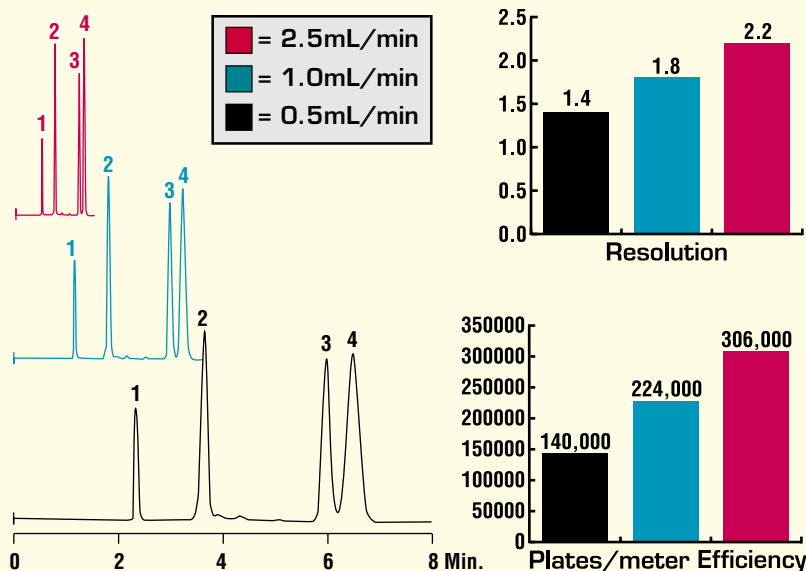


# Overcome Limitations of Time and Space with Alltech Rocket™ Columns



- Increase Productivity – 3x to 5x Faster Separations than Conventional HPLC Columns
- Improve Resolution – 200,000+ Plates/Meter Column Efficiency
- No Need for Special LC Systems – Sharp, Symmetrical Peaks on Your Existing HPLC System
- Eliminate Analytical Bottlenecks – Ideal for Combinatorial Chemistry and High-Throughput Screening
- Easily Accelerate Existing Methods – Just Use Your Current Method's 3 $\mu$ m Packing in Rocket™ Column Hardware

## Rocket™ Separations Improve as Analysis Times Decrease!



# An Innovative Approach to High-Speed Liquid Chromatography

## Speed, Resolution, and Symmetrical Peaks on Any HPLC System!

Rocket™ Columns deliver the speed and performance today's applications demand, without the drawbacks that plague other high-speed HPLC techniques.

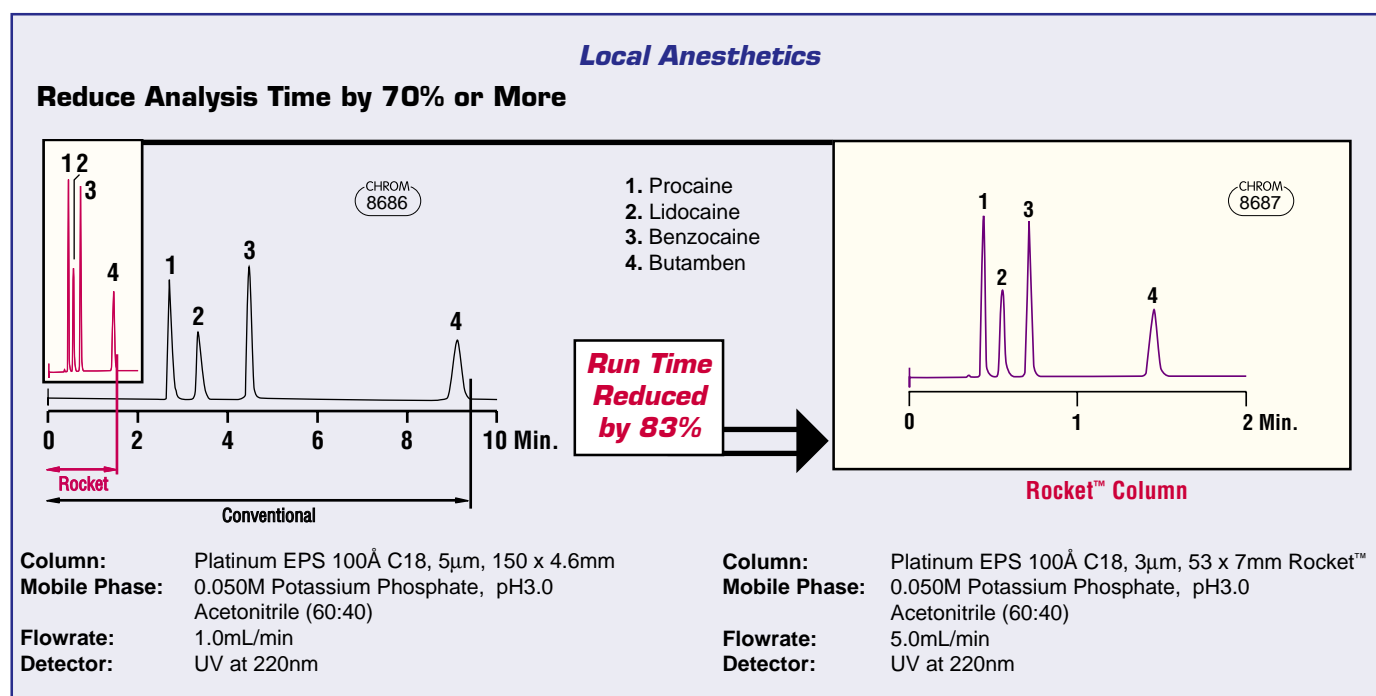
**Reduce Analysis Time and Solvent Consumption** – Methods run three to five times faster on Rocket™ Columns than on conventional columns with equal or better resolution (page 3).

