

Supplementary Materials

Advances and Pitfalls in the Capillary Electrophoresis Analysis of Aggregates of Beta Amyloid Peptides

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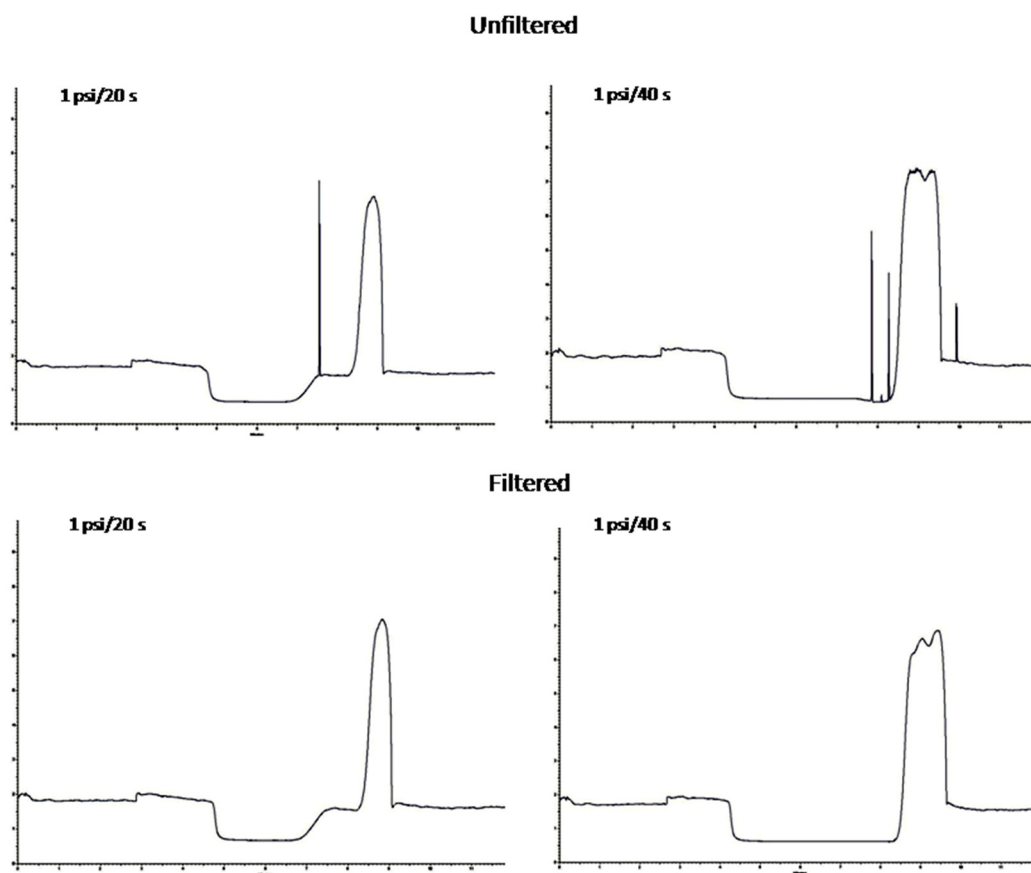


Figure S1: Electropherograms of un-incubated A β 1-40; the peptide was dissolved in Ringer and further diluted with Ringer. Top: unfiltered sample; bottom: 0.2 μ m filtered sample. Running buffer: ultrafiltered 50 mM ammonium acetate pH 4.70 + 10 μ M thioflavine T. injection 1 psi/20 s (left) or 1 psi/40 s (right).

