

Supporting Information for

# **Evaluation of the Base Stability of Hydrophilic Interaction Chromatography Columns Packed with Silica or Ethylene-Bridged Hybrid Particles**

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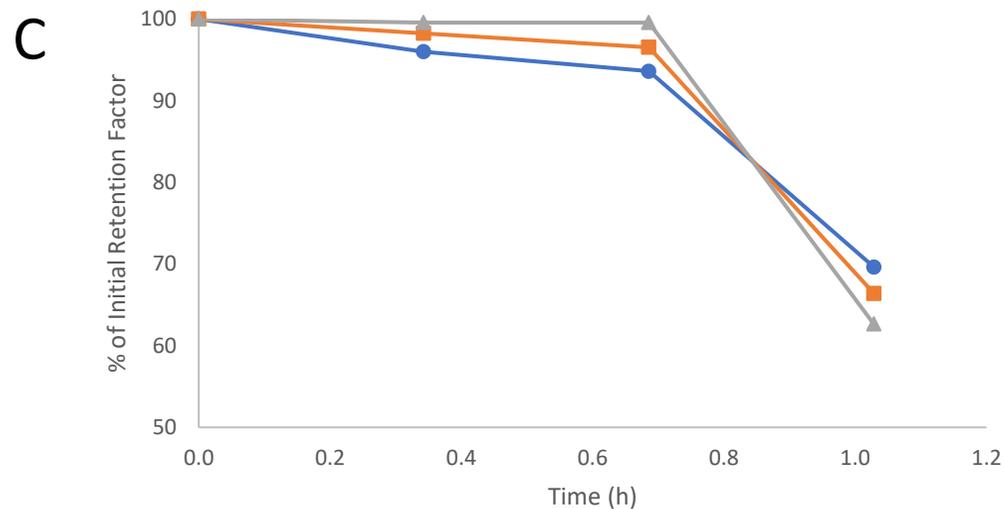
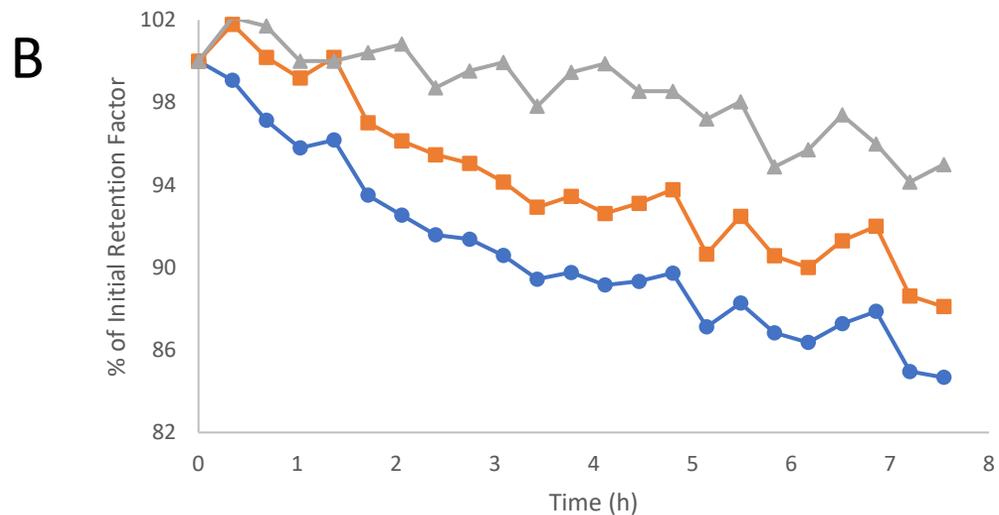
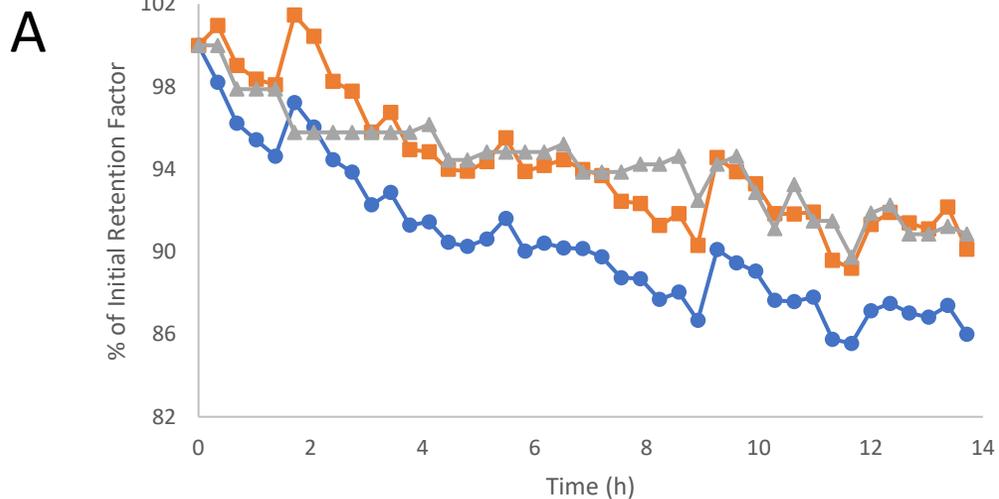


