SOLAD™ Protein-A Column

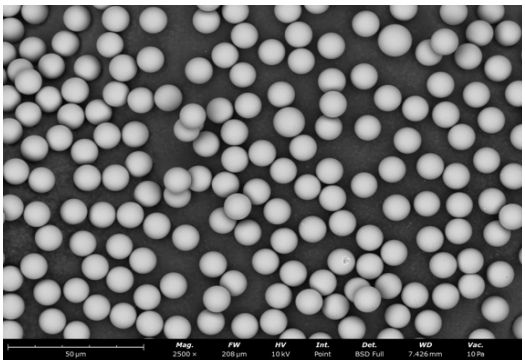
Technical Data Sheet

Introduction

In monoclonal antibody (mAb) manufacturing, accurate antibody titre determination and monitoring are crucial for clonal selection, optimisation of expression rates, process control and scale-up. For accurate antibody titre quantification, Protein-A Affinity HPLC offers excellent reproducibility, robustness and precision over ELISA-based assays.

The SOLAD™ Protein-A is a novel affinity HPLC column, based on the next-gen SOLAD™ platform technology, for quick separation and robust quantification of various antibodies. It provides rapid, accurate titre analysis with linearity across a wide concentration range, without any carryover.

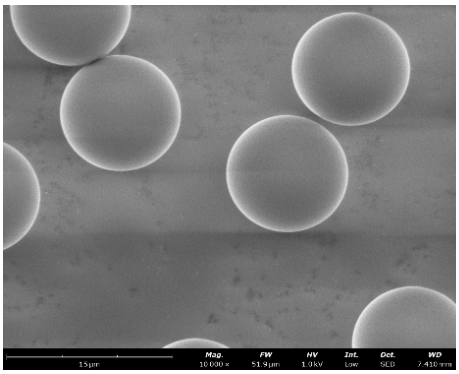
SEM of SOLAD Particles (2500x magnified)



Highlights

- Wide dynamic range
- Fast Analysis
- High sensitivity & specificity for mAbs
- Long lifetime

SEM of SOLAD Particles (10000x magnified)



Column Technology

SOLAD™ is a proprietary product range of highly monodisperse, spherical, durable and reproducible non-porous silica particles manufactured by Glantreo. For protein and antibody analysis, SOLAD™ offers excellent mechanical and chemical stability, with minimal fouling and non-specific adsorption, compared to porous silica and polymeric particles.

The SOLAD™ Protein-A column combines 5µm and 10µm sized SOLAD particle with recombinant Protein A ligand through proprietary cutting-edge bonding technology. The result being a hydrophilic resin surface with a high pH stability and a rugged and reproducible column. The column offers superior efficiency and resolution, without analyte carryover.

The SOLAD™ Protein-A column can accurately measure mAb titres at various phases of development due to its high loading capacity and excellent repeatability. This column is also suitable for small-scale purification of mAbs for initial characterisation due to its reduced Protein A leaching. The column is available in PEEK and Bioinert Stainless Steel column hardware in various dimensions.

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Technical Specifications and Applications of SOLAD™ Protein-A Column

Rapid separation of IgG from impurities

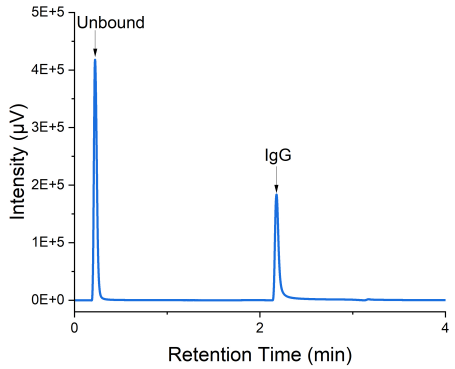

Figure 1: mAb Feedstock Analysis

Column – SOLAD™ Protein-A Column, 4 x 50 mm PEEK

Binding buffer (A) - 50 mM Sodium Phosphate pH 7.4

Elution buffer (B) - 50 mM Sodium Phosphate pH 2.5

Gradient – 0%B: 0-0.5 min, 100%B: 0.5-1.1 min, 0%B: 1.1-4 min

Flow rate - 2 mL/min, Detection: UV @ 280 nm, Temperature - 25 C

Sample – 20 µL cell culture supernatant containing mAb

Wide Dynamic Range

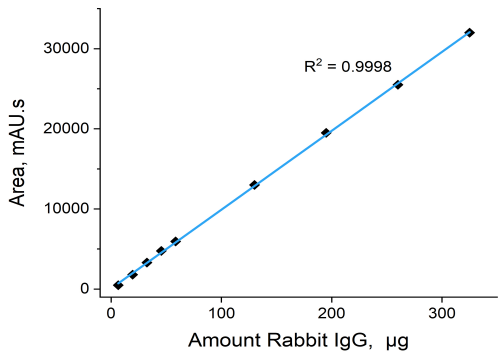

Figure 2: SOLAD™ Protein-A Column Linearity

Flexible Range of Flow Rates

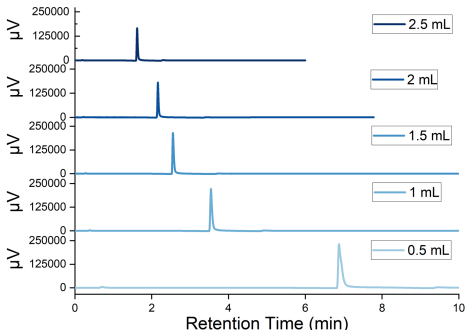

Figure 3: Effect of Flow Rate on IgG binding

Figure 1 depicts a 20 µL injection of mAb feedstock onto the SOLAD™ Protein A column. The proprietary column technology yields sharp, concentrated peaks and fast, efficient elution.

As can be seen in Figure 2, SOLAD™ Protein-A delivers accurate titre measurement with linearity, with a dynamic loading capacity in excess of 300 µg.

The SOLAD™ Protein-A column can be used from flow rates upto 2.5 mL/min, as seen in Figure 3. This allows fast separation of antibodies without loss of efficiency.

Features of SOLAD™ Protein-A Column	
Support Matrix	SOLAD™ non-porous hydrophilic resin
Ligand	Recombinant Protein-A
Particle sizes	5 µm 10 µm
Monodispersity Index (d90/d10)	1.1
Flow rate	≤ 2.5 mL/min
Pressure Limit	2000 psi
Temperature	≤35 °C
pH range	2 – 8
IgG sample load	≤300 ug (for 4 x 50 mm column)
Column Hardware Material	PEEK, Bio-inert Stainless Steel
Column Hardware Dimension Options	PEEK: ❖ 2.1 x 30 mm ❖ 2.1 x 50 mm ❖ 4.0 x 50 mm Bio-inert Stainless Steel: ❖ 2.1 x 30 mm ❖ 4.6 x 50 mm

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