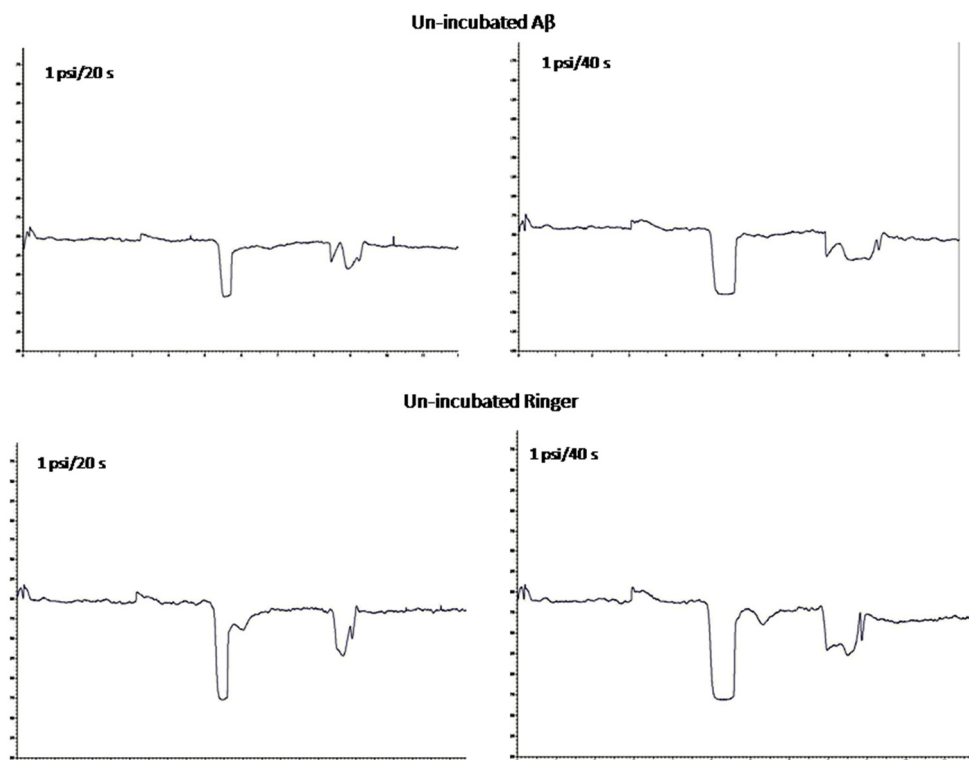


Figure S2: Electropherograms of un-incubated A β 1-40 (**top**); the peptide was dissolved in 0.1% NH₄OH and further diluted in Ringer. Electropherograms of un-incubated Ringer (**bottom**). Running buffer as in Figure S1. Injection 1 psi/20 s (**left**) or 1 psi/40 s (**right**).

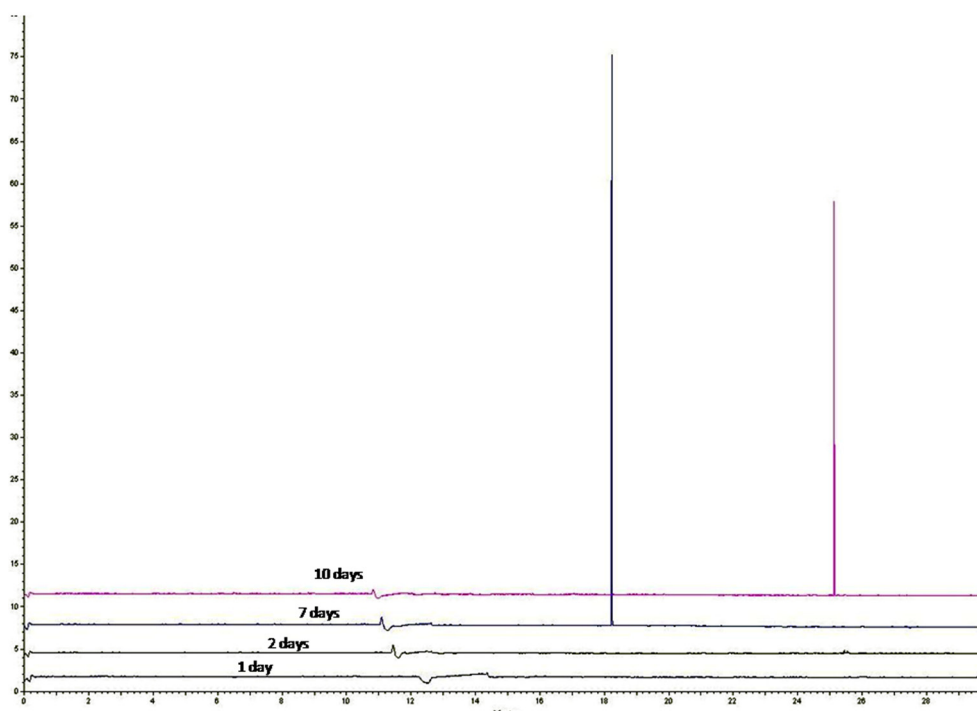


Figure S3: Kinetic of the incubation of A β 1-40. A β 1-40 was incubated in Ringer at 37 °C and under stirring. Running buffer 50 mM sodium citrate pH 3.0 containing 10 μ M thioflavine T. Injection 0.5 psi/10 s.