**Optimize Efficiency, Selectivity and Capacity** – Packed with 1.5µm or 3µm Platinum™ base-deactivated media, as well as other popular materials (see insert for available packing materials), Rocket™ Columns generate high efficiency and excellent peak shape with acidic, basic, or neutral compounds (page 4).

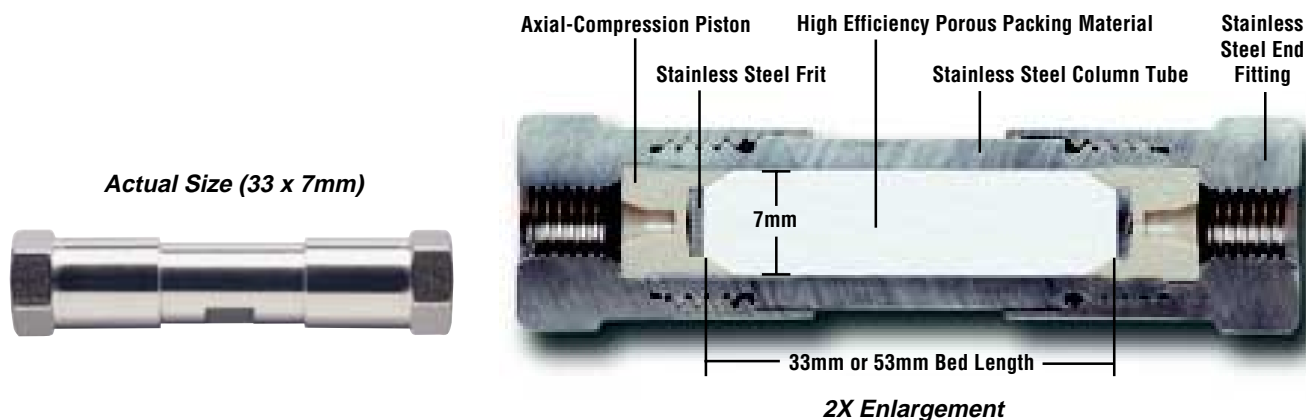
**Maintain Optimum Peak Shape On Any HPLC System** – Rocket™ Columns work well on standard HPLC systems. 7mm Rocket™ Columns don't require special tubing, injectors, or detectors for proper performance (page 5).

**Improve Resolution While Decreasing Analysis Time** – Rocket™ hardware maintains or improves efficiency and resolution as the flow rate increases and your analysis time shortens (page 5).

**Tested in Real-World Applications** – Rocket™ Columns are already solving demanding separation problems. Let Rocket™ Columns accelerate your methods today! (pages 6 & 7).



