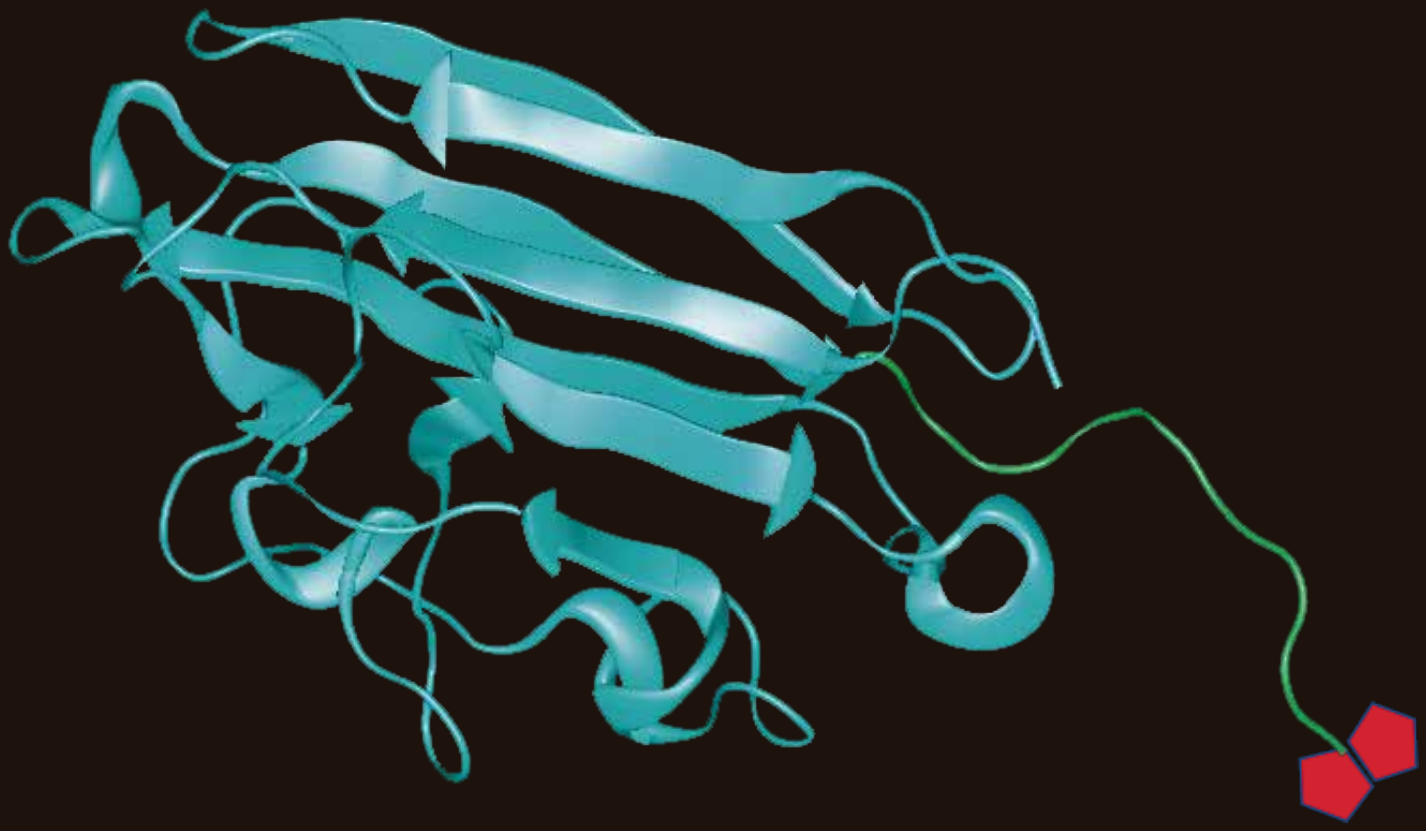
rekom biotech

High Quality Raw Materials
for the IVD Manufacturing Industry

PRODUCT PERFORMANCE:

- Versatility
- Validation
- Conjugation
- Reproducibility
- Broad spectrum
- Specificity and sensitivity
- Technical support
- Costs reduction and fast delivery



Monobiotinylated proteins

Preserve the specificity of your epitopes by using in vivo monobiotinylated proteins, assuring the interaction with streptavidin outside the antigen surface

Conventional chemical conjugation

A conjugated antigen can be a helpful solution for various issues that can arise during the development of a new IVD test. One common problem caused by most surfaces is the denaturation of proteins due to their high surface hydrophobicity.