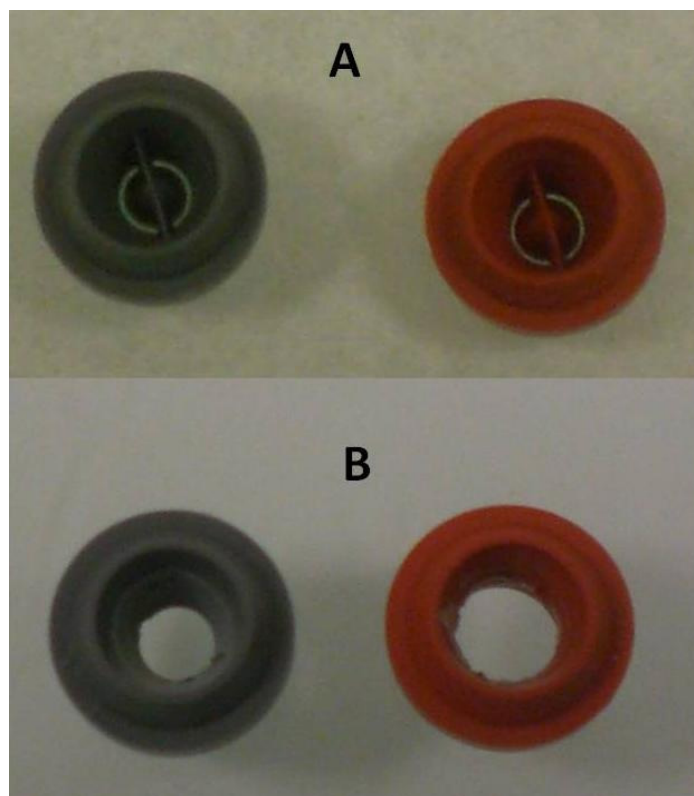


Figure S4: Photographs of rubber stoppers for the vials used in the PAC/E MDQ capillary electrophoresis instrument. The grey stoppers are used for sample vials whereas the red stoppers are used for buffer vials. A: intact stopper; B: stopper after removal of the inner part in order to reduce the mechanical stress to capillary inlet during washing and injection steps.

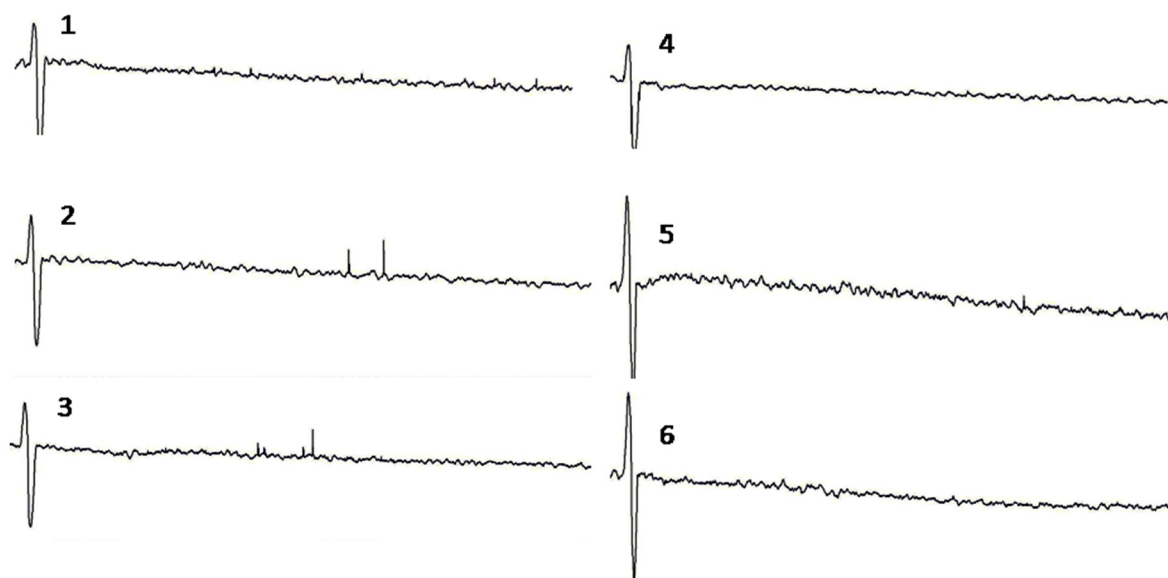


Figure S5: Successive analysis of 30 kDa ultra-filtered Ringer using “open stoppers” on sample and buffer vials. Running buffer as in Figure S1. Injection: 0.5 psi/20 s.

