

Better UHPLC Performance Starts **NOW**



1.7 μm Core-Shell Columns

The **FIRST** and **ONLY** sub-2 μm
core-shell columns on the market



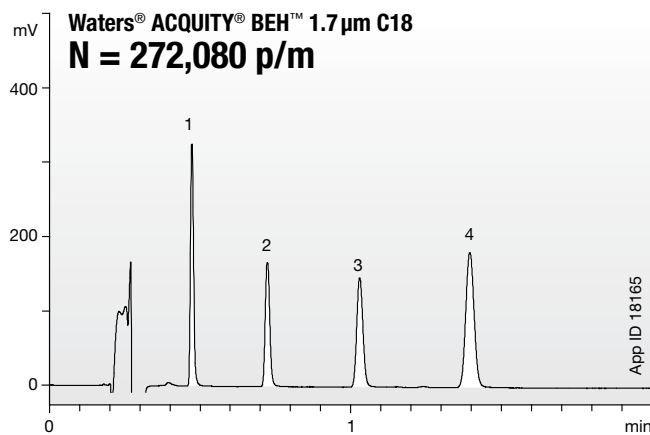
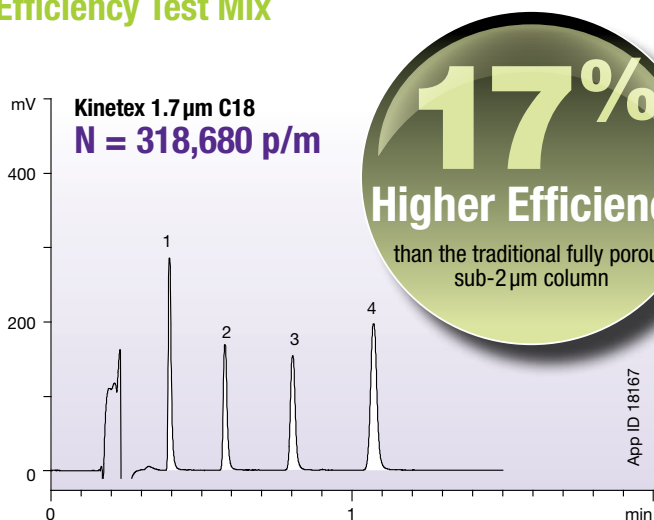
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 **phenomenex**[®]
...breaking with traditionSM

Kinetex® 1.7 µm—The *FIRST* and *ONLY* Sub-2 µm Core-Shell Columns on the Market

Delivering breakthrough UHPLC performance, Kinetex 1.7 µm core-shell technology produces increased efficiencies over traditional sub-2 µm columns on the market, yielding remarkable chromatographic resolution, higher peak capacities, and greater sensitivity, so you can get the most out of every analysis.

Efficiency Test Mix



Conditions for both columns

Columns: Kinetex 1.7 µm C18
ACQUITY® UPLC® BEH™ 1.7 µm C18

Dimensions: 50 x 2.1 mm

Mobile Phase: Acetonitrile / Water (50:50)

Injection Volume: 0.2 µL/min

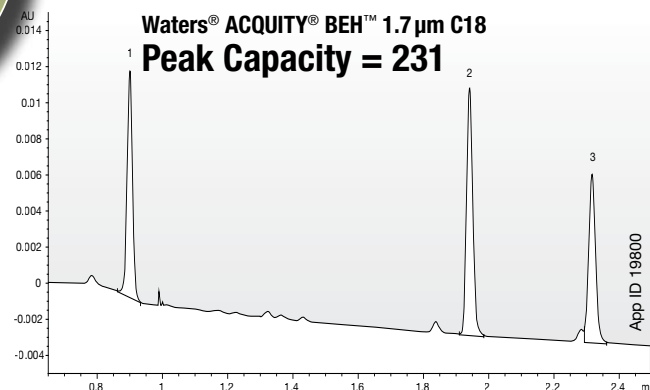
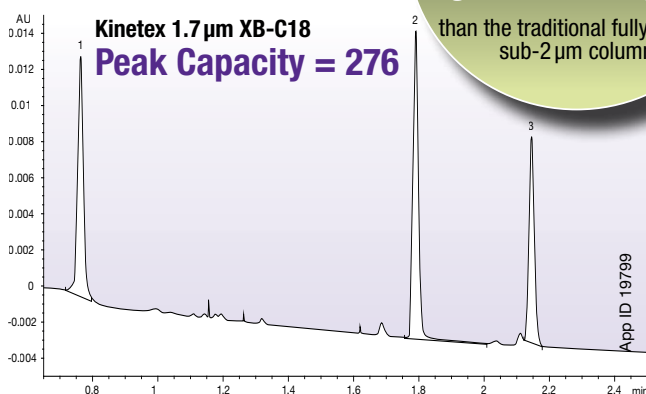
Flow Rate: 0.6 mL/min