## Rocket™ Column Anatomy



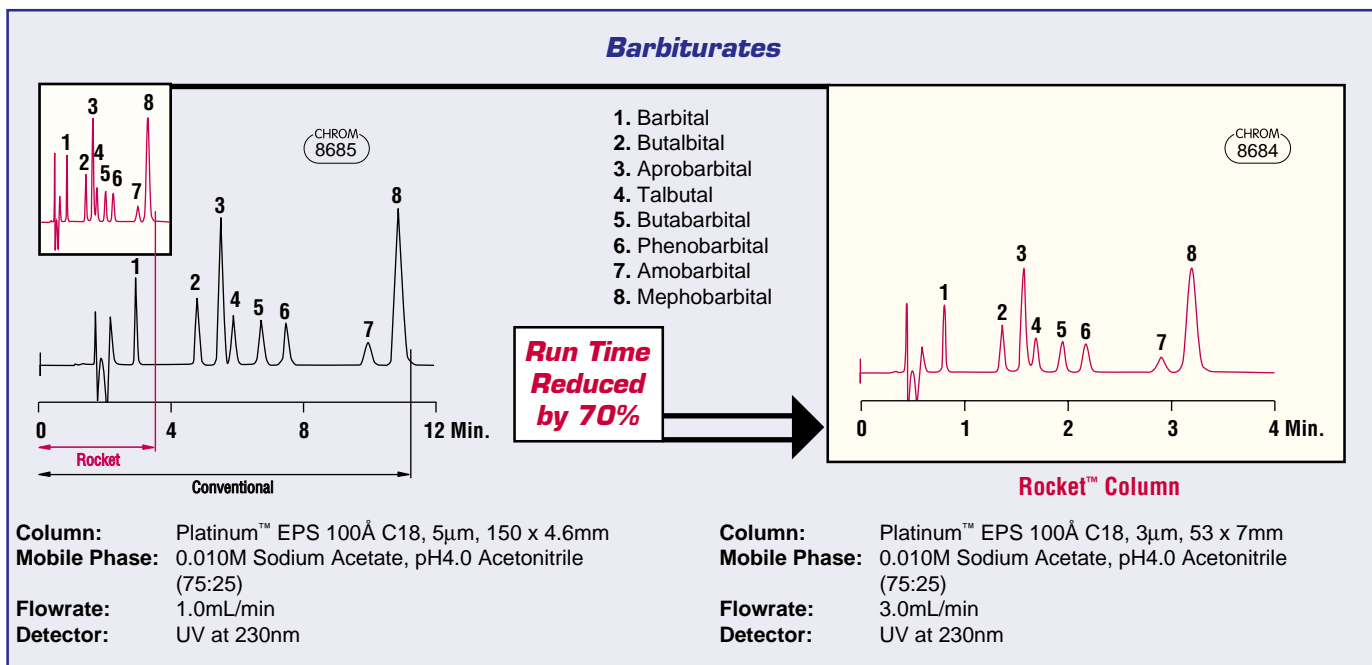
# Reduce Analysis Time and Solvent Consumption

## Fast Analysis and High Resolution

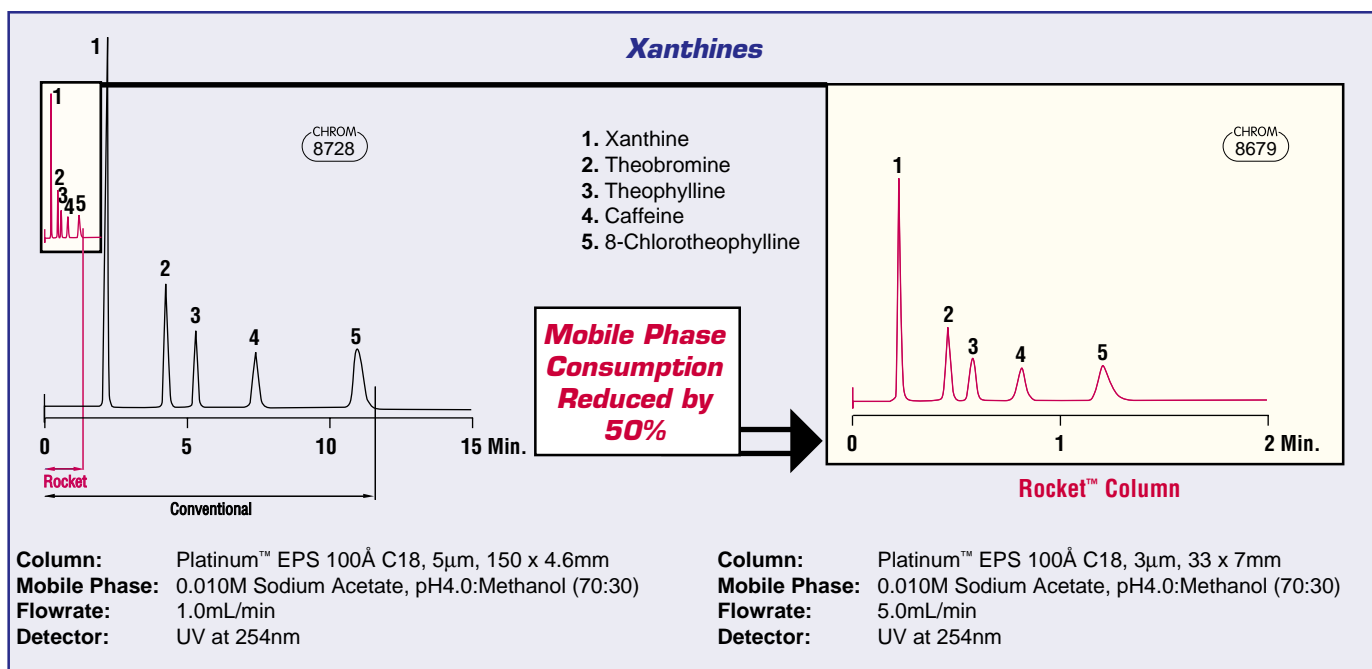
Separations normally performed on 150mm x 4.6mm columns run 70-80% faster on Rocket™ Columns without sacrificing resolution (**Figure 1**). Imagine the advantages of increasing sample throughput by 3 to 5 times!