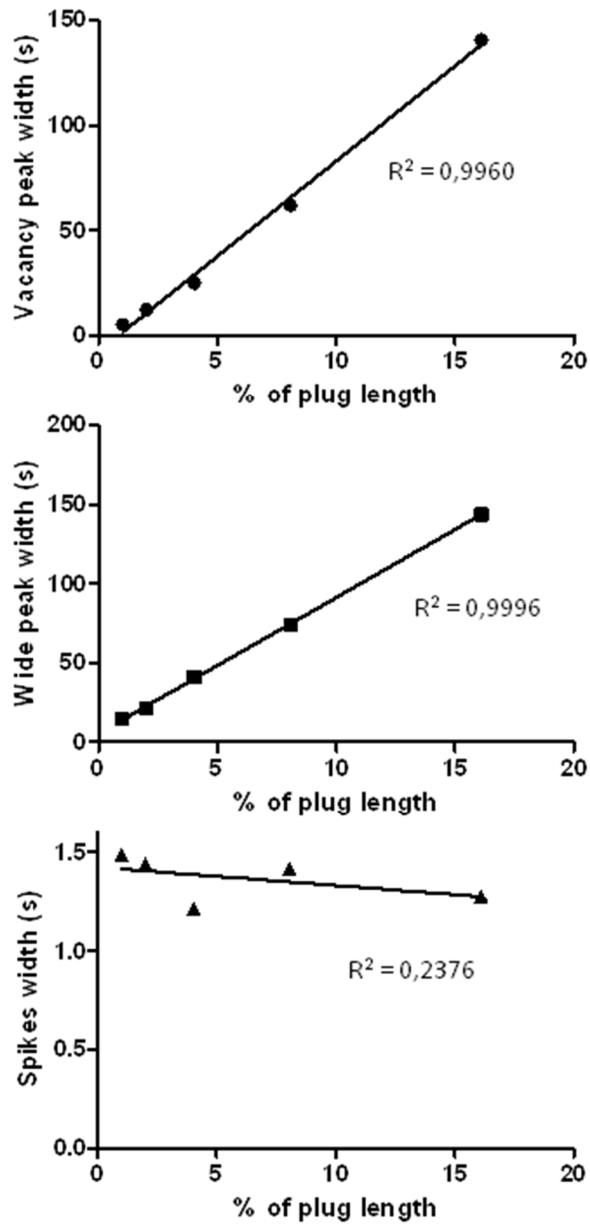


Figure S6: Effect of injection volume (expressed as percentage of sample plug length to effective capillary length) on the width (expressed as s) of vacancy peak (i.e. negative deflection due to water), positive wide peak due to soluble compounds and spikes corresponding to aggregated A β 1-40 (13 day incubation). Running buffer as in Figure S1. Hydrodynamic injection (0.5 psi) under duration ranging from 10 to 160 s. Curve fitting: linear regression.