Figure S1: Effect of the water concentration of the challenge solution on the stability of 2.1 x 50 mm 1.6  $\mu\text{m}$  CORTECS HILIC columns, shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles – TS). The columns were exposed at 70°C to solutions containing acetonitrile and an aqueous  $w/w$  pH 11.00 ammonium bicarbonate buffer: (A) 20% water,  $w/w$  pH 10.11, (B) 40% water,  $w/w$  pH 10.37, (C) 60% water,  $w/w$  pH 10.54.

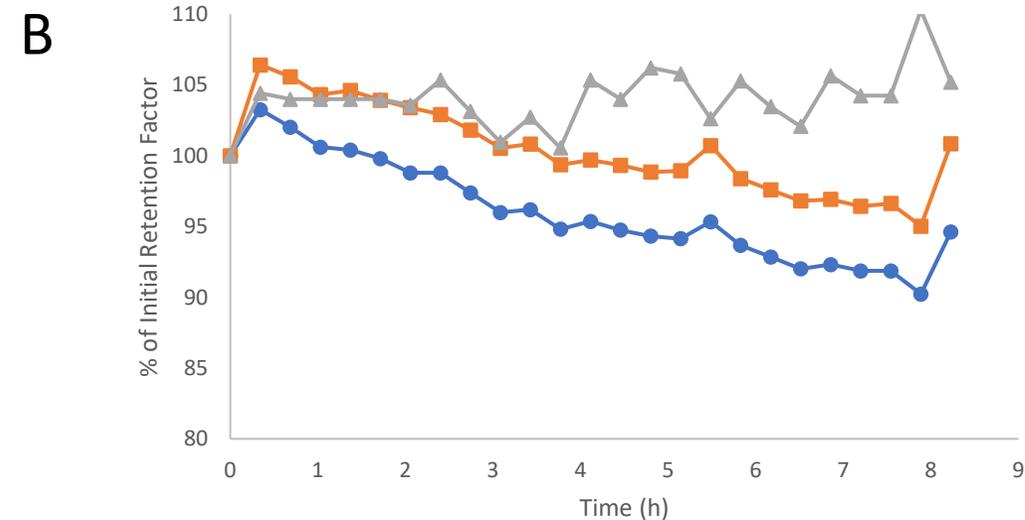
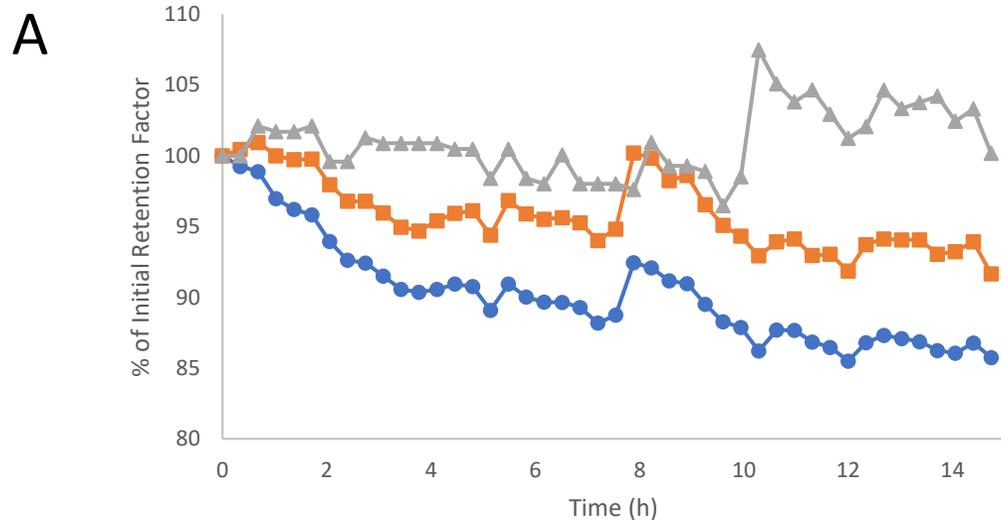


