**Supplementary Material**

*Characterization of non-specific binding by carbamazepine*

Frontal analysis experiments were conducted with carbamazepine on the control column to characterize the non-specific binding of carbamazepine with the support. Figure S1 shows a double-reciprocal plot that was prepared according to Eqn. (1) to analyze data that were obtained for carbamazepine at 37°C and pH 7.4. A good linear fit was observed when using Eqn. (1) and a single-site model, resulting in a correlation coefficient of 0.9999 ($n = 6$). The association equilibrium constant and binding capacity for carbamazepine on the control column were determined from the slope and intercept of this plot; this approach gave values of 1.8 ($\pm$ 0.3) $\times 10^3$ M$^{-1}$ and 1.4 ($\pm$ 0.2) $\times 10^{-6}$ mol, respectively. These values were then used with Eqn. (2) to correct for non-specific binding by carbamazepine within the entrapped AGP column, as is described in the main body of the text.
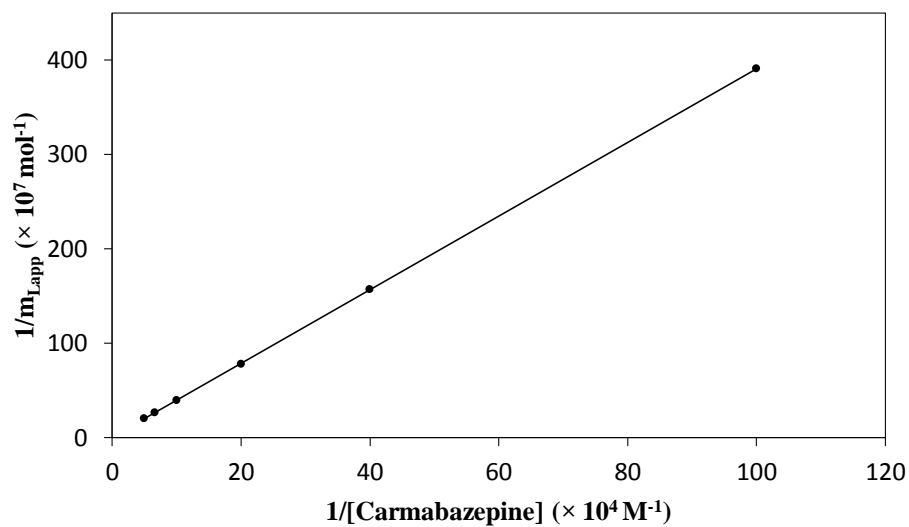
**Figure S1.** Double-reciprocal plot prepared according to Eqn. (1) for the binding of carbamazepine to a control column at 37 °C and pH 7.4. The support used in the control column was silica with a pore size of 100 Å.