

## ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

# Preparation and chromatographic evaluation of hydrophilic interaction chromatography stationary phase based on nucleosides or nucleotides

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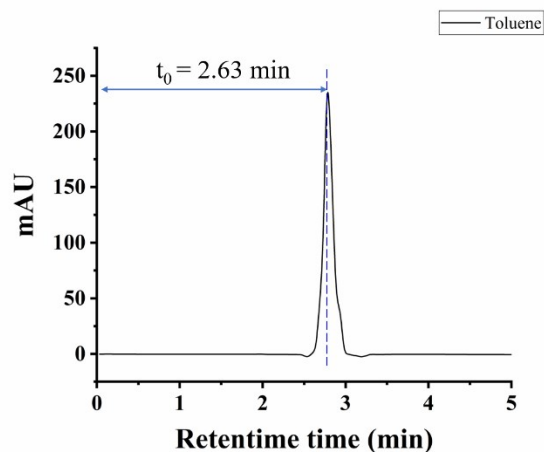


Fig. S1. The retention time of toluene on column GM-ADE. Mobile phase: acetonitrile and water (90/10, v/v), flow rate=1.0 mL min<sup>-1</sup>, column temperature = 30 °C, UV detection: 254 nm.

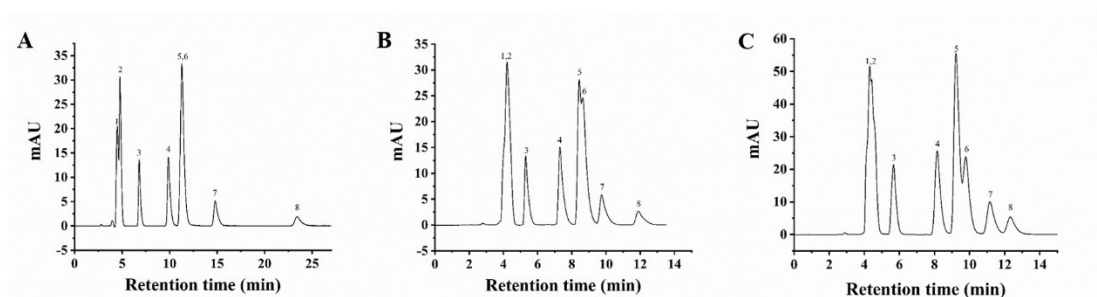


Fig. S2. Separation of eight nucleosides and nucleobases on (A) GM-AMP column, (B) GM-CYT column, and (C) GM-CMP column, respectively. Column dimensions: 4.6 mm I.D. by 250 mm, mobile phase: acetonitrile and 20 mM ammonium acetate aqueous solution (90/10, v/v), flow rate = 1.0 mL min<sup>-1</sup>, column temperature = 30 °C, pH = 6.54, detection wavelength: 254 nm. (1) Thymine, (2) Uracil, (3) Uridine, (4) Adenosine, (5) Adenine, (6) Cytosine, (7) Cytidine, and (8) Guanosine.

**Table S1** Chromatographic parameters for the separation of nucleosides and nucleobases on GM-ADE column.

Analytes	N/m	Rs	Tf
Thymine	10146	/	1.191
Uracil	23063	0.860	0.988
Uridine	31688	4.807	0.754
Adenosine	34202	8.988	0.734
Adenine	41808	2.547	0.889
Cytosine	43031	1.215	0.941
Cytidine	34632	3.007	0.725
Guanosine	30796	2.853	0.646