Figure S2: Effect of the pH of the challenge solution on the stability of 2.1 x 50 mm 1.6  $\mu\text{m}$  CORTECS HILIC columns, shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles - TS). The columns were exposed at 70°C to solutions containing acetonitrile and different aqueous buffers, with a 60/40 v/v ACN/water ratio: (A) ammonium acetate,  $^s\text{pH}$  6.99, (B) ammonium bicarbonate,  $^s\text{pH}$  8.96

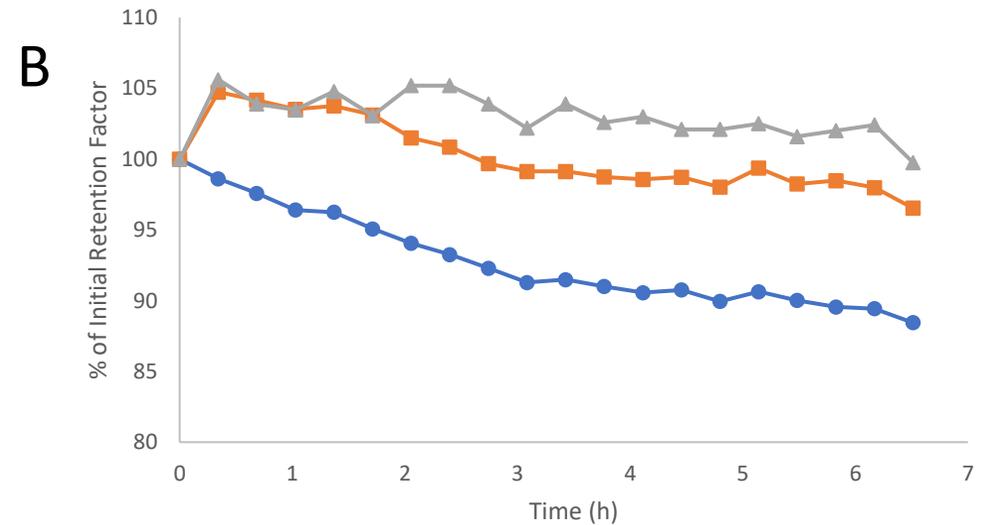
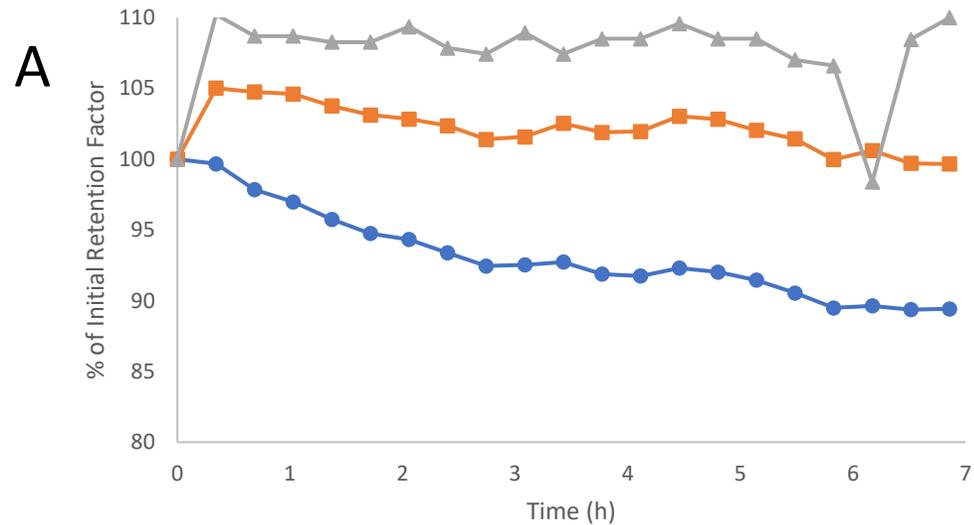