In the Methods Development Lab, test multiple operating conditions in a fraction of the time required for conventional columns. Screen Combinatorial Chemistry libraries at record speeds, without sacrificing resolution. Productivity surges in QC, process-monitoring, and screening labs.

High Speed Rocket™ Columns packed with smaller particle materials use less mobile phase than conventional columns (**Figure 2**), saving both time and money.



**Figure 1 - High-Speed Rocket™ Columns Reduce Analysis Time Significantly.**



**Figure 2 - Solvent consumption is considerably less for Rocket™ Columns than conventional columns, despite a wider ID and higher flowrates.**

# Optimum Efficiency, Selectivity, Capacity

All successful separations require column efficiency, selectivity and capacity. Rocket™ Columns have all three in a package that delivers unprecedented resolution and speed.

## Efficiency

Rocket™ Columns are packed with 3µm or 1.5µm spherical particles that produce more than 120,000 or 200,000 plates/meter, respectively. Our most efficient Rocket™ Column, a 53 x 7mm column packed with 1.5µm Platinum media, generates nearly 300,000 plates/meter - unprecedented for any HPLC column! These high efficiencies let Rocket™ Columns deliver the resolution of much longer columns in a fraction of the run time.

## Selectivity

Controlled silica exposure is the difference that makes Platinum™ columns unique. The approach taken by most column manufacturers in making base-deactivated reversed-phase columns is to thoroughly cover the silica with bonded phase to minimize any interaction between polar analytes and the packing medium's silica backbone. With our Platinum™ media we have taken a different approach. Instead of maximizing the coverage of bonded phase to hide the silica, we have controlled the exposure of the silica to provide a dual mode separation medium with both polar and non-polar sites exposed to your samples. This extends polar selectivity well beyond what other reversed-phase columns offer and gives separations other columns can't.

Use Standard Platinum™ Columns for neutral and moderately polar compounds and Platinum™ EPS Columns (Extended Polar Selectivity) for highly polar compounds with two or more functional groups. Platinum™ EPS Columns have added selectivity and capacity for polar analytes (Figure 3). This powerful combination solves many reversed-phase separation problems.

Rocket™ Columns are also available filled with other popular, high-quality 3µm materials for quick, convenient acceleration of existing methods. Simply use a Rocket™ Column filled with the 3µm version of your method's packing material and watch run times shrink by 70 to 80%!

## Capacity

Rocket™ Columns accept high sample loads for easy detection of impurities and minor components in the presence of major peaks. 1.5µm Rocket™ Columns often produce 200,000-300,000 plate/meter efficiencies even at high sample loading levels. Rocket™ Columns use fully porous packing materials that maintain capacity and efficiency as sample mass increases, conditions where non-porous silica (NPS) columns fail (Figure 4).

