ENZYMES

Smartbond Streptavidin

ORIGIN *Streptomyces avidinii*

CAT# STRE-70-4803 (-01,-05,-20,-100)
CAS# 9013-20-1

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SPECIFICATIONS

Appearance	White powder
Activity	≥16 U/mg
Purity	≥ 95% by HPLC
Protease	< 0.005 U/mg (azoalbumin + urea at 37°C)
Nuclease	< 0.05 U/mg (calf thymus DNA + Ca^{2+}, Mg^{2+} at 37°C)
Formulation	Salt Free

PRODUCT FORMAT

Available as bulk powder or in vacuum sealed vials (1 mg, 5 mg, 20 mg and 100 mg).

APPLICATION

Streptavidin is used in conjunction with biotin for various applications including ELISA, cell labelling, DNA probes, immunocytochemistry and protein blotting. One tetramer of streptavidin can combine with four molecules of biotin and so can produce a powerful signalling amplification step for detection methods. In contrast to avidin, streptavidin is not linked to carbohydrate and has an isoelectric point much closer to neutrality. Such properties can minimise non-specific binding.

PROPERTIES

Core streptavidin, which is a truncated form of the native molecule, is considered to have the highest binding affinity toward biotin; this is formed as a result of protease action. The manufacturing process for Sekisui streptavidin has been optimised to make homogeneous core streptavidin and also to remove remaining protease that could potentially interfere with immuno-based detection methods. DNAse activity is also removed to prevent interference with molecular (DNA)-based methods.

CHARACTERISTICS

High activity ≥ 16 U/mg
Predominantly single band by isoelectric focusing (IEF)
Minimal protease & nuclease contamination
Vacuum sealed products have long shelf life Isoelectric point: 7.2-7.4
Molecular weight (subunit): 12-13 kDa

ASSAY PRINCIPLE

Streptavidin reacts with 2-(4-hydroxyphenylazo) benzoic acid (HABA) to form an orange coloured complex. Addition of biotin displaces the HABA causing a reduction in orange colour which can be measured spectrophotometrically at 500 nm.

Streptavidin ····**HABA**····► Streptavidin-HABA ····**BIOTIN**····► Streptavidin-Biotin + HABA

Bright orange complex

SEKISUI DIAGNOSTICS
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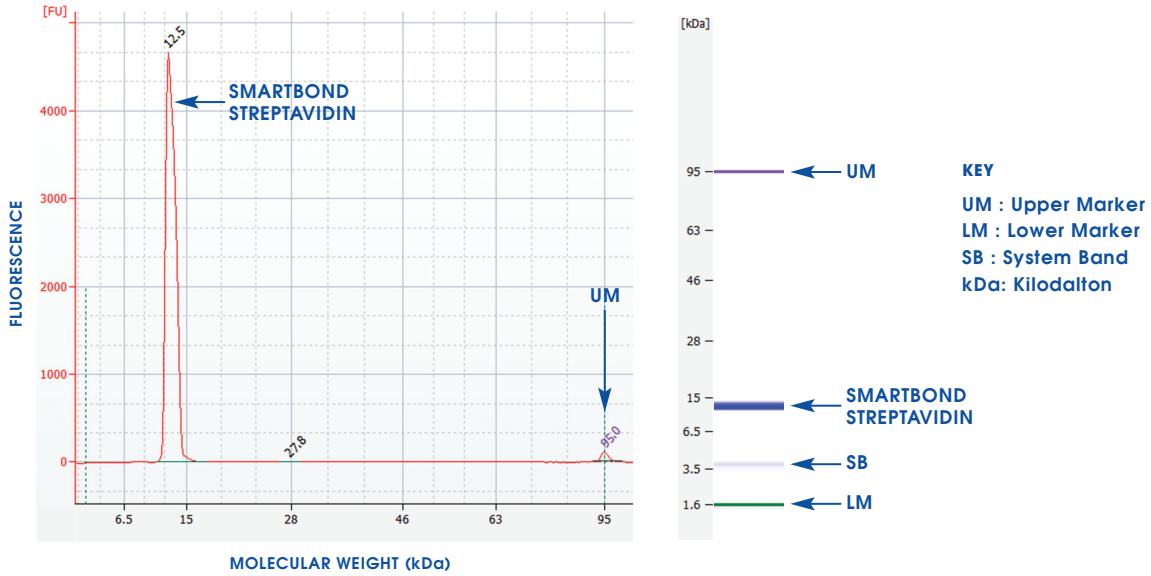
UNIT DEFINITION

One unit is defined as the amount of protein needed to bind one µg of biotin at pH 7.0.

CHARACTERISTICS (continued)

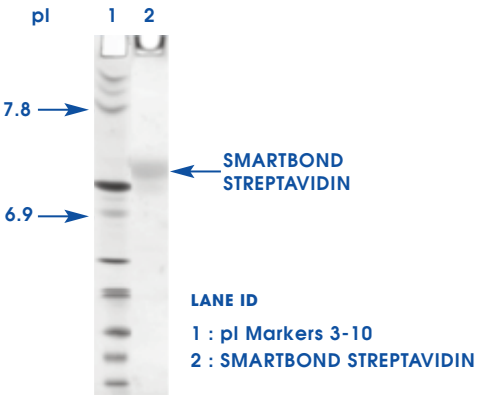
EXAMPLE OF AGILENT PROTEIN 80 ELECTROPHEROGRAM & GEL IMAGE

Low subunit MW consistent with Core protein



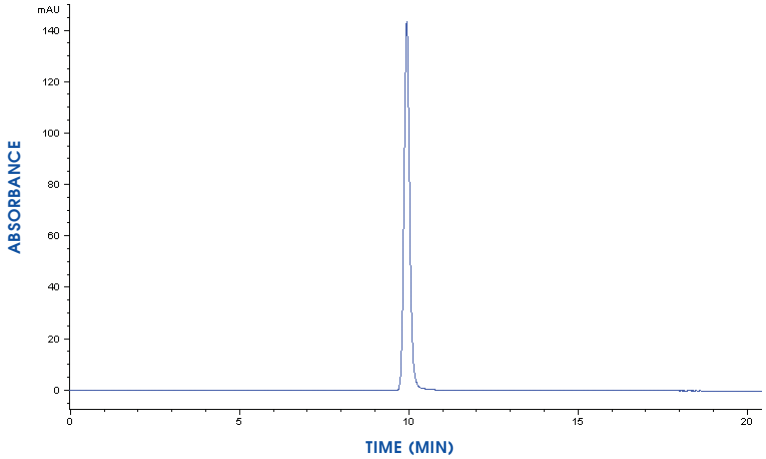
EXAMPLE OF IEF PROFILE

Predominantly single band on IEF gel



EXAMPLE OF HPLC PROFILE

High purity; No aggregate peak



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