Figure S3: Effect of temperature on the stability of 2.1 x 50 mm 1.6  $\mu$ m CORTECS HILIC columns, shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles - TS). The columns were exposed to a  $w^s$ pH 10.37 solution containing acetonitrile and aqueous ammonium bicarbonate, with a 60/40 v/v ACN/water ratio: (A) 30°C, (B) 50°C

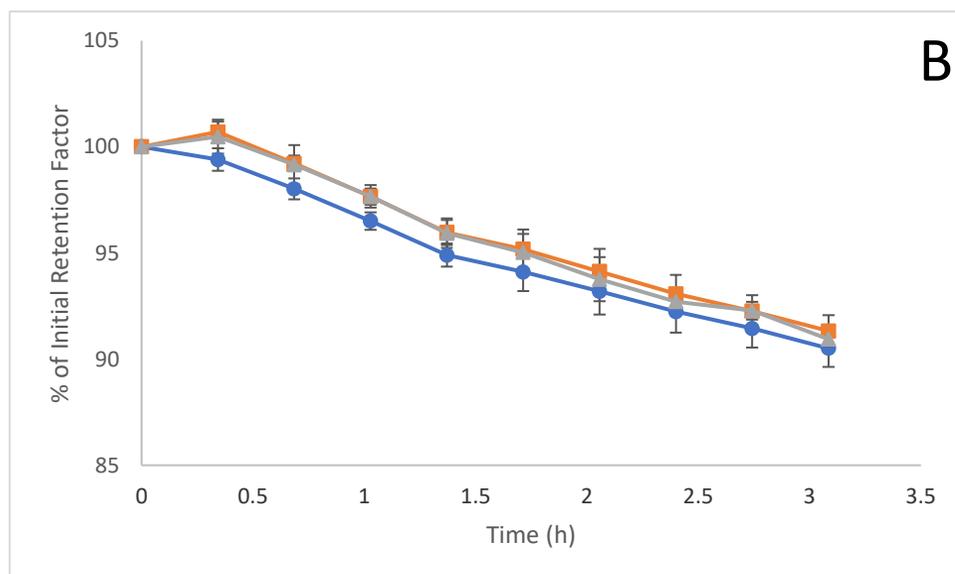
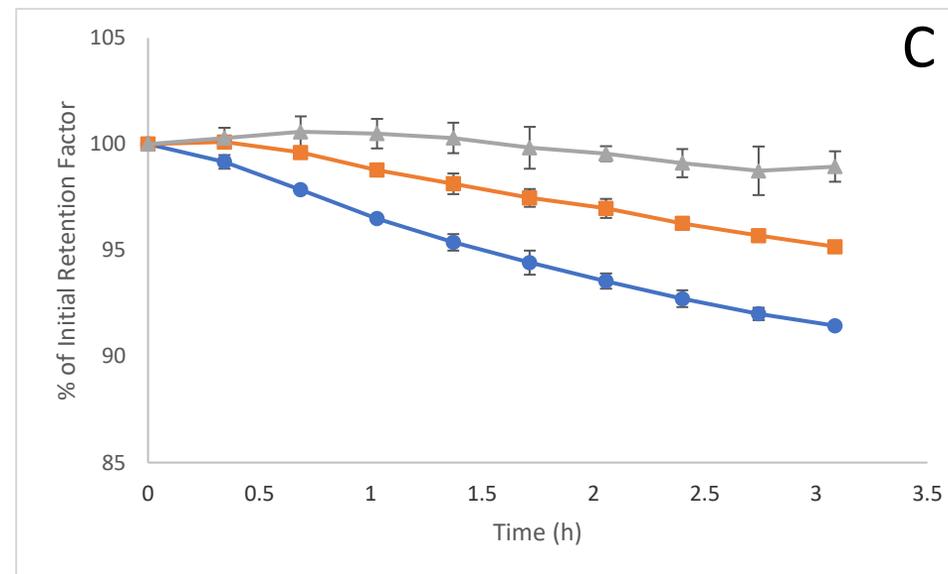
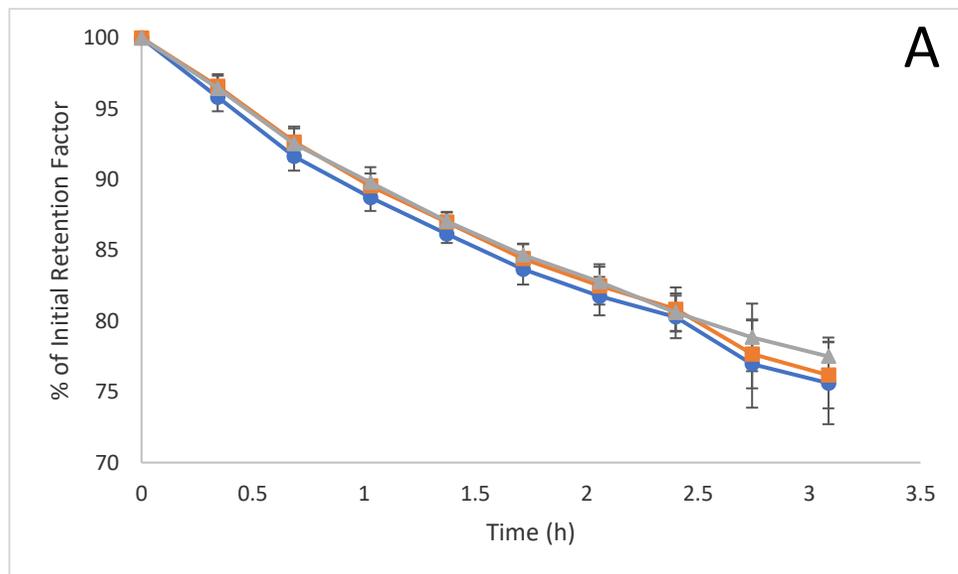


