microwave oven. The solution should be thoroughly mixed after these procedures. Extended time above 4°C may shorten the time this buffer will resist bacterial growth.

Applications

VBS^o may be used when a buffer free of carrier proteins is needed for diluting proteins or as the buffer for complement assays. VBS^o may also be used to prepare GVB^o, GVB^{++}, and GVBE or it may be used to prepare similar complement buffers that include different carrier

proteins in place of gelatin in situations where gelatin interferes with assays. BSA (0.1%) or another carrier protein may be used for this.

References

Morgan, B.P. ed. (2000) Complement Methods and Protocols. Humana Press.

Dodds, A.W. and Sim, R.B. editors (1997). Complement A Practical Approach (ISBN 019963539) Oxford University Press, Oxford.

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Complement Technology, Inc.
4801 Troup Hwy, Suite 701
Tyler, Texas 75703 USA
Phone: 903-581-8284
FAX: 903-581-0491
Email: contactCTI@aol.com
Web: www.ComplementTech.com