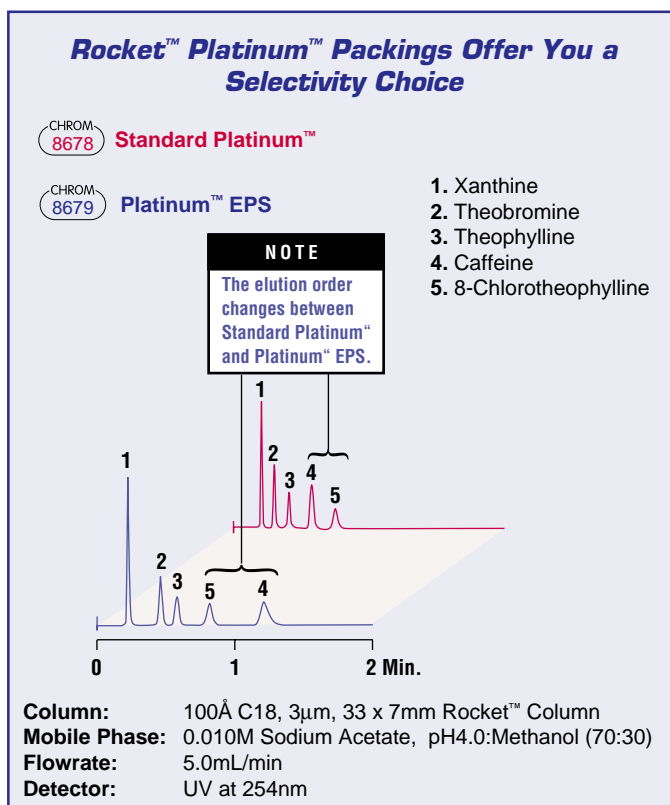


Figure 3

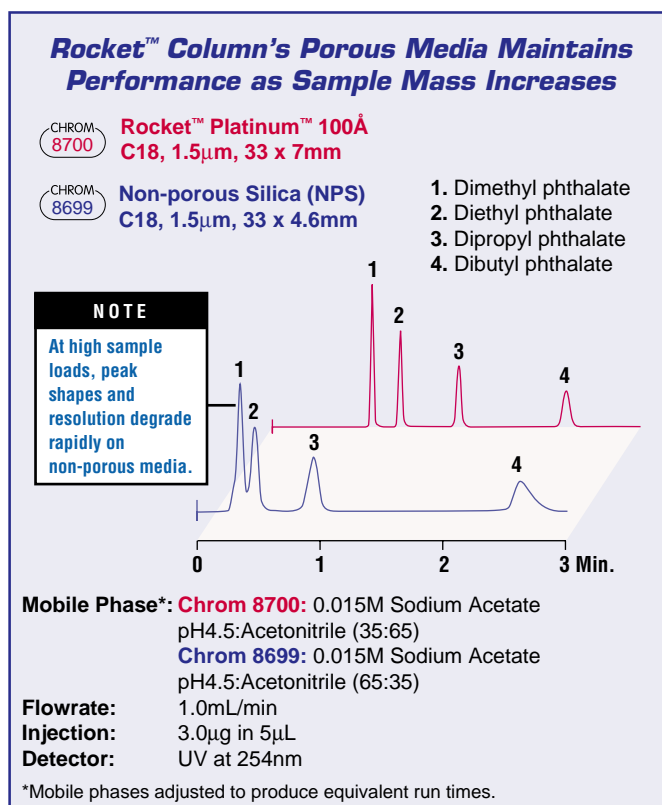


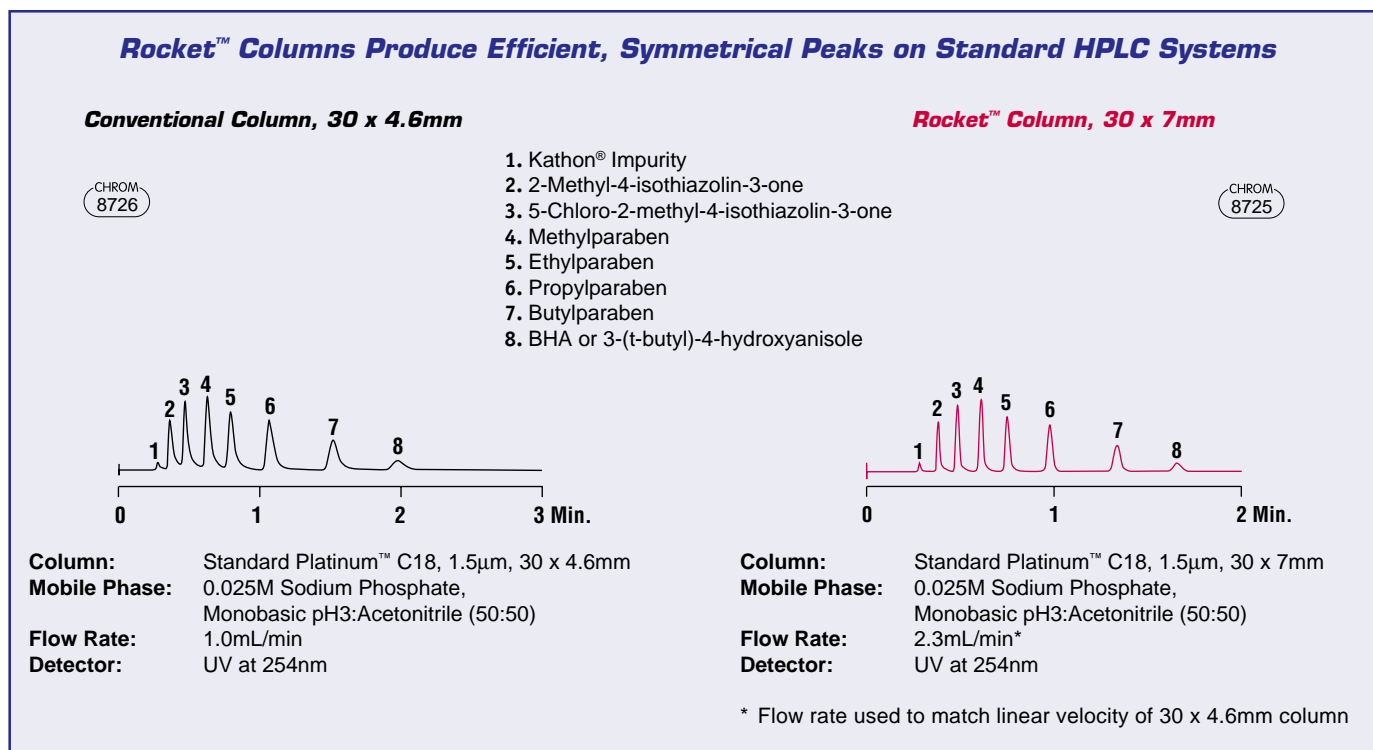
Figure 4

# Optimum Peak Shape on Any HPLC System

## High-Speed Without Special Injectors, Tubing or Detectors!

Rocket™ Columns avoid the most common problem associated with other high-speed column formats — broad or tailing peaks caused by system dead-volume. Short 4.6mm ID, 1.5µm and 3µm columns generate sharp peaks that are easily distorted by extra-column dead volume. Special instrumentation, careful control of injection volumes, and well designed methods are typically required for adequate results with such column formats.