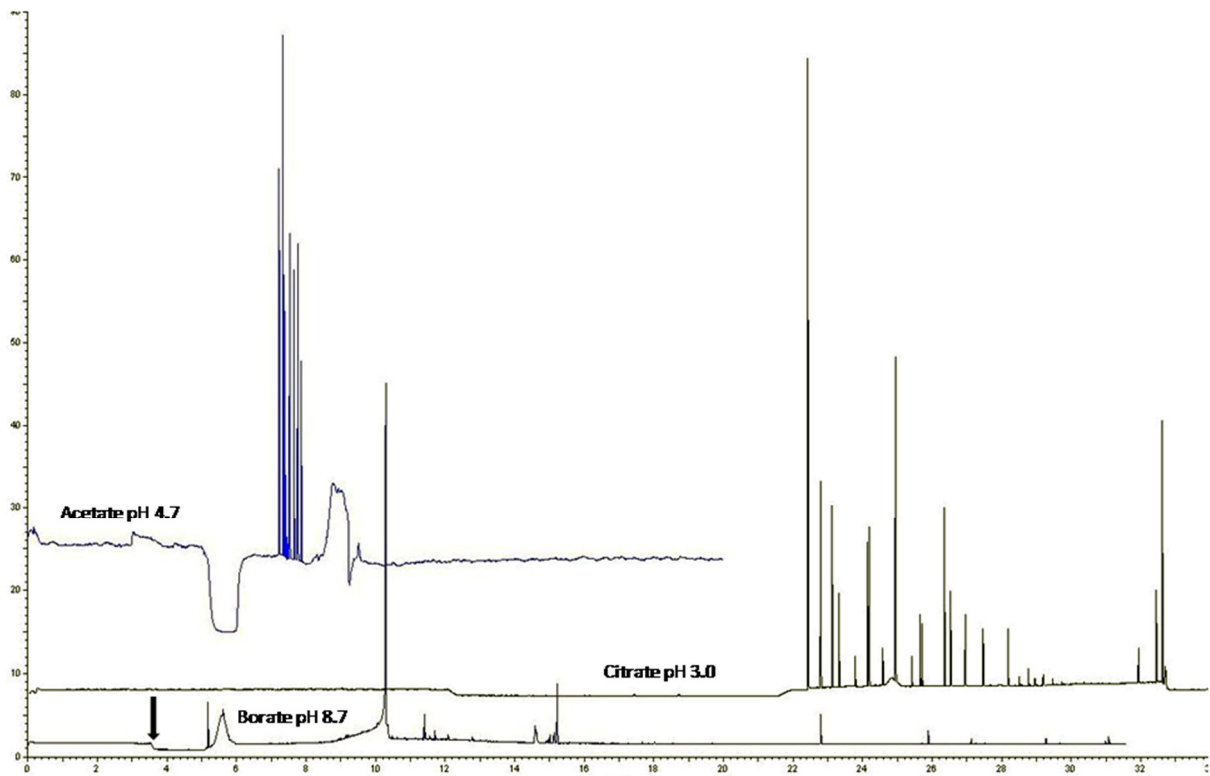


Figure S7: Effect of running buffer on capillary electrophoresis of A β 1-40 incubated in saline for 20 days. Injection 0.5 psi/80 s; running buffer 50 mM sodium citrate pH 3.0, 50 mM ammonium acetate pH 4.7 or 50 mM sodium borate pH 8.7 both containing 10 μ M thioflavine. The arrow indicates electroosmotic flow when using borate buffer.

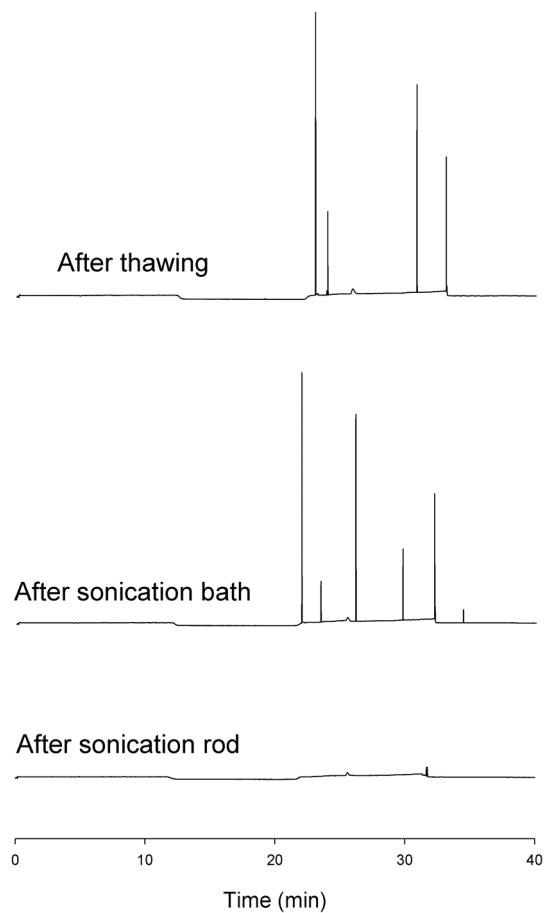


Figure S8: Electropherogram of 15 day incubated A β 1-40. Top: analysis just after thawing; Middle: analysis after 7 min in a sonication bath; Bottom: analysis after 1.5 min treatment with sonication rod (power 60–80). Running buffer as in Figure S3. Injection 0.5 psi/80 s.

