Electronic Supplementary Material (ESI) for RSC Advances.

Analysis of antisense oligonucleotides with the use of ionic liquids as the mobile phase modifiers

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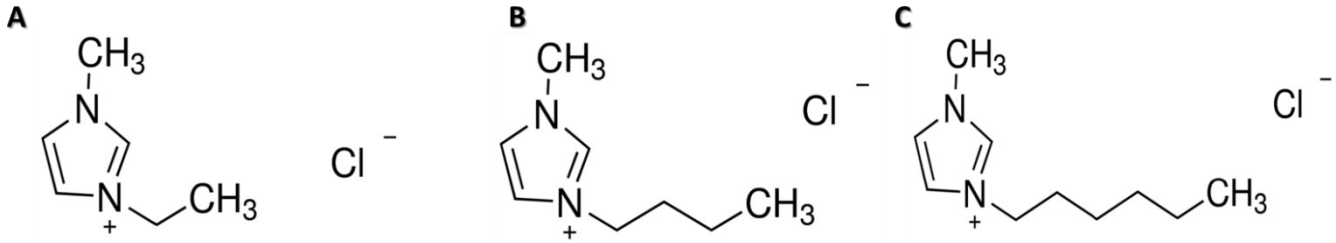

Figure S1. The structures of tested ILs cations: A) [EMIM][Cl], B) [BMIM][Cl], C) [HMIM][Cl].