By contrast 7mm ID Rocket™ Columns operate at flow rates two to four times higher than 4.6mm ID high-speed columns, sweeping sample bands through injectors, connecting tubing and detectors without distortion. Rocket™ Columns deliver top performance on the same systems used for standard 150-300mm columns. Special injectors, tubing and detectors aren't necessary! **Figure 5** shows how 7mm ID Rocket™ Columns produce higher efficiency than comparable 4.6mm ID columns.

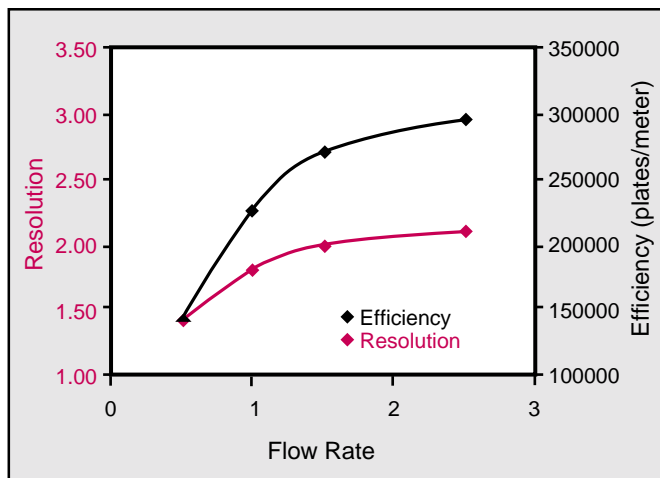


**Figure 5 - The Rocket™ Column Improves Peak Shape and Resolution Compared to 4.6mm ID Columns of the Same Length**

Rocket™ Columns are built for speed and, in fact, run more efficiently at higher-than-standard flow rates. Rocket™ Columns provide excellent peak shapes at both moderate (1.0mL/min) and high flow rates (3.0mL/min). However, efficiency and resolution improve when run in the 2.5-3.0mL/min range, (**Figure 6**) simultaneously reducing your analysis time. Save time and improve your separations with Alltech Rocket™ Columns!

**“We have been very satisfied with the performance of the Rocket™ Columns (Alltima™ C18, 3µm). These columns provide excellent resolution, reduce our time of analysis by 50-60%, and the results remain reproducible after extensive use.”**

**- Jacques Ermolieff, Ph.D.**



**Figure 6 - The 53mm long Rocket™ Column packed with 1.5µm Platinum media generates close to 300,000 plates/meter!**

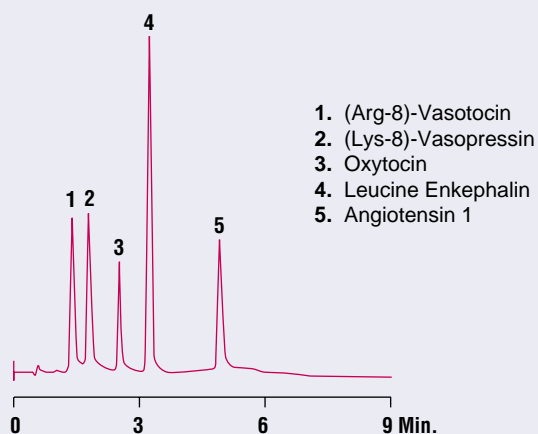
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# Rocket™ Columns Perform in Real-World Applications

## Peptides

CHROM  
8874



1. (Arg-8)-Vasotocin
2. (Lys-8)-Vasopressin
3. Oxytocin
4. Leucine Enkephalin
5. Angiotensin 1

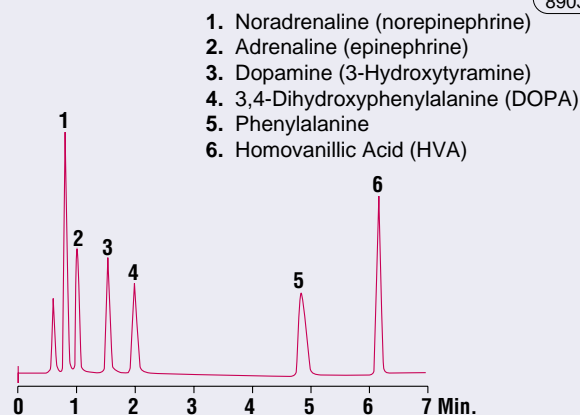
**Column:** Platinum™ 100Å EPS C18, 3µm,  
53 x 7mm Rocket™ Column  
**Mobile Phase:** A: 0.15% TFA in Water  
B: 0.13% TFA in 95% Acetonitrile:5% Water  
**Gradient:**