Notes: N: theoretical plate number; Rs: resolution; Tf: tailing factor

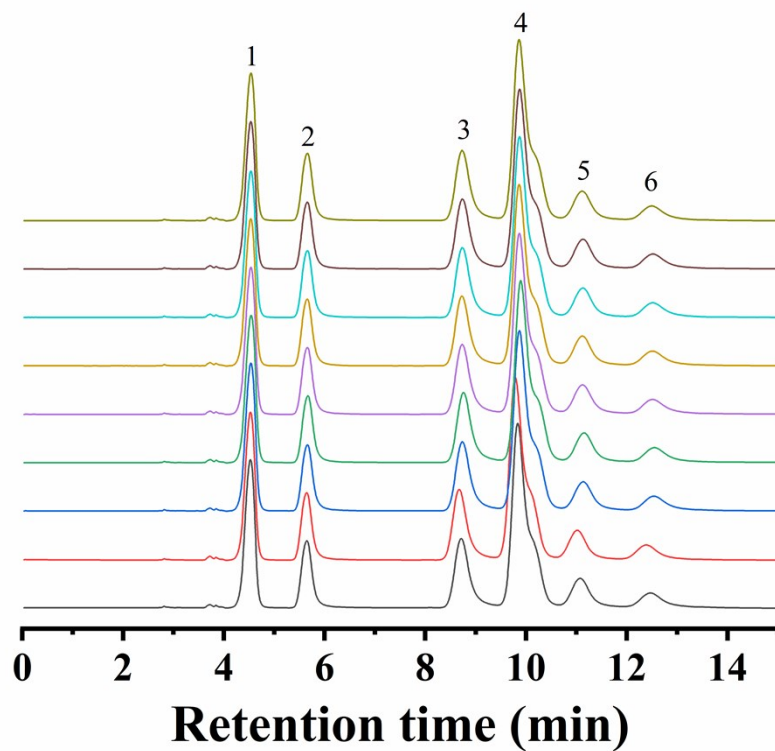


Fig. S3. The reproducibility tests of nucleosides and nucleases on GM-ADE column: (1) Uracil, (2) Uridine, (3) Adenosine, (4) Adenine, (5) Cytidine and (6) Guanosine. Mobile phase: acetonitrile and water (90/10, v/v), flow rate=1.0 mL min<sup>-1</sup>, column temperature = 30 °C, UV detection: 254 nm. (Continuously injecting 9 times with an interval of 15 min of incessantly working.)

**Table S2** Intra-day and Inter-day RSD of the retention time for model analytes.

Analytes	Intra-day (RSD, %)			Inter-day (RSD, %)
	1	2	3	
Uracil	0.12	0.10	0.05	0.10
Uridine	0.13	0.14	0.12	0.11
Adenosine	0.28	0.30	0.26	0.23
Adenine	0.32	0.33	0.29	0.22
Cytidine	0.37	0.39	0.35	0.32
Guanosine	0.39	0.40	0.39	0.32

**Table S3** Intra-day and Inter-day RSD of the peak area for model analytes.

Analytes	Intra-day (RSD, %)			Inter-day (RSD, %)
	1	2	3	
Uracil	0.06	0.06	0.05	0.02
Uridine	0.19	0.25	0.21	0.12
Adenosine	0.17	0.46	0.29	0.50
Adenine	0.06	0.15	0.12	0.18
Cytidine	0.28	0.51	0.21	1.17
Guanosine	0.63	0.76	1.21	0.91

**Table S4** Intra-day and Inter-day RSD of the peak height for model analytes.

Analytes	Intra-day (RSD, %)			Inter-day (RSD, %)
	1	2	3	
Uracil	0.38	0.50	0.52	0.07
Uridine	0.56	0.52	0.58	0.65
Adenosine	0.62	0.37	0.70	0.99
Adenine	0.79	0.95	0.82	0.31
Cytidine	0.93	0.88	1.01	1.55
Guanosine	1.07	1.23	1.19	1.14

**Table S5** Chromatographic parameters for the separation of amino acids and water-soluble vitamins on GM-ADE column.

	Analytes	N/m	Rs	Tf
Amino acids	Phenylalanine	31642	/	0.997
	Methionine	41876	1.736	0.665
	Proline	52787	2.296	0.712
	Valine	58057	3.253	0.892
	Alanine	65300	1.717	0.740
	Serine	45538	1.665	0.709
	Glutamine	40271	1.031	0.708
	Nicotinamide	36656	/	0.920
water-soluble vitamins	Pyridoxine hydrochloride	23049	4.086	0.623
	Riboflavin	32420	1.509	0.910
	Orotic acid	21953	12.027	1.009
	Thiamine chloride	33467	2.589	0.550
	Nicotinic acid	52747	7.770	1.276

Notes: N: theoretical plate number; Rs: resolution; Tf: tailing factor