Furthermore, the binding events may be affected by the position of the surface and sensor molecules, which could cause a greater steric impact. Moreover, positioning the molecules in a specific orientation could enhance the stability of the attached proteins and make the assay more sensitive by exposing its antigenic regions.

Traditional methods of conjugation are effective for antibodies, but they may not provide consistent results for antigens with less established structures. This may explain why double-antigen sandwich ELISAs (DAgS) are not as widely used for detecting antibodies compared to indirect ELISA.

To avoid compromising the antigenic structure and sensitivity of DAS-ELISAs due to conventional chemical conjugation, the ideal solution is to utilize monobiotinylated proteins.

Why use our monobiotinylated proteins?

Our monobiotinylated proteins are **bonded to a BCCP-tag in the C-terminus, with a lysine residue which is enzymatically biotinylated by the *E. coli* biotin ligase BirA**. This single-point labelling technique has many advantages for commonly used binding assays:

- The biotinylation only happens on the lysine residue of the BCCP tag.
- There is NO interference with the target protein's natural binding activities.
- The protein orientation is uniform when immobilized on a streptavidin-coated surface such as nanoparticles.

The extremely specific and high affinity binding of biotin by avidin and/or streptavidin (Kd ≈ 10^{-14}M) results in specific detection systems of very high sensitivity. A clear advantage of this system is that **with a common strep-HRP, we can obtain conjugated complex of all our references without the necessity of performing the peroxidation of each one.**

The biotin is fused to a linker which maintains the molecule away to the protein surface, avoiding steric hindrance between the biotin and the antigenic regions involved in Ab-binding. Thus, **the Ab interaction will not be compromised with the conjugation.**

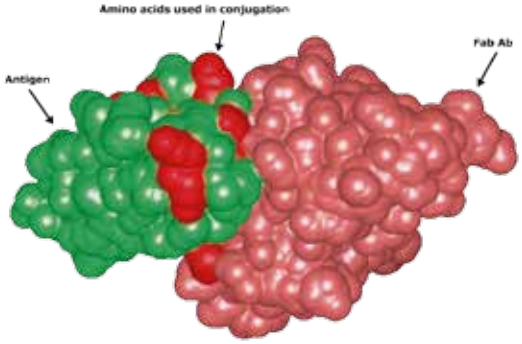


Figure 1. 3D image showing an antigen (green) interacting with the specific Fab region of the Ab (pink). The image also highlights certain amino acids (red) that are typically involved in conjugation procedures. It's important to note that some of these amino acids are part of the epitope region of the protein. If conjugation were to occur with these amino acids, it could interfere with the Ab-binding process and ultimately decrease the antigenic capacity of the protein.

As there is just one biotin per protein molecule, our conjugated proteins will show a **higher inter-lot reproducibility** and this will facilitate the reproducibility of the diagnostic tests developed with them.