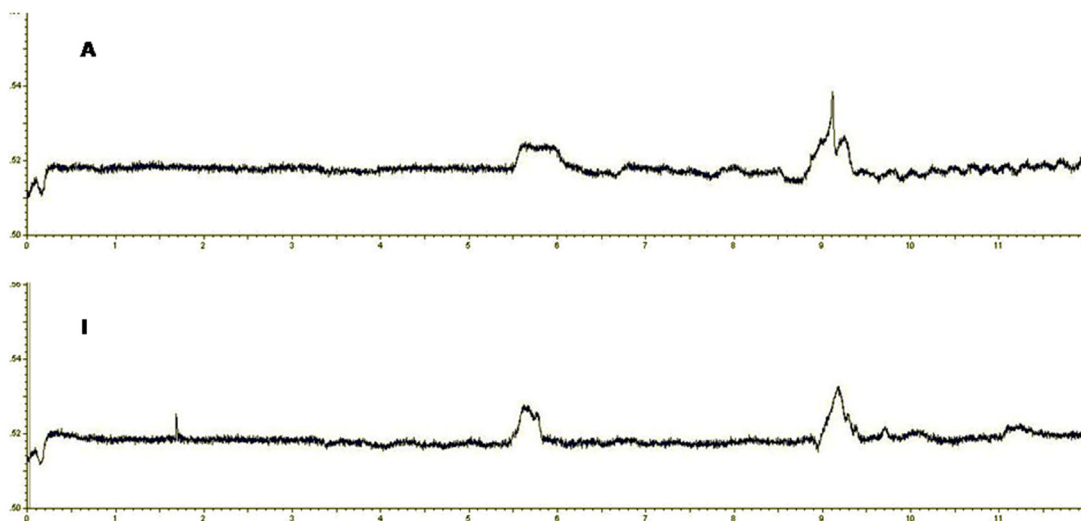


Figure S9: Analysis of 17 days incubated A β 1-40 (**tube A**) and of incubated control ultra-filtered Ringer (**tube I**). Running buffer: ammonium acetate 50 mM pH 4.70 without any thioflavine T. Injection 0.5 psi/20 s. No noticeable difference between Ringer and peptide A β 1-40; high sensitivity trace (fluorescence scale: 0.5 to 0.58 RFU).