Figure S4: Accelerated stability test results for three different unbonded silica or BEH columns shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles – thymine). The columns were exposed at 70°C to a solution containing acetonitrile and aqueous  $w/w$  pH 11.30 ammonium bicarbonate, with a 60/40 v/v ACN/water ratio,  $s/w$  pH 10.87: (A) Ascentis Si, (B) Atlantis HILIC, (C) BEH HILIC. The average results for three replicate columns are shown with error bars indicating  $\pm$  one standard deviation

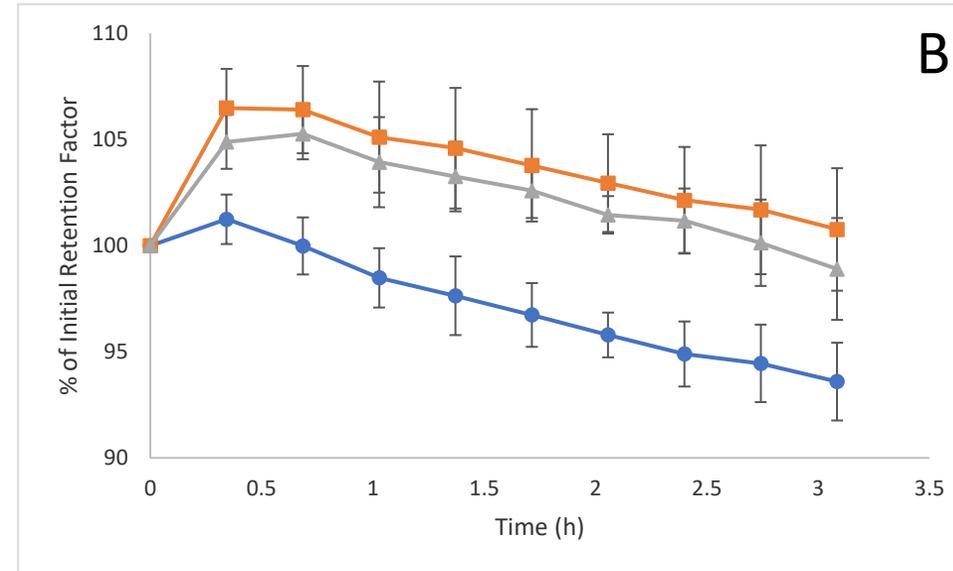
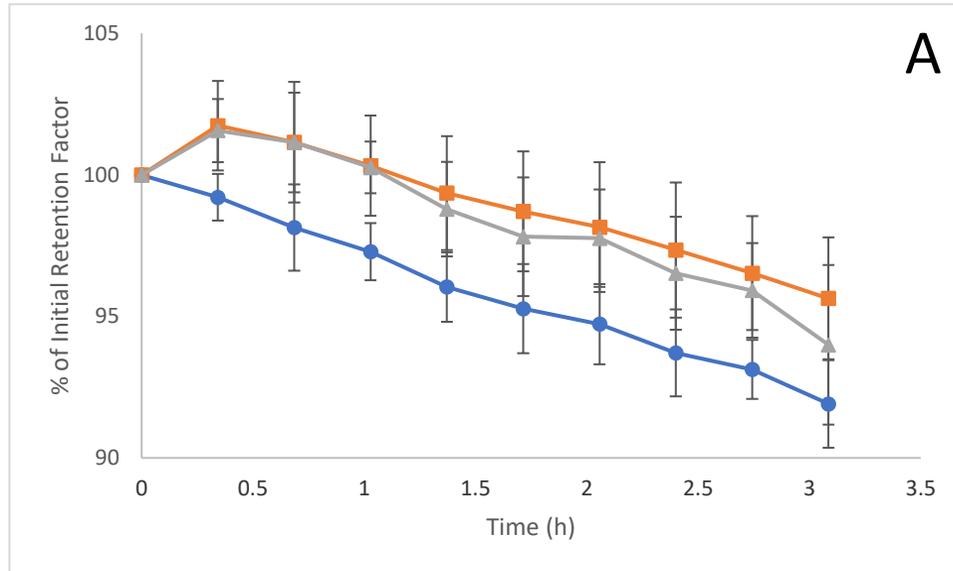


