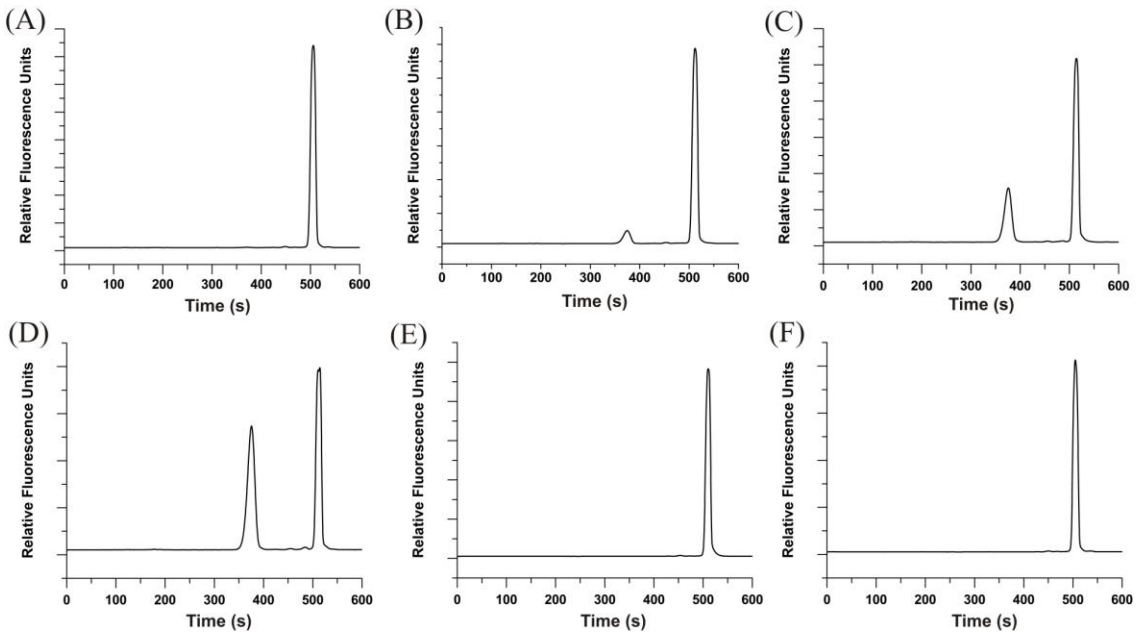

Figure S1: *In vitro* phosphorylation of the starting peptide (QW-III-67B) by recombinant Abl kinase. (A) – (D) Electropherograms of the peptide after incubation with Abl kinase in the presence of ATP for 0 (A), 15 (B), 60 (C) and 120 (D) min. (E) – (F) Electropherograms of the peptide after incubation with Abl kinase without ATP present for 0 (E) and 120 (F) min. The peak eluting at ~380 s is the phosphorylated counterpart of the non-phosphorylated peptide migrating at ~500 s.