Temperature: 25 °C

Detection: UV @ 254 nm (ambient)

Sample: 1. Acetophenone
2. Benzene
3. Toluene
4. Naphthalene

Estrogen Mix



Conditions for both columns

Column: Kinetex 1.7 µm XB-C18
ACQUITY® UPLC® BEH™ 1.7 µm C18

Dimensions: 50 x 2.1 mm

Mobile Phase: A: 6.9 mM Ammonium Formate pH 4.0 in 25% Acetonitrile
B: Acetonitrile

Gradient:	Time (min)	% A	% B
	0	100	0
	5	35	65

Flow Rate: 0.5 mL/min

Temperature: Ambient

Detection: UV @ 254 nm (ambient)

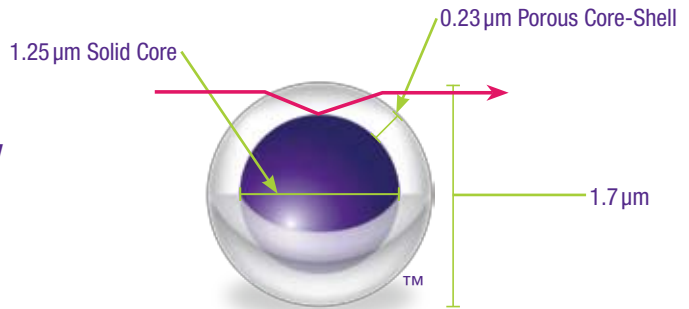
Instrument: Waters® ACQUITY® UPLC®

Sample: 1. Estriol
2. 17B Estradiol
3. Estrone

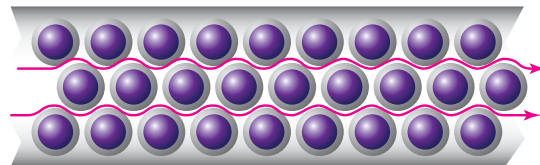
The Key to Better UHPLC Performance is Core-shell Technology

The secret is in the core-shell particle morphology itself. A uniform porous silica layer is grown around a spherical solid silica core. This unique combination of precise particle architecture and sub-2 μm particle size provides dramatic leaps in performance in two important ways:

1 Increasing the rate of mass transfer by decreasing the effects of diffusion



2 Reducing losses in efficiency with nearly monodispersed sub-2 μm particles



The result is a significant improvement in chromatographic resolution over traditional sub-2 μm columns, providing more information and higher quality data.

POWER TIP

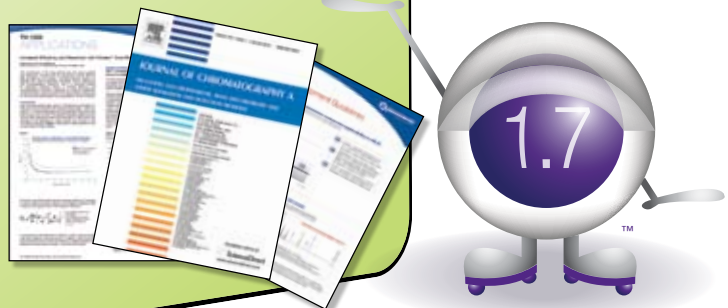
Core-shell technology is at the forefront of UHPLC technology and is challenging system manufacturers to develop the next generation UHPLC systems capable of taking full advantage of the performance offered.¹

The chromatography industry agrees that Kinetex[®] columns deliver on their promise of better UHPLC performance!

