

## Sitting with Scientist Yuri P. Belov, Ph.D., the GC Column Mastermind



Born and raised in Russia, Yuri P. Belov, knew at a young age that he wanted to go into organic chemistry. Belov received his M.S. in Technology of Synthetic Rubbers and Polymers from the Togliatti Polytechnic Institute, in Togliatti, Russia and his Ph.D. in Organic Chemistry from the Institute of Organoelement Compounds, Russian Academy of Sciences, in Moscow, Russia.

After gaining a world-renowned education, Belov continued his research at the Russian Academy of Sciences, using chromatographic analysis and prep separation to research physiologically active compounds and synthesize new HPLC phases.

In 1990 he continued his research at the University of Bradford, in England working on chromatographic analysis of chiral tuberculostatics. After his time in England, Belov made his way to the United States working at the University of Illinois, Urbana-Champaign and the National Institute on Drug Abuse, NIH.

In 1996, after decades of research and studies, Belov turned his expertise to creating the columns he was using to analyze chiral substances. During his time with Supelco, Inc. as a Research Chemist, he created new chiral columns for gas chromatography (GC).

Then as an R&D Director at ChromBA, Inc. he created multicapillary columns for liquid chromatography and sample preparation. These columns were nominated as one of the 19 best products at Pittcon-2004.

Phenomenex is now exceptionally lucky to have the knowledge of Yuri P. Belov creating columns in our GC lab since 2011. He has brought to life several new GC columns for the analysis of chlorinated pesticides, polyaromatic hydrocarbons, fatty acids, residual solvents, and various volatile and semi-volatile organic compounds.

A few of his creations include Zebron™ 5MSplus, ZB-FAME™, and most recently ZB-624plus™.

When asked what his favorite area of study is when analyzing or creating, Belov said with a smile, “It’s like having several children and answering which one is my favorite! I love them all!”

So, when it came to our big questions regarding GC, who better to ask the hard-hitting questions than the GC column mastermind himself!

**1. How does ZB-624plus differ from other traditional 624 columns in the market?**

Compared to conventional 624 columns ZB-624plus has higher thermal stability, lower bleed, superior deactivation and demonstrates better selectivity toward common solvents and chemicals like toluene and pyridine.

**2. Why is it important to have superior deactivation in ZB-624PLUS for active analytes, like amines?**

Superior deactivation provides improved peak symmetry which is especially important for active analytes like amines.

**3. Why is the feature max temperature limit of 300/320 so**

**important?**

Higher temperature limit allows to conduct the analyses or bake out impurities at higher temperatures keeping the column's bleed at low level.

**4. You have created several GC columns in *Zebtron line*, which column did you enjoy the most creating?**

Probably FAME. This column is superior to any competitor's analog. For example, the 30m long ZB-FAME column provides baseline resolution for all components of the challenging mixture of 37 Standard Fatty Acid Methyl Esters. Our competitors are able to achieve comparable resolution only by using their 100m long columns.

**5. What recent trends in GC column making are you the most excited to see?**

The first commercial GC capillary columns from fused silica were developed in 1979. Within the next ten years the science and art of making GC columns matured. What amazes me is that until now the manufacturers continue to improve the quality and performance of GC columns.

**6. Where do you see the future of the GC industry going?**

Probably the future of the industry is benchtop GC instruments, GC mass spectrometry, smaller diameter, and shorter length columns designed for faster analysis.

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## Summary



### Article Name

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### Description

We sat down with Phenomenex scientist Yuri P. Belov the man behind the creation of several GC columns just at Phenomenex.