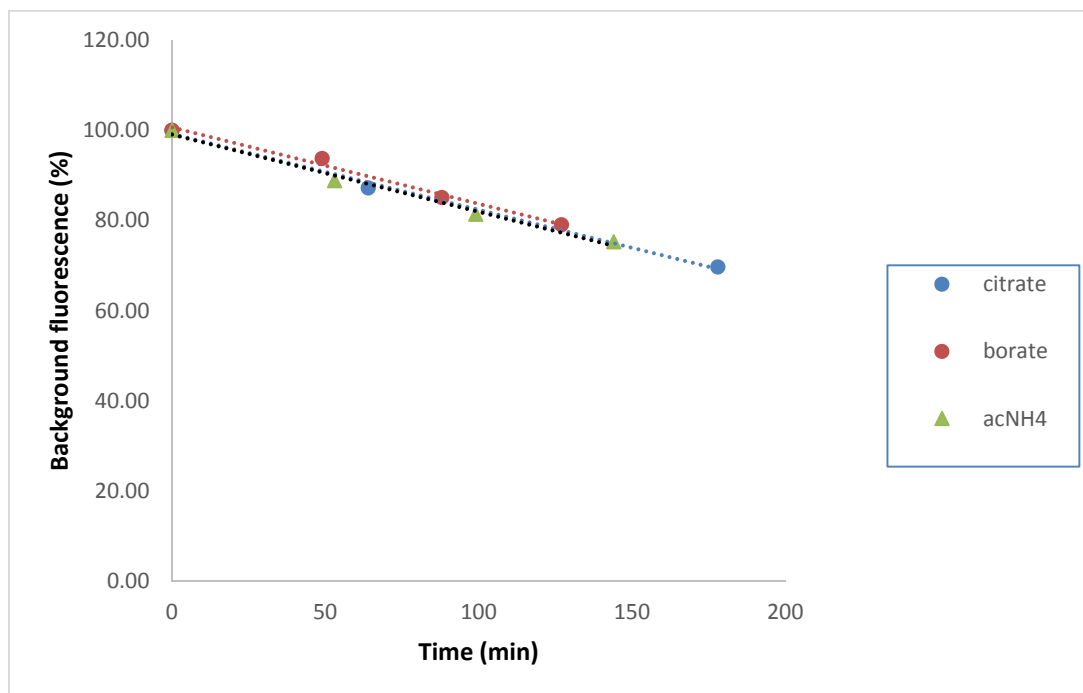
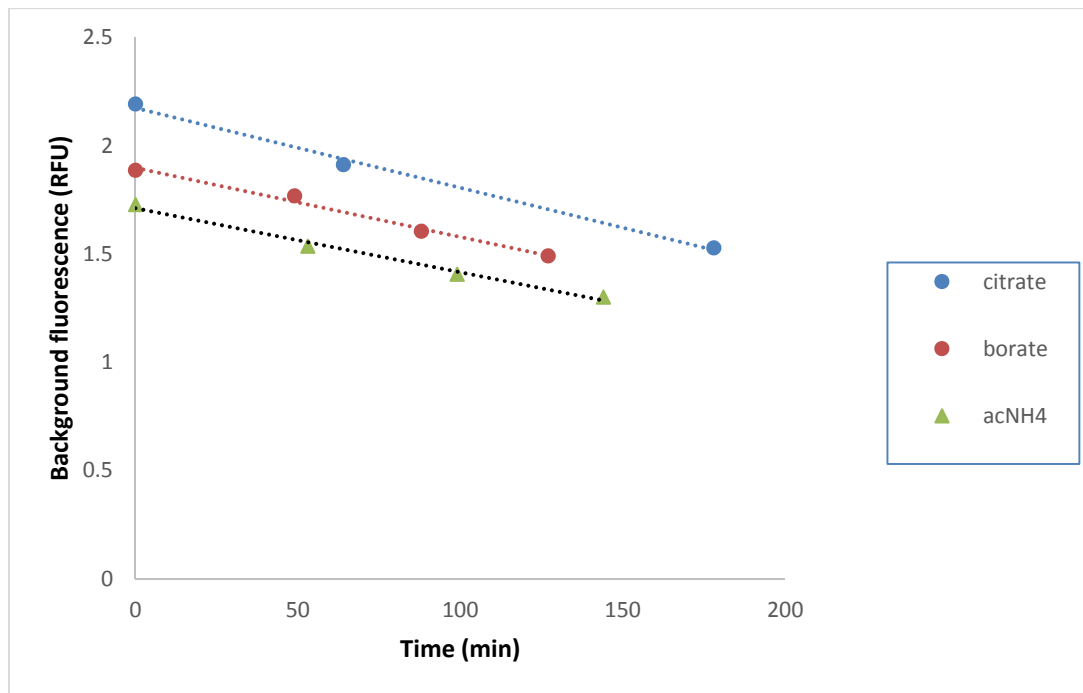


Figure S10: Effect of the nature of the running buffer on basal fluorescence and on its decay according to time. Top: expression as absolute value; bottom expression as percentage of the initial value (at time 0). Citrate: 50 mM sodium citrate pH 3.0; borate: 50 mM sodium borate pH 8.7.; acNH4: 50 mM ammonium acetate pH 4.7