Rekom Biotech's monobiotinylated proteins

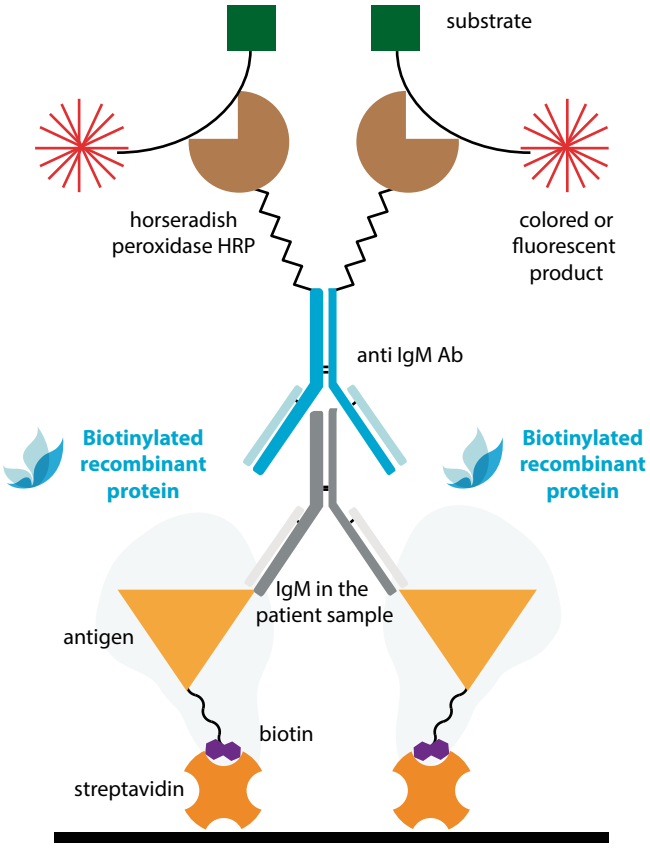
NAME	CAT NUMBER	SOURCE	APPLICATION	DESCRIPTION
AIDS (HIV)				
p24	RAG0057BIOT	*E. coli*	WB, DB, CE, NP, PO	Viral capsid antigen
CANINE BABESIOSIS (CANINE PIROPLASMOSIS)				
BcMSA1	RAG0020BIOT	*P. pastoris*	WB, DB, CE, NP, PO	Merozoite Surface Antigen for *Babesia canis*
CHAGAS *(Trypanosoma cruzi)*				
ChimChagas3	RAG0096BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	Recombinant chimeric antigen
CYTOMEGALOVIRUS (CMV)				
pp52	RAG0090BIOT	*E. coli*	WB, DB, CE, NP, PO	DNA polymerase processivity subunit
ChimCMV1	RAG0109BIOT	*E. coli*	WB, DB, CE, NP, PO	Recombinant chimeric antigen
ChimCMV2	RAG0110BIOT	*E. coli*	WB, DB, CE, NP, PO	Recombinant chimeric antigen
Epstein-Barr virus infection (EBV)				
p18	RAG0049BIOT	*E. coli*	WB, DB, CE, NP, PO	Viral capsid antigen
Leishmaniasis *(Leishmania infantum)*				
K39	RAG0061BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	Parasite kinesin-related antigen
NEOSPOROSIS *(Neospora caninum)*				
NcGRA7	RAG0024BIOT	*E. coli*	WB, DB, CE, NP, PO	*Nc* dense granule antigen GRA7
ORAL HERPES produced by HSV-1 (Herpes simplex virus type 1)				
gG1	RAG0017BIOT	*E. coli*	WB, DB, CE, NP, PO	Recombinant mature glycoprotein G for HSV-1
TIMOTHY GRASS POLLEN *(Phleum pratense)*				
Phl p 5a	RAL0003BIOT	*E. coli*	WB, DB, CE, NP, PO	Phl p 5a
SYPHILIS *(Treponema pallidum)*				
Tpp15	RAG0009BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	Membrane lipoprotein
Tpp17	RAG0008BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	Membrane lipoprotein
Tpp47	RAG0010BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	Membrane lipoprotein
ChimSyphilis1	RAG0046BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	R. chimeric antigen (Tpp17 and Tpp47)
ChimSyphilis2	RAG0064BIOT	*E. coli*	WB, DB, CE, DAS, NP, PO	R. chimeric antigen (Tpp15 and TmpA)
CEREAL				
Tri a 19	RAL0053BIOT	*E. coli*	WB, DB, CE, NP, PO	Omega-5 gliadin, seed storage protein

WB: Western Blot
DB: Dot Blot
IE: Indirect ELISA
DE: positive control in direct ELISA
CLIA: Chemiluminescent Immunoassay