Download and read journal articles and technical notes on Kinetex core-shell technology for free at:

www.phenomenex.com/kinetex

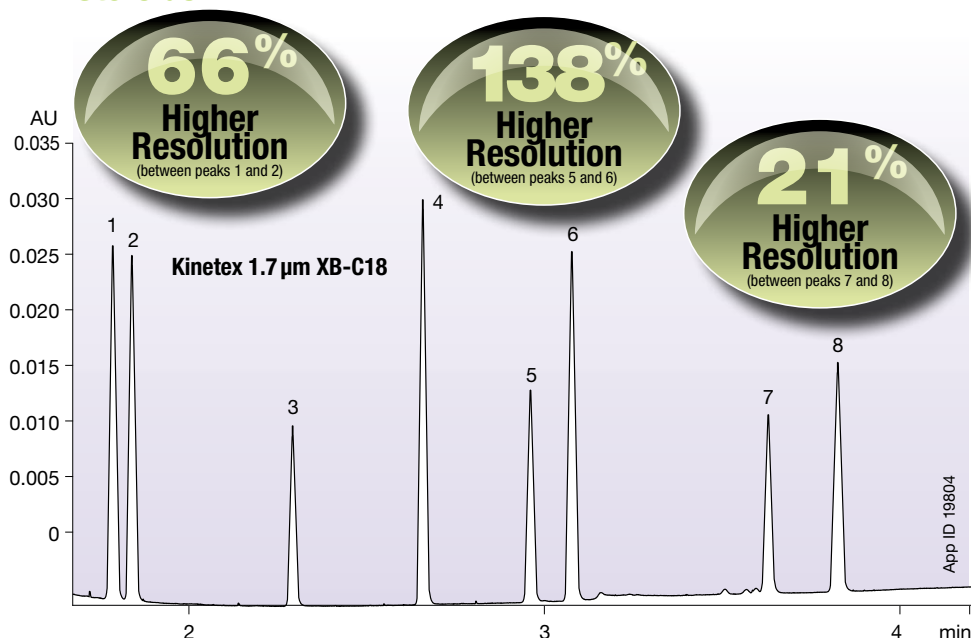
¹F. Gritti, C.A. Sanchez, T. Farkas, G. Guiochon, J. Chromatogr. A 1217 (2010) 3000-3012.



Kinetex® 1.7 µm – Taking UHPLC to the Next Level

Higher efficiencies in sub-2 µm core-shell particles give increased resolving power, allowing you to better separate closely eluting peaks and readily separate compounds in complex mixtures for accurate identification.

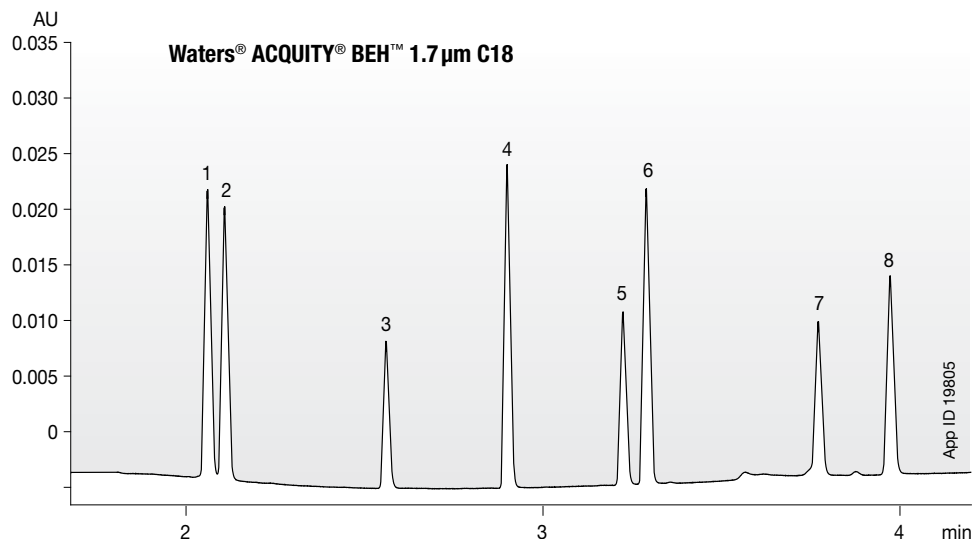
Steroids



Conditions for both columns

- Column:** Kinetex 1.7 µm XB-C18
ACQUITY® UPLC® BEH™ 1.7 µm C18
- Dimensions:** 150 x 2.1 mm
- Mobile Phase:** A: MilliQ Water
B: Acetonitrile
- Gradient:**