Time:	0	10
%B	20	50

  
**Flowrate:** 3.0mL/min  
**Detector:** Alltech ELSD  
**Drift Tube Temp:** 40°C  
**Nitrogen Flowrate:** 1.75SLPM

## Catecholamines

CHROM  
8903



1. Noradrenaline (norepinephrine)
2. Adrenaline (epinephrine)
3. Dopamine (3-Hydroxytyramine)
4. 3,4-Dihydroxyphenylalanine (DOPA)
5. Phenylalanine
6. Homovanillic Acid (HVA)

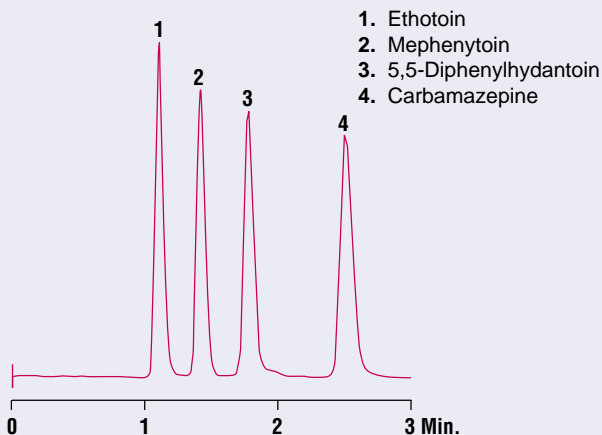
**Column:** Standard Platinum™ 100Å C18, 3µm,  
53 x 7mm Rocket™ Column  
**Mobile Phase:** A: 0.15% TFA  
B: Acetonitrile  
**Gradient:**

Time:	0	3	12	15
%B	3	3	65	65

  
**Flowrate:** 2.5mL/min  
**Detector:** Alltech ELSD  
**Drift Tube Temp:** 40°C  
**Nitrogen Flowrate:** 1.75SLPM

## Anticonvulsants

CHROM  
8946

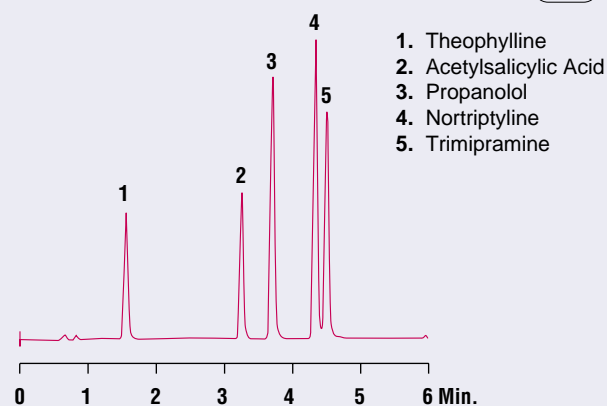


1. Ethotoin
2. Mephenytoin
3. 5,5-Diphenylhydantoin
4. Carbamazepine

**Column:** Platinum™ EPS 100Å C18, 3µm,  
53 x 7mm Rocket™ Column  
**Mobile Phase:** 0.025M Ammonium Acetate, pH 5.5:  
Acetonitrile (70:30)  
**Flowrate:** 3.0mL/min  
**Detector:** Alltech ELSD  
**Drift Tube Temp:** 40°C  
**Nitrogen Flowrate:** 1.75SLPM

## Universal Combinatorial High Speed Gradient Application

CHROM  
8957



1. Theophylline
2. Acetylsalicylic Acid
3. Propranolol
4. Nortriptyline
5. Trimipramine

**Column:** Alltima™ C18, 3µm,  
53 x 7mm Rocket™ Column  
**Mobile Phase:** A: 0.1%TFA in Water  
B: 0.1% TFA in Acetonitrile  
**Gradient:**

