

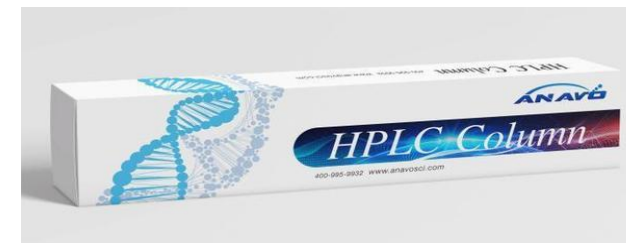
The background features a central cluster of overlapping, semi-transparent squares in various shades of blue and green. Two small inset images are visible: one at the top center showing laboratory glassware and a molecular model, and another at the bottom center showing a colorful molecular structure. A faint chromatogram is also visible on the right side of the central graphic.

**Anavo Gemsil®C18 integrated column (with  
guard column built-in )**

## Introduction to Built-in Guard Column Technology:

The *Gemsil®* pre-column integrated chromatographic column features a built-in guard column, making maintenance simple; users only need to replace the guard column core to easily resolve various liquid phase issues, such as: 1) increased column pressure caused by solid particulate matter blocking the screen; 2) peak shape deterioration due to contamination at the column head from the accumulation of strongly retained substances. Additionally, it can avoid the inconveniences associated with traditional guard columns, such as: 1) the excessive length of traditional guard columns, which makes it difficult to fit into the column temperature chamber; 2) the risk of cross-contamination due to the non-dedicated use of traditional guard columns.

The built-in protection column technology represents the next generation of chromatography column technology. It encapsulates the expertise of Anavo's seasoned professionals, who have accumulated years of practical experience in addressing liquid chromatography issues. This innovative approach redesigns the traditional column head, by ingeniously integrating the conventional external protection column within the chromatography column itself, resulting in a built-in protection column. This integration avoids many of the drawbacks associated with traditional protection columns and effectively resolves over 90% of chromatography column failures, such as clogged column screens and contamination of column packing. Consequently, it extends the lifespan of chromatography columns and saves users significant time and costs related to issues arising from chromatography columns.



## Product Features:

1. Next-generation chromatographic column technology with built-in guard column for extended column lifespan.
2. High column efficiency, excellent peak symmetry, and stable performance; suitable for 100% aqueous mobile phases.
3. Complete end-capping for improved peak symmetry in the separation of polar and basic compounds.
4. Wide pH range (1.5 - 9.5), offering versatile applications.
5. Excellent reproducibility between batches and columns.

## Typical applications:

Separation of preservatives, biomolecules, and their metabolites, such as amino acids, small peptides, nucleotides, and organic acids.

## With Built in:



1. Integrated design, simple structure, elegant and aesthetically pleasing;
2. Near-zero dead volume connections, high column efficiency;
3. Stainless steel and PEEK seals with threaded tight connections, high pressure resistant—can easily handle working pressures over 40 MPa;
4. No need for tubing between chromatographic columns, eliminating the hassle of connectors that require tightening and loosening;
5. Difficult to disassemble, always stays connected to the protected chromatographic column, easy to store and not easily lost;
6. Compact structure, with the overall length only slightly longer than traditional chromatographic columns, avoiding limitations of column heater length;
7. The protection tube is integrated with the chromatographic column, making it easy to track the condition of the protection tube.

Any issues can be traced to the protection tube, making troubleshooting simple. Problems can be easily solved by simply opening the column head and replacing the protection tube core.

## With outlet guard-column:



1. The dead volume is large, and the column efficiency is low.
2. There is a risk of rupture at the pipeline connection points under slightly higher pressure.
3. The connection joints can easily generate debris when screwed on or off, which may clog the sieve plate of the chromatography column and increase column pressure.
4. The long and narrow tubing makes it inconvenient to store the column after detachment, increasing the risk of losing the protective column.
5. The total length of the connecting tube and protective column is relatively long, often necessitating abandonment due to limitations in the length of the column temperature control box.
6. Traditional chromatography columns require external tubing to connect to the protective column, which can easily disconnect.

Given the practical situation of having more chromatography columns than protective columns, it is difficult to achieve dedicated use of protective columns, leading to cross-contamination when they are repurposed. This makes it challenging to identify the causes of failures, as cross-contamination can render the protective column itself a source of failure, thereby failing to effectively protect the chromatography column.

**Product Information:**

**Carbon Matrix**

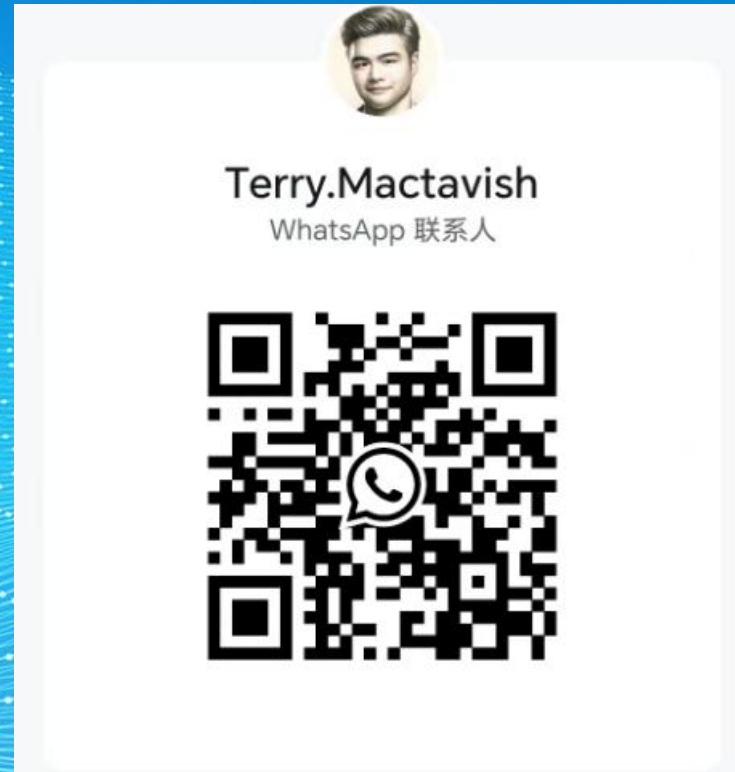
Art.Code	Description	Specification
AN80A026	Gemsil Pre-column integrated C18 HPLC column	Gemsil C18, Integrated Guard column, 5µm, 250*4.6mm
AN80A029	Gemsil Pre-column integrated C18 HPLC column	Gemsil C18, Integrated Guard column, 5µm, 150*4.6mm
AN80A016	Gemsil Pre-column integrated Hydrophilic C18 HPLC column	Gemsil C18-AQ, Integrated Guard column , 5µm, 4.6*250mm
AN80A017	Gemsil Pre-column integrated Hydrophilic C18 HPLC column	Gemsil C18-AQ, Integrated Guard column , 5µm, 4.6*150mm
AN80A126	Gemsil Pre-column integrated C8 HPLC column	Gemsil C8, Integrated Guard column, 5µm, 4.6*250mm
AN80A127	Gemsil Pre-column integrated C8 HPLC column	Gemsil C8, Integrated Guard column,5µm, 4.6*150mm

**Polymer Matrix**

Art.Code	Description	Specification
AN80A124	Gemsil Pre-column integrated Phenyl-Propyl Benzene HPLC column	Gemsil Phenyl, Integrated Guard column, 5µm, 4.6*250mm



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