Time (min)	% A	% B
0	70	30
5	0	100
- Flow Rate:** 0.5 mL/min
- Temperature:** Ambient
- Detection:** UV @ 210 nm (ambient)
- Backpressure:** 891 bar (Kinetex)
935 bar (ACQUITY®)
- Instrument:** Waters® ACQUITY® UPLC®
- Sample:**
 1. Hydrocortisone
 2. Cortisone
 3. Corticosterone
 4. Cortisone-21-Acetate
 5. DHEA (Dehydroepiandrosterone)
 6. 17-Hydroxyprogesterone
 7. Deoxycorticosterone
 8. Progesterone



Column	Average Peak Width	Peak Capacity	Resolution between Hydrocortisone and Cortisone	Resolution between DHEA (Dehydroepiandrosterone) and 17-Hydroxyprogesterone	Resolution between Deoxycorticosterone and Progesterone
Kinetex 1.7 µm XB-C18 150 x 2.1mm	3.5 sec	75.8	2.5 (66 % increase)	5.0 (138 % increase)	7.4 (21 % increase)
ACQUITY® 1.7 µm BEH™ C18 150 x 2.1 mm	3.7 sec	71.3	1.5	2.1	6.1

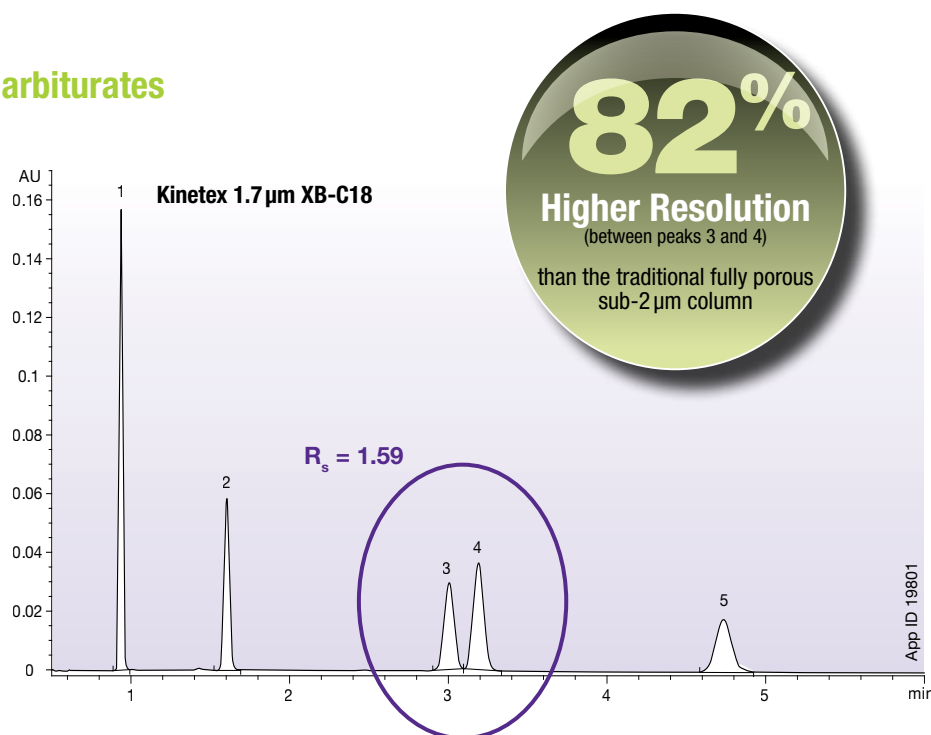
ACQUITY, UPLC, and Waters are registered trademarks, and BEH Technology is a trademark of Waters Corporation. Phenomenex, Inc. is not affiliated with Waters Corporation. Comparative separations may not be representative of all applications.

Challenging Separations are No Match for Kinetex.

Barbiturates, a class of antidepressants, are often screened for in drugs of abuse testing. Two structural isomers, pentobarbital and amobarbital have been historically difficult to separate because their chemical structures differ from each other by the placement of a methyl group (See structures below). The similarity often results in co-elution of the two analyte peaks making it difficult to quantitate each compound.