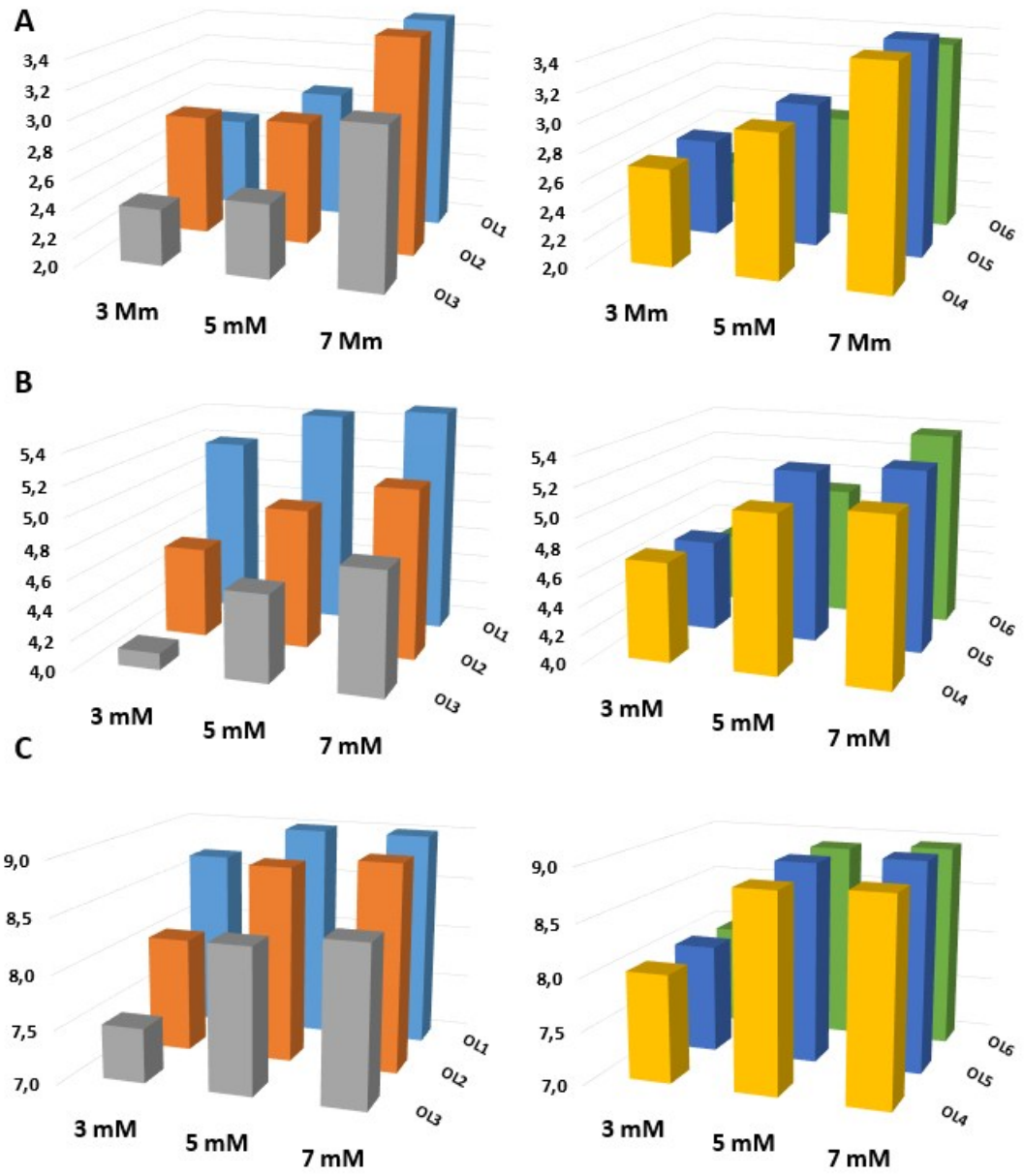

Figure S2. The impact of IL concentration on ASOs retention factors for: A) [EMIM][Cl], B) [BMIM][Cl], C) [HMIM][Cl]. Experimental conditions: Syncronis aQ column, column and autosampler temperature 30°C, mobile phase flow rate 0.3 ml/min; gradient elution program: 25% - 60% v/v MeOH in 15 minutes.