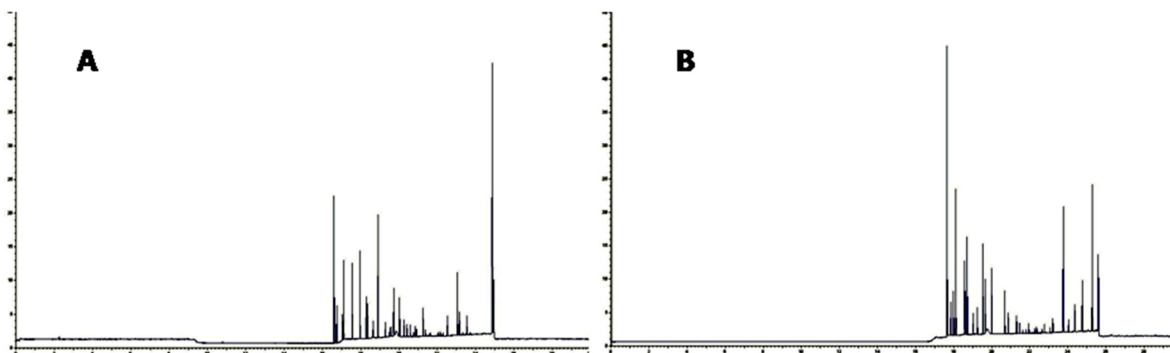


Figure S11: Effect of decreasing the contact time between analyte and thioflavine T on the capillary electrophoresis of 20 day incubated A β 1-40. Running buffer as in Figure S3. A: analysis in a capillary filled with buffer containing 10 μ M thioflavine T. B: injection of sample in a capillary filled with buffer without ligand, followed by insertion of a inlet reservoir filled with buffer containing 10 μ M thioflavine T. Injection 0.5 psi/80 s.

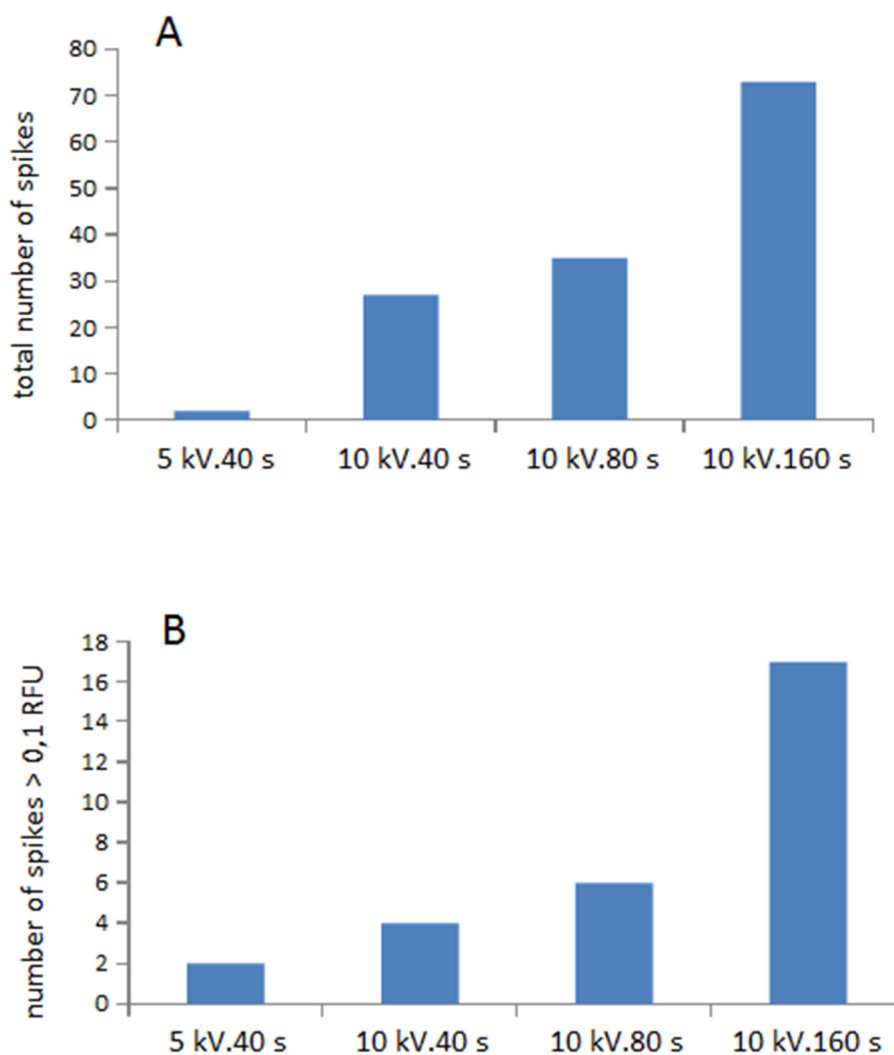


Figure S12: Effect of size of injected sample on the total number of spikes (A) and on the number of spikes higher than 0.1 RFU (B) obtained during the CE separation of 23 day incubated A β 1-40. Electrokinetic injection (5 kV.40 s to 10 kV.160 s). Running buffer as in Figure S3.