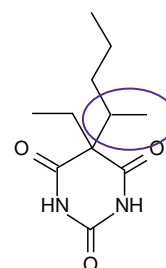
The Kinetex® core-shell 1.7 µm UHPLC column successfully separated these two compounds better and faster, allowing for cost-effective, high-throughput processing of barbiturate screens.

Barbiturates

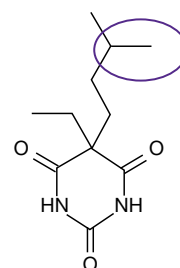


Structural Isomers

Pentobarbital



Amobarbital

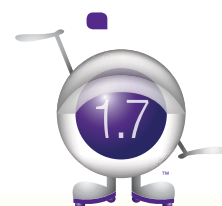
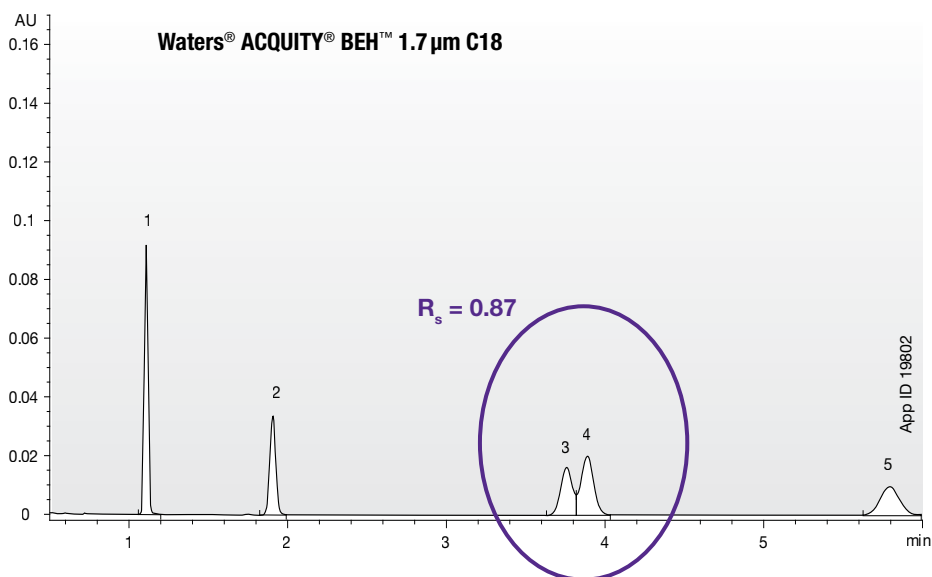


Conditions for both columns

- Column:** Kinetex 1.7 µm XB-C18
ACQUITY® UPLC® BEH™ 1.7 µm C18
- Dimensions:** 50 x 2.1 mm
- Mobile Phase:** 5 mM Ammonium Acetate pH 6.7/
Acetonitrile (85:15)
- Flow Rate:** 0.9 mL/min
- Temperature:** 50 °C
- Detection:** UV @ 214 nm (ambient)
- Backpressure:** 548 bar (Kinetex)
631 bar (ACQUITY®)
- Instrument:** Waters® ACQUITY® UPLC®
- Sample:** 1. Phenobarbital
2. Butalbital
3. Pentobarbital
4. Amobarbital
5. Secobarbital

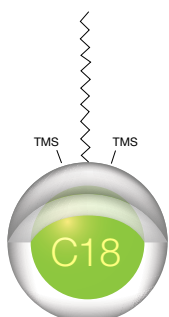
With such high efficiencies, you now have the ability to increase your productivity! By simply shortening your column length, you can drastically reduce your analysis times without losing critical resolution.

www.phenomenex.com/knxcalculator

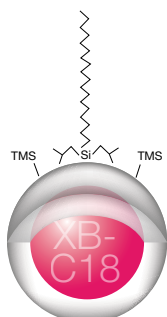


Five Selectivities. Take Your Pick.

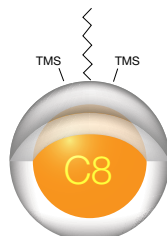
Choose from a wide range of phases for greater flexibility in UHPLC method development. Kinetex® 1.7 µm columns come in a variety of selectivities to cover a full spectrum of applications ranging from acids and bases, to isomers and extremely polar compounds.