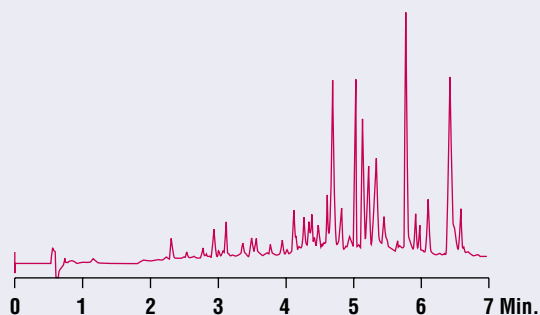
Time:	0	6
%B:	10	90

  
**Flowrate:** 2.5mL/min  
**Detector:** Alltech ELSD  
**Drift Tube Temp:** 45°C  
**Nitrogen Flowrate:** 1.75SLPM

# Rocket™ Columns Perform in Real-World Applications

## Chymotrypsinogen Tryptic Digest

CHROM  
8703



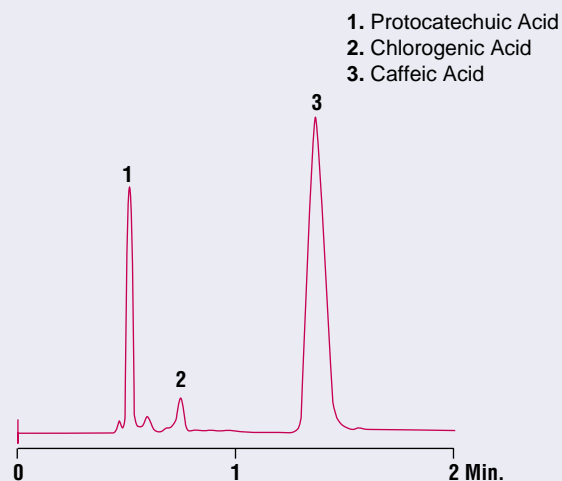
**Column:** Standard Platinum™ 100Å C18, 1.5µm, 33 x 7mm Rocket™ Column  
**Mobile Phase:** A: 0.15% TFA in Water  
 B: 0.13% TFA in ACN:Water (95:5)  
**Gradient:**

Time:	0	10
%B	0	80

**Flowrate:** 1.6mL/min  
**Detector:** UV at 216nm

## Phenolic Acids in Echinacea

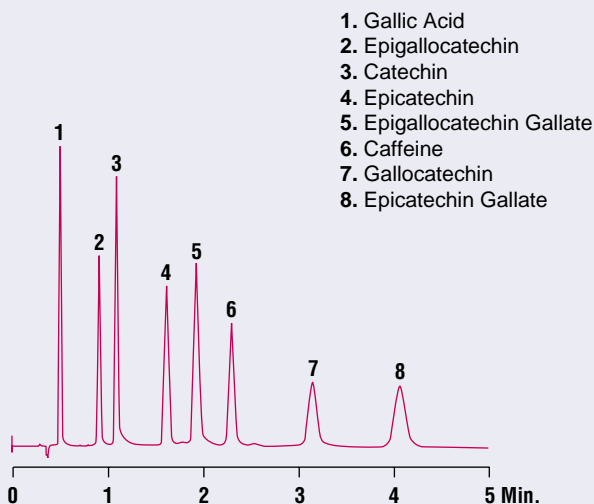
CHROM  
9110



**Column:** Alltima™ C18, 3µm, 53 x 7mm Rocket™ Column  
**Mobile Phase:** ACN:10mM KH<sub>2</sub>PO<sub>4</sub>, pH 2.6(20:80)  
**Flowrate:** 3.5mL/min  
**Detector:** UV at 330nm

## Catechins in Green Tea

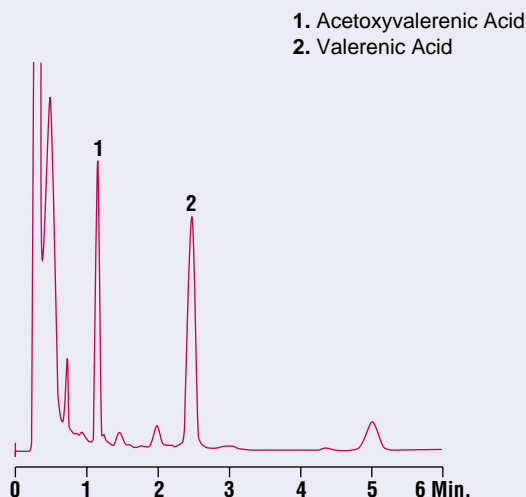
CHROM  
8825



**Column:** Platinum™ EPS 100Å C18, 1.5µm, 33 x 7mm Rocket™ Column  
**Mobile Phase:** 0.05% v/v TFA in Water:ACN (87:13)  
**Flowrate:** 2.5mL/min  
**Detector:** UV at 210nm

## Valerian

CHROM  
9160



**Column:** Alltima™ C18, 3µm, 53 x 7mm Rocket™ Column  
**Mobile Phase:** Dioxane:ACN:0.05% TFA (3:64:33)  
**Flowrate:** 3mL/min  
**Detector:** UV at 220nm

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**Decrease analysis time and solvent consumption with Alltech Rocket™ Columns...**



**and Receive a **FREE** Rocket™ Column Coffee Cup with every order\*.**

**Ceramic coffee cup with built-in coaster.**

*\*While supplies last. Holds 11oz.*

*"I have to be honest and say that initially, my colleague and I were a little skeptical on the claims in Alltech's advertisement of the new Rocket™ Columns. However, the speed in which we assay a reaction mixture is critical to our process. With the Platinum C18 Column we were able to elute the last component at 3.8 min. which is almost four times faster than our old method. We also found that the peak shapes were very sharp and the resolution of the peaks were just as good as with the longer column. We have since ordered a second column and it is also in use."*

*—William R. Shiang, Ph.D.*



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