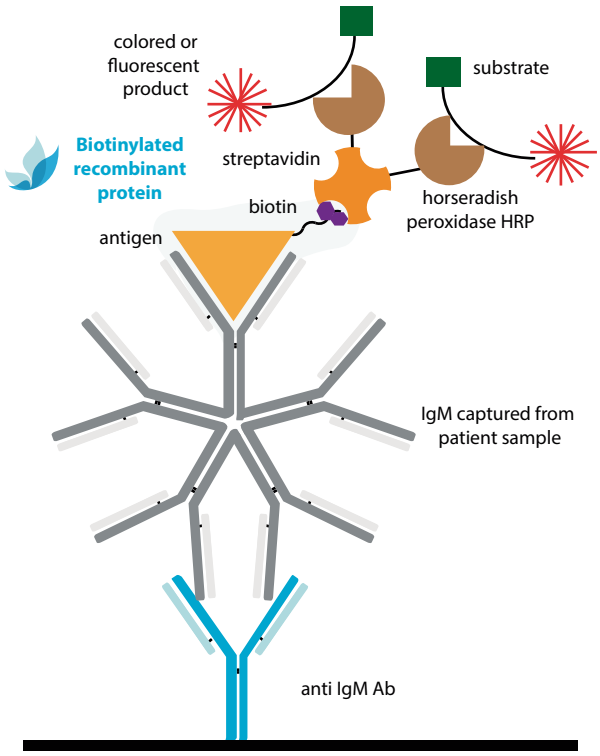
LF: Lateral Flow
CE: Capture ELISA
DAS: Double antigen sandwich
NP: nanoparticles binding
PO: plate orientation

Pack size: 0.1 mg*; 1 mg; bulk
Format: liquid; lyophilised
*under availability, for liquid format

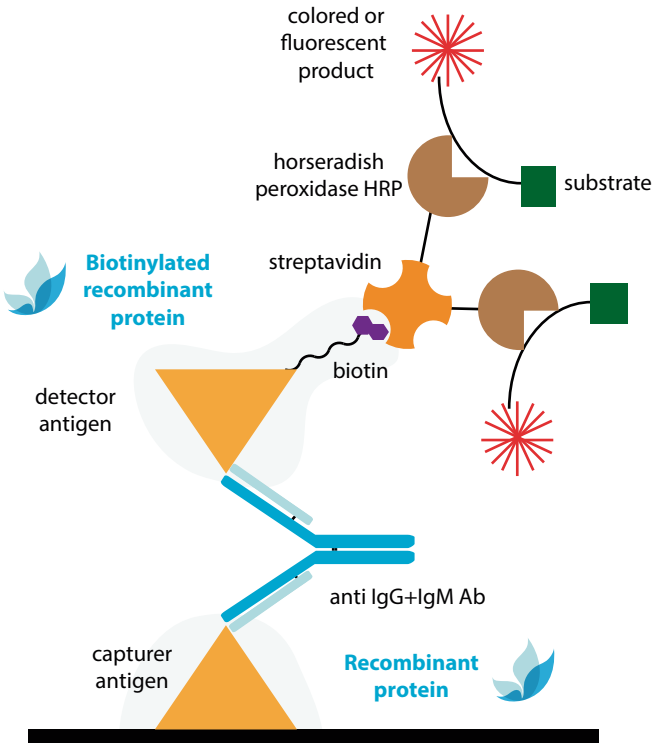
Monobiotinylated proteins applications



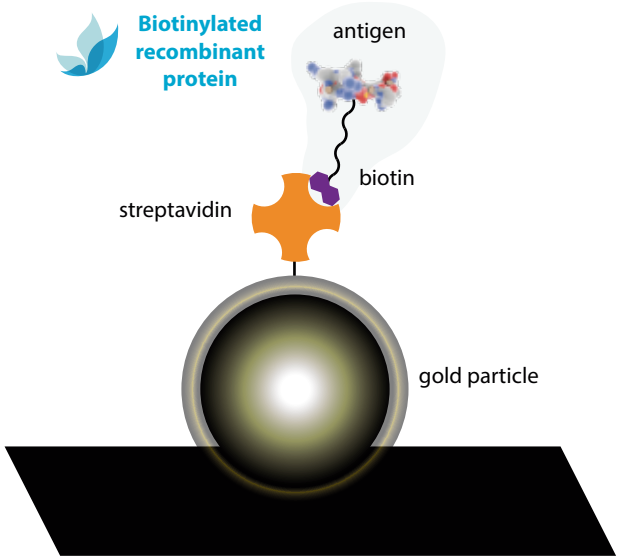
Protein orientation in streptavidin-coated plates



Detection in IgM capture assays



Detection in DAS assays



Binding to gold and other nanoparticles coated with streptavidin

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