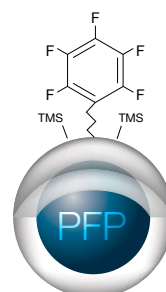
Endcapped C18 phase
Increased retention for **polar basic compounds**



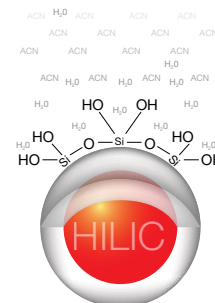
Protective isobutyl side chains
Increased retention of **polar acidic compounds**



Endcapped C8 phase
Less hydrophobic than a C18 phase



Pentafluorophenyl phase
Unique **aromatic and polar** selectivity



Unbonded silica phase
Increased retention of **polar compounds**

Material Characteristics

Packing Material	Total Particle Size (µm)	Porous Shell (µm)	Solid Core (µm)	Pore Size (Å)	Effective Surface Area (m ² /g)	Effective Carbon Load %	USP Classification	pH Stability*	Pressure Stability
Kinetex C18	1.7	0.23	1.25	100	200	12	L1	1.5 - 10*	1000 bar
Kinetex XB-C18	1.7	0.23	1.25	100	200	10	L1	1.5 - 10*	1000 bar
Kinetex C8	1.7	0.23	1.25	100	200	8	L7	1.5 - 10*	1000 bar
Kinetex PFP	1.7	0.23	1.25	100	200	9	L43	1.5 - 8.0	1000 bar
Kinetex HILIC	1.7	0.23	1.25	100	200	—	L3	2.0 - 7.5	1000 bar

* pH range under isocratic conditions. pH range is 2 - 8 under gradient conditions.



Ordering Information

Kinetex 1.7 µm Minibore Columns (mm)

	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN
C8	00A-4499-AN	00B-4499-AN	00D-4499-AN	00F-4499-AN
PFP	00A-4476-AN	00B-4476-AN	00D-4476-AN	00F-4476-AN
HILIC	00A-4474-AN	00B-4474-AN	00D-4474-AN	00F-4474-AN

POWER TIP

Want UHPLC performance on your HPLC systems?

Kinetex 2.6 µm gives you the efficiencies of a sub-2 µm column without the back-pressure. Enjoy UHPLC performance without the system upgrade! 2.6 µm Kinetex particles are directly scalable with 1.7 µm.

For more information and part numbers, visit www.phenomenex.com/kinetex



guarantee

If you are not completely satisfied with Kinetex core-shell columns, send in your comparative data to a similar product within 45 days for a FULL REFUND.

What Can Switching to Kinetex® 1.7 µm UHPLC Columns Really Mean to Your Lab?

Ask a Customer

“ A new analytical method was developed which is capable of analysing 16 different API residues from production surfaces. It has been shown that the 1.7 µm Kinetex 100 x 2.1 mm column was capable of **resolving 16 different chemical entities with a 6-minute run time**. This new analytical method will be used to replace 16 older methods thereby facilitating an **annualised cost saving for the site of €320,000 [\$460,000]**. ”

Andrew Charles, John P. Dunne, Louis McMahon, and Sebastian Jurek

MANUFACTURING AND TECHNOLOGIES, PFIZER GRANGE CASTLE, GRANGE CASTLE BUSINESS PARK, CLONDALKIN, DUBLIN, REPUBLIC OF IRELAND

Wonder What Kinetex Will Look Like on *Your Method*?

Let PhenoLogix, our in-house analytical services lab, show you what Kinetex core-shell technology can do for you!

Email: PhenoLogix@phenomenex.com

Or visit us online at: www.phenomenex.com/phenologix



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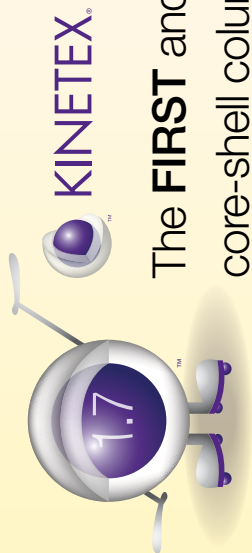
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