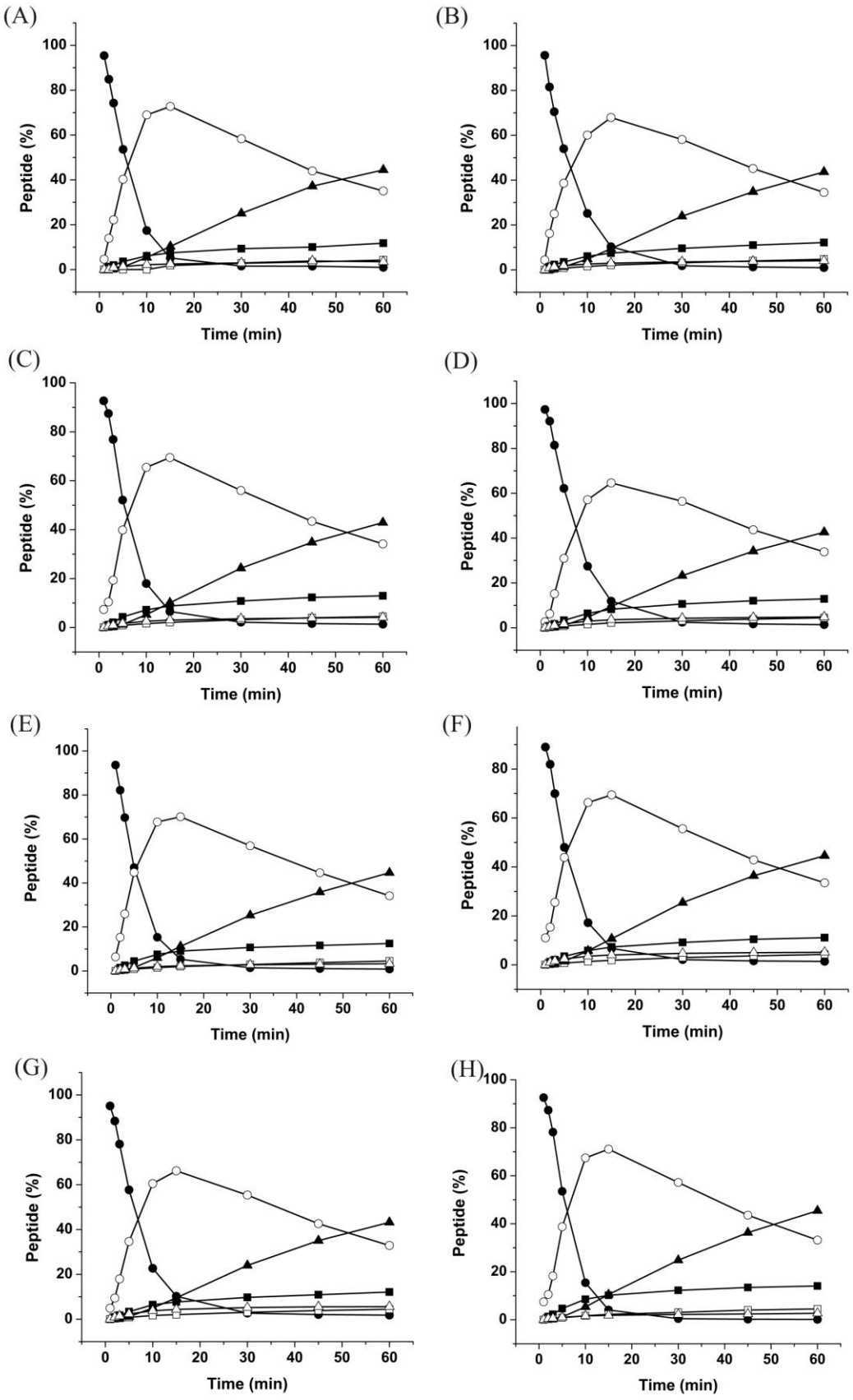

Figure S2: Formation of peptide fragments generated in the Baf/BCR-ABL lysate over time for the ornithine-substituted peptides. Degradation of peptide QW-III-90A (A), QW-III-90B (B), QW-III-90C (C), QW-III-90D (D), QW-III-90E (E), QW-III-90F (F), QW-III-90G (G), and QW-III-67B (H). The symbols are defined as: closed circle (intact parent); open circle (fragment migrating at 210 s); closed square (fragment migrating at 240 s); open square (fragment migrating at 260 s); closed triangle (fragment migrating at 305 s); open triangle (fragment migrating at 360 s).

