

**APB810Hu01 100µg**  
**Active Vitamin D Binding Protein (DBP)**  
**Organism Species: *Homo sapiens* (Human)**  
***Instruction manual***

FOR RESEARCH USE ONLY  
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

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13th Edition (Revised in Aug, 2023)

## **[ PROPERTIES ]**

**Source:** Prokaryotic expression.

**Host:** *E. coli*

**Residues:** Glu18~Leu211

**Tags:** N-terminal His-tag

**Purity:** >90%

**Endotoxin Level:** <1.0EU per 1µg (determined by the LAL method).

**Buffer Formulation:** PBS, pH7.4, containing 0.01% Sarcosyl, 5%Trehalose .

**Original Concentration:** 200µg/mL

**Applications:** Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

**Predicted isoelectric point:** 5.7

**Predicted Molecular Mass:** 23.0kDa

**Accurate Molecular Mass:** 26kDa as determined by SDS-PAGE reducing conditions.

## **[ USAGE ]**

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

## **[ STORAGE AND STABILITY ]**

**Storage:** Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

**Stability Test:** The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

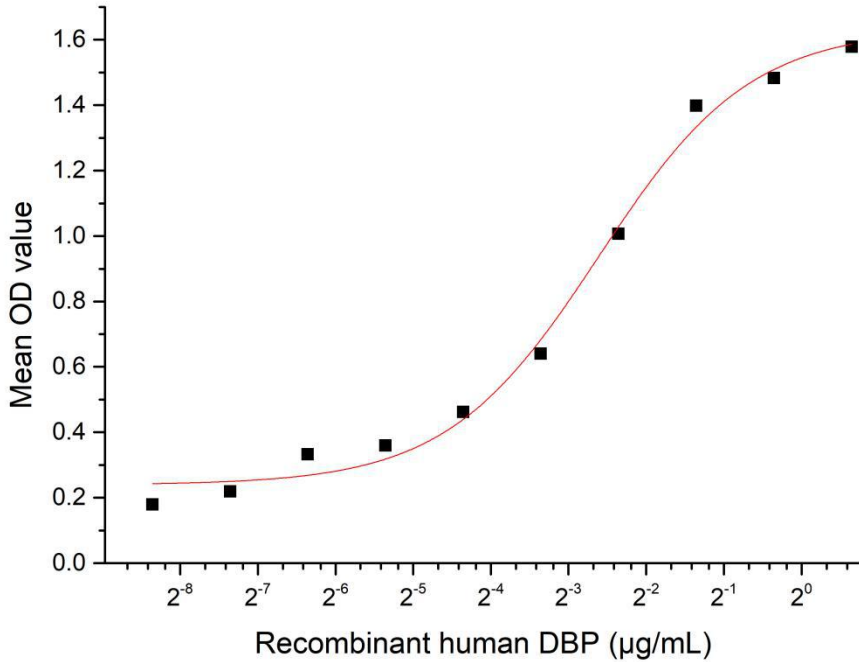
## **[ SEQUENCE ]**

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ERG RDYEKNKVCK EFSHLGKEDF TSLSLVLYSR
KFPSGTFEQV SQLVKEVVS L TEACCAEGAD PDCYDTRTSA LSAKSCESNS
PFPVHPGTAE CCTKEGLERK LCMAALKHQ P QEFPTYVEPT NDEICEAFRK
DPKEYANQFM WEYSTNYGQA PLSLLVSYTK SYLSMVGSCC TSASPTVCFL
KERLQLKHLS L
```

## **[ ACTIVITY ]**

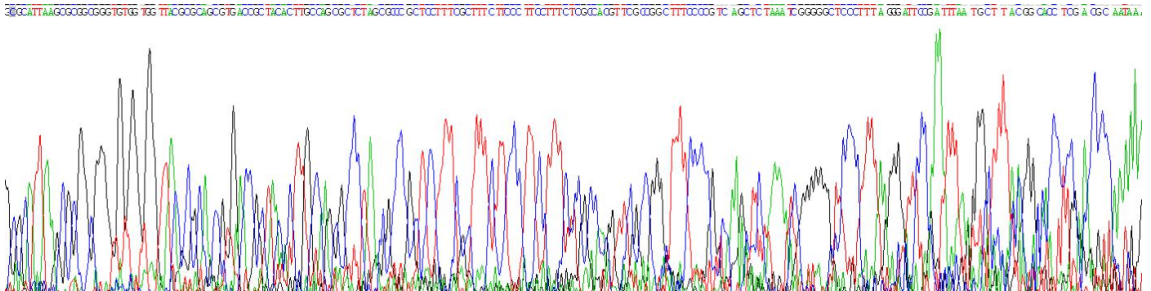
Vitamin D Binding Protein (DBP, encoded by the GC gene, also termed Gc-globulin, product B810Hu) is a ~58 kDa multifunctional serum glycoprotein belonging to the albumin gene family. Synthesized primarily in the liver, it is encoded on human chromosome 4q11 – q13 and comprises 458 amino acids with three structural domains. DBP is the principal carrier of vitamin D<sub>3</sub> (VD<sub>3</sub>) and its metabolites (e.g., calcidiol, calcitriol), solubilizing these lipophilic molecules and mediating their systemic transport to target tissues. Beyond vitamin D transport, it sequesters extracellular G-actin and modulates macrophage activation and immune responses. DBP specifically binds the VD<sub>3</sub> moiety of VD<sub>3</sub>-BSA conjugate with high affinity via its N-terminal sterol-binding pocket. Thus a functional ELISA assay was conducted to detect the interaction of recombinant human DBP and VD<sub>3</sub>-BSA. Briefly, DBP was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100 μl were then transferred to VD<sub>3</sub>-BSA-coated microtiter wells and incubated for 1h at 37°C. Wells were washed with PBST and incubated for 1h with anti-DBP pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37°C, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37°C. Finally, add 50 μL stop solution to the wells and read at

450/630nm immediately. The binding activity of recombinant human DBP and VD3-BSA was shown in Figure 1, the EC50 for this effect is 0.163 µg/mL.

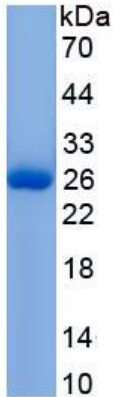


**Figure 1. The binding activity of recombinant human DBP and VD3-BSA**

**[ IDENTIFICATION ]**



**Figure 2. Gene Sequencing (extract)**



**Figure 3. SDS-PAGE**

**Sample: Active recombinant DBP, Human**

**[ IMPORTANT NOTE ]**

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.