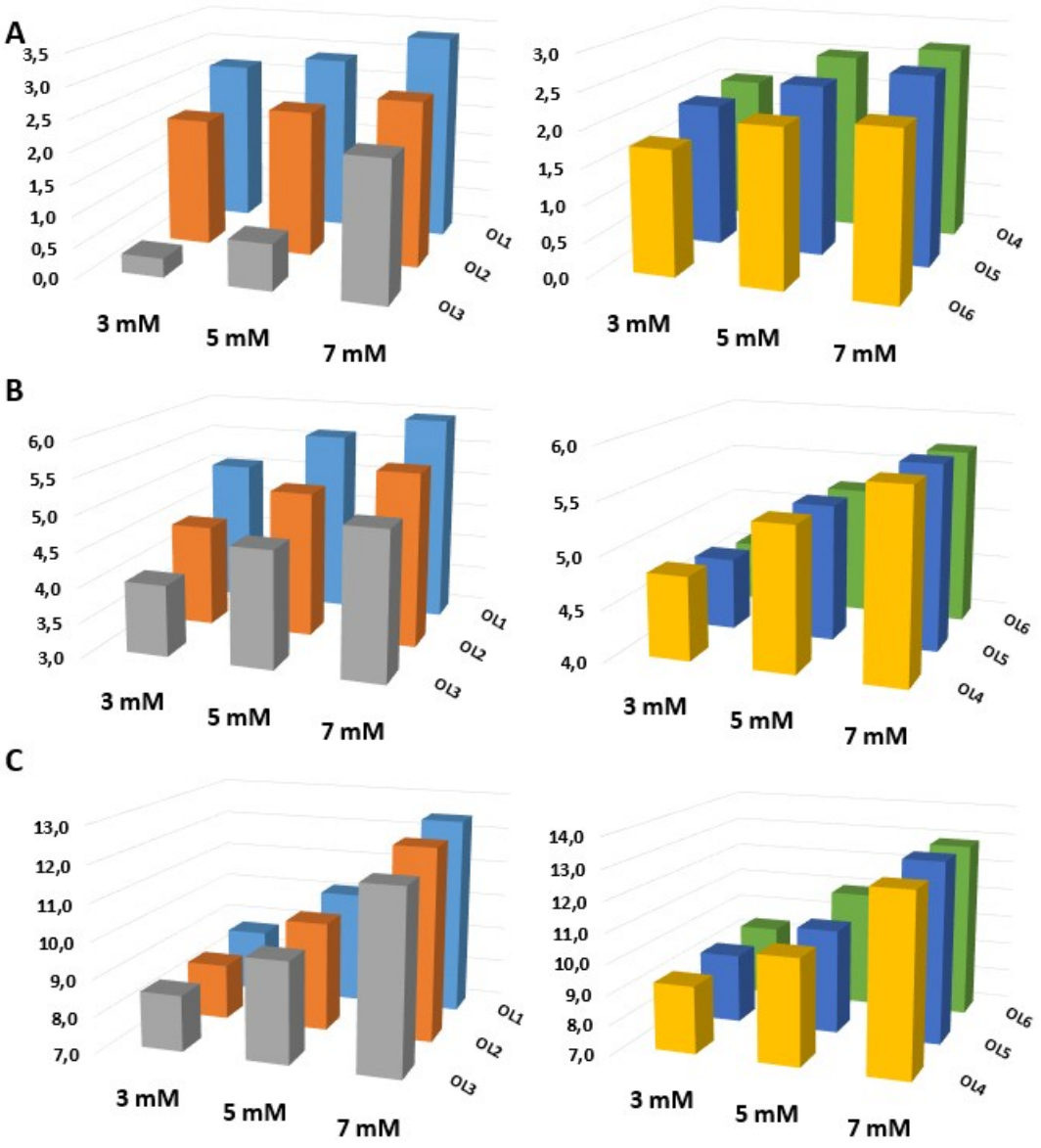

Figure S3. The dependence of the concentration of ionic liquid on ASOs retention coefficients A) [EMIM][Cl], B) [BMIM][Cl], C) [HMIM][Cl]. Experimental conditions: Kinetex C18 column, column and autosampler temperature 30°C, flow rate 0.3 ml/min; gradient elution program: 25% - 60% v/v MeOH in 15 minutes.

Table S1. Asymmetry factors of oligonucleotides for all tested stationary phases. Experimental conditions: column and autosampler temperature 30°C, flow rate 0.3 ml/min for C18 and F5 and 0.2ml/min for aQ; gradient elution program: 25% - 60% v/v MeOH in 15 minutes.

	[EMIM][Cl]			**[BMIM][Cl]**			**[HMIM][Cl]**		
	Asymmetry factors								
OGN	*3 mM*	*5 mM*	*7 mM*	*3 mM*	*5 mM*	*7 mM*	*3 mM*	*5 mM*	*7 mM*
aQ									
OL1	1.22	1.40	1.56	1.38	1.65	1.97	1.30	1.96	2.20
OL2	1.61	1.21	1.42	1.34	1.59	1.75	1.06	1.65	2.28
OL3	1.88	1.11	1.65	1.67	1.63	1.63	1.59	1.61	2.25
OL4	1.88	1.66	1.83	1.92	2.18	2.54	1.29	1.58	2.33
OL5	1.83	1.90	1.76	1.89	1.95	2.22	1.27	1.79	2.31
OL6	1.61	1.86	1.93	2.13	2.31	2.69	1.20	2.34	2.57
C18									
OL 1	1.71	1.80	1.88	1.95	2.13	1.90	1.00	1.40	1.48
OL 2	0.97	1.22	1.83	1.88	1.99	1.71	1.34	1.52	1.41
OL 3	1.89	2.16	1.13	1.85	1.81	1.79	1.85	1.65	1.67
OL 4	1.14	2.18	2.25	2.40	2.34	2.12	1.41	1.73	1.72
OL 5	1.23	2.02	2.30	2.42	2.40	2.08	1.40	1.54	1.68
OL 6	0.87	1.60	2.39	2.37	2.37	2.12	1.55	1.60	1.92
F5									
OL1	1.44	2.22	2.20	1.56	1.59	1.94	1.24	1.33	1.50
OL2	1.93	2.10	1.96	1.91	1.78	1.90	1.01	1.31	1.71
OL3	1.78	2.0	1.69	2.09	1.79	1.84	1.45	1.99	1.85
OL4	2.63	2.64	2.29	2.45	2.23	2.12	2.30	2.05	2.05
OL5	2.46	2.23	1.95	2.34	2.14	2.17	1.94	2.07	1.92
OL6	2.37	2.07	1.85	2.34	2.01	2,14	2.74	1.77	2.12

Table S2. Mobile phase composition and [BMIM][Cl] retention factors for C18 stationary phase. Experimental conditions: Mobile phase composition H_2O/MeOH, flow rate 0.3 ml/min, injection volume 5 μl, autosampler and column temperature 30°C.

Percentage of MeOH (% v/v)	***k values***
30	0
25	0.87
20	1.84
15	3.16
10	4.85
5	7.12