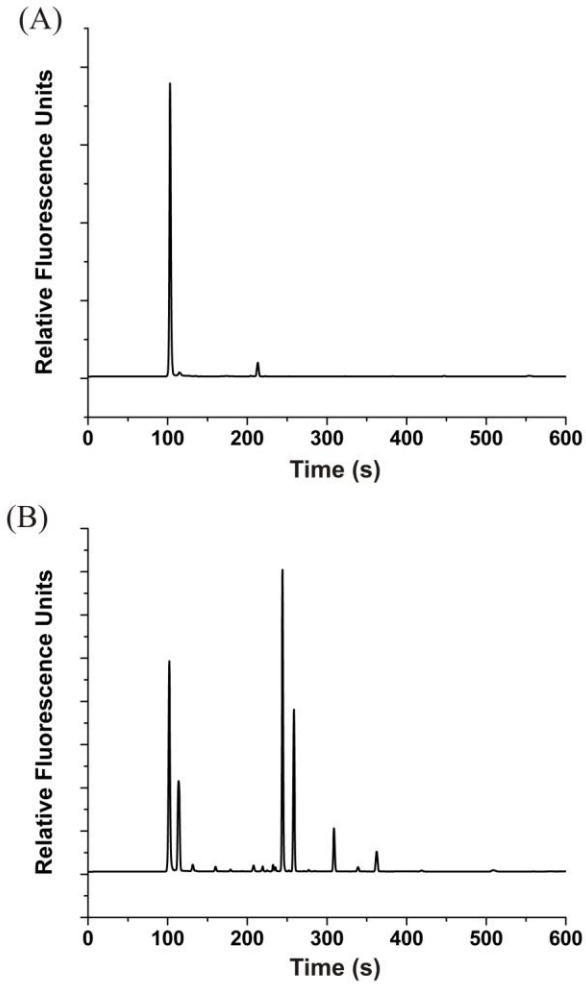

Figure S3: Electropherograms of peptide QW-IV-85B incubated in a Baf/BCR-ABL cytosolic lysate after 0 (A) and 60 (B) min. The intact parent peptide is identified as the major peak seen in (A) migrating at 100 s.

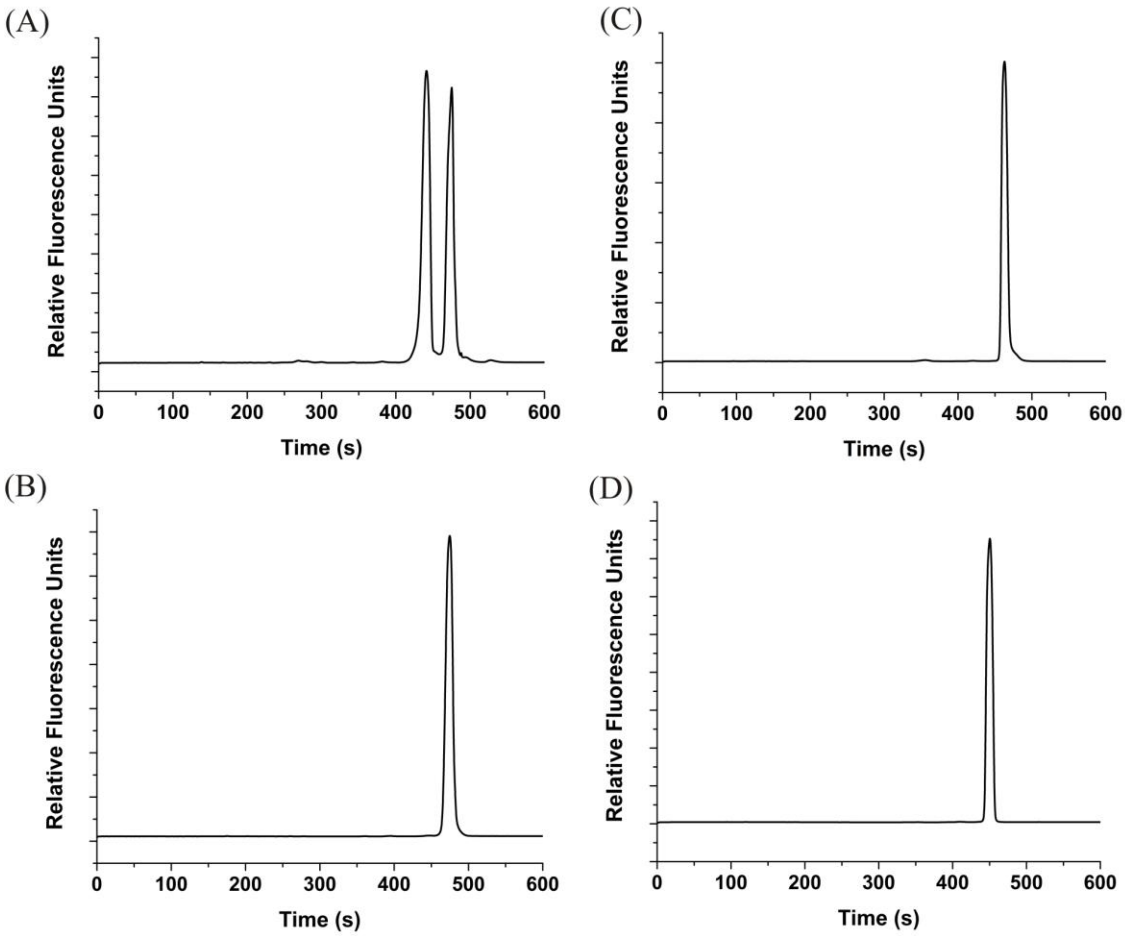

Figure S4: Electropherograms of QW-V-48B incubated with recombinant Abl kinase for 60 min with ATP (A) and without ATP (B) and incubated with recombinant Src kinase for 60 min with ATP (C) and without ATP (D).