Figure S5: Accelerated stability test results for two different unbonded solid-core silica columns shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles – thymine). The columns were exposed at 70°C to a solution containing acetonitrile and aqueous  $w/w$  pH 11.30 ammonium bicarbonate, with a 60/40 v/v ACN/water ratio,  $S/w$  pH 10.87: (A) Accucore HILIC, (B) CORTECS HILIC. The average results for three replicate columns are shown with error bars indicating  $\pm$  one standard deviation

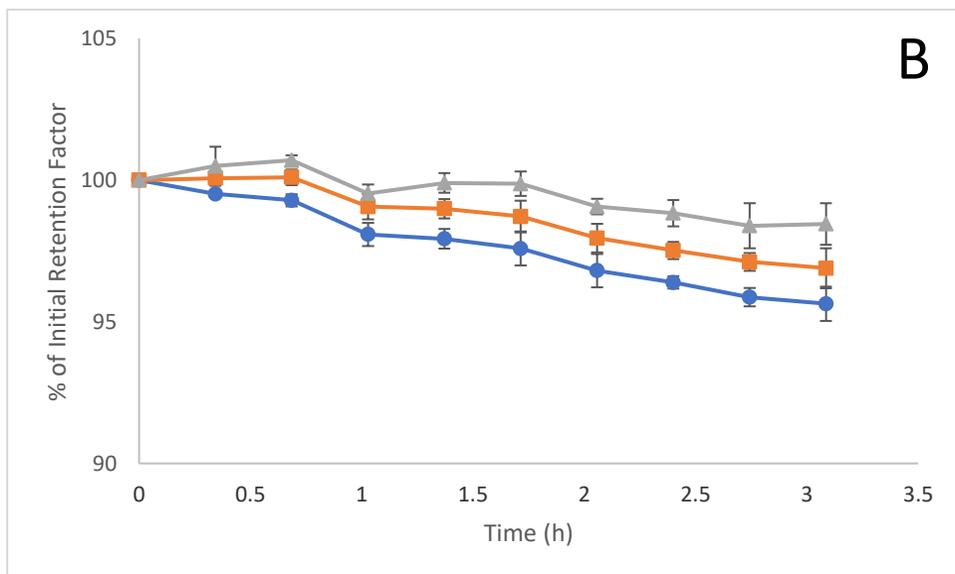
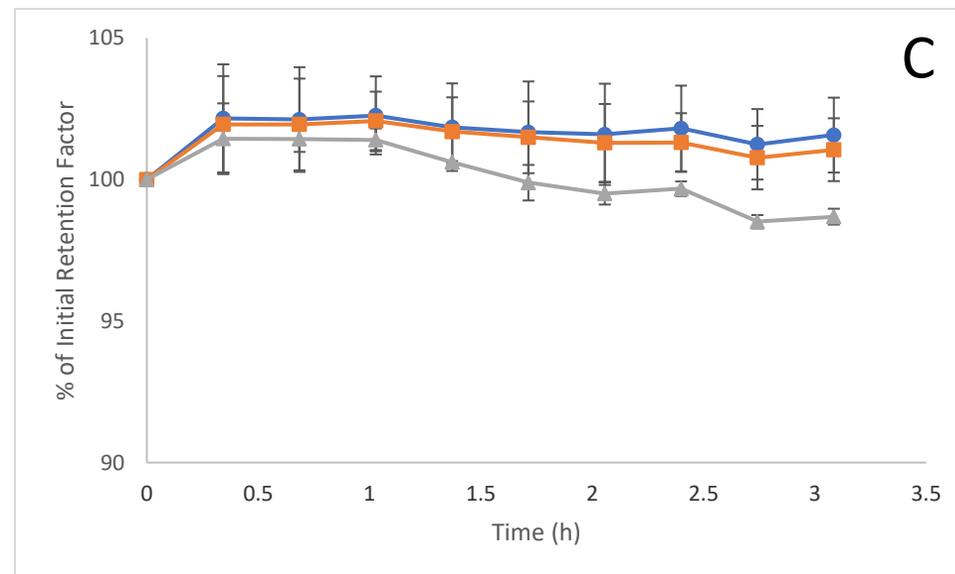
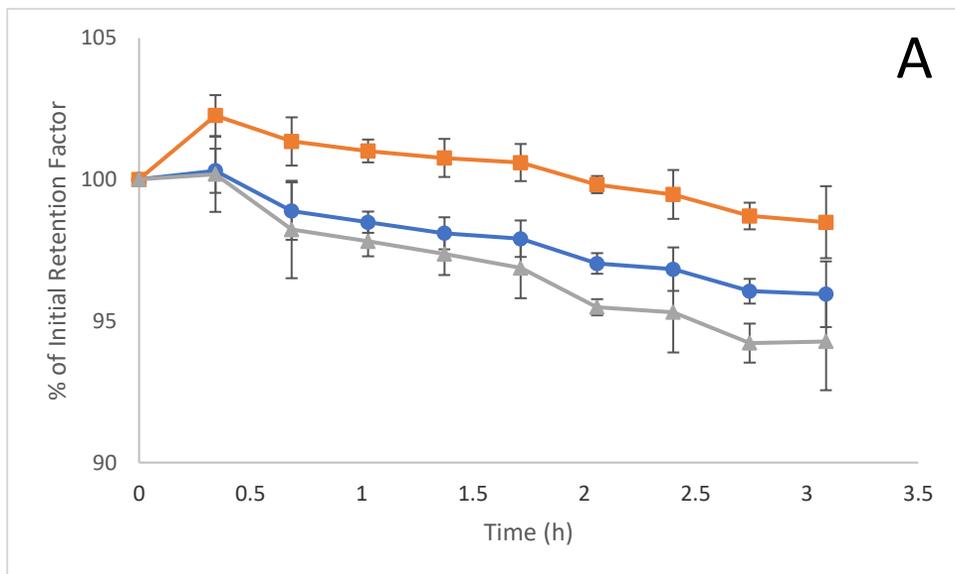


Figure S6: Accelerated stability test results for three different bonded silica or BEH columns shown as % of initial retention factor vs time exposed to the basic solution (blue circles – adenine, orange squares – cytosine, grey triangles – thymine). The columns were exposed at 70°C to a solution containing acetonitrile and aqueous  $w/w$  pH 11.30 ammonium bicarbonate, with a 60/40 v/v ACN/water ratio,  $w/w$  pH 10.87: (A) TSKgel Amide-80, (B) SeQuant ZIC-HILIC, (C) BEH Amide. The average results for three replicate columns are shown with error bars indicating  $\pm$  one standard deviation



Figure S7: Photographs of the inlet ends of two columns (end fittings removed) after accelerated base stability tests, showing voids in the CORTECS HILIC column. The columns were exposed for 3.09 h at 70°C to a solution containing acetonitrile and aqueous  $w$ pH 11.30 ammonium bicarbonate, with a 60/40 v/v ACN/water ratio,  $s$ pH 10.87