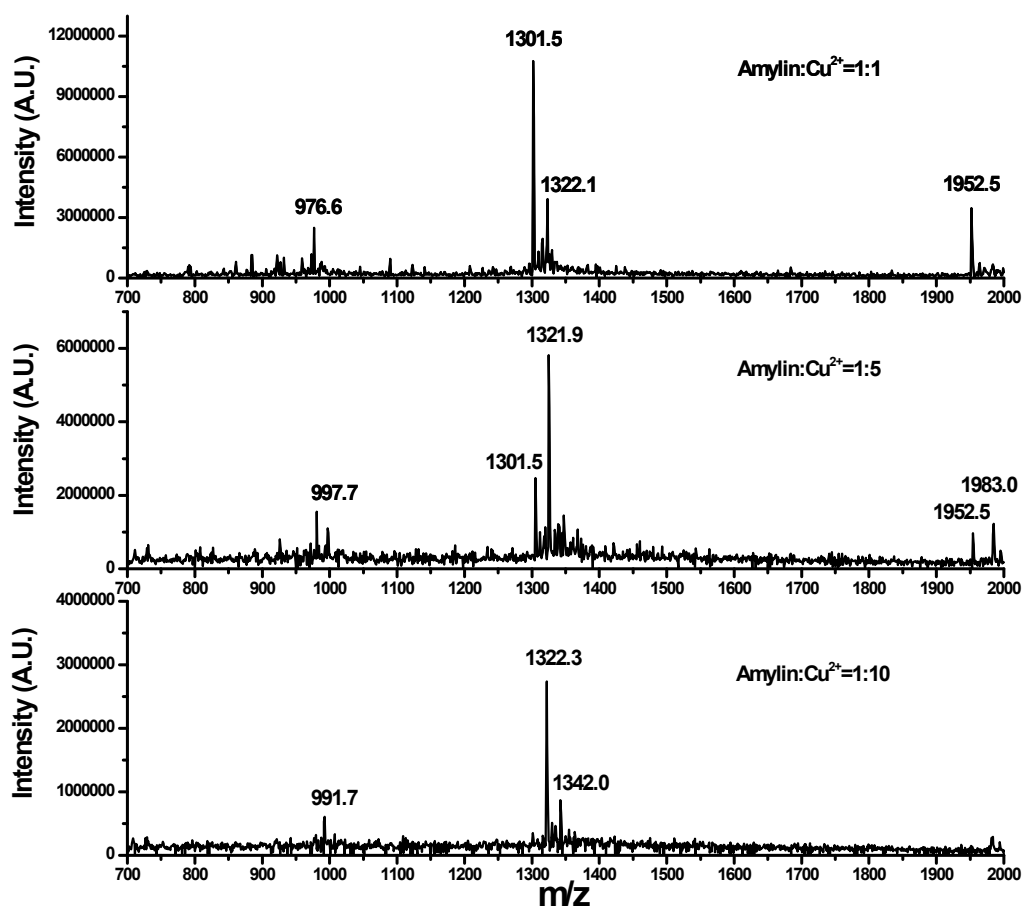


## Supplementary Material



**Figure 1S:** Mass spectra of h-amylin:Cu<sup>2+</sup> solutions at the indicated ratios. pH =7.4, NH<sub>4</sub>CH<sub>3</sub>COO = 10mM. The absolute intensity decreases with increasing CuSO<sub>4</sub> concentration because of the effect of salt concentration on the ionization process. Note the absence of amylin-copper species different from the 1:1 complex even at high copper concentrations.

**Table 1S: Assignment of the peaks detected in the positive ESI mass spectra of h-Amylin 1-37 with and without CuSO<sub>4</sub>**

**h-Amylin 1-37 pH=7.4 (10 mM of NH<sub>4</sub>CH<sub>3</sub>COO)**

<i>Structure</i>	<i>m/z observed</i>	<i>M/z calculated</i>
<i>[h-Am 1-37] H<sub>2</sub><sup>2+</sup></i>	1952.7	1952.4
<i>[h-Am 1-37] H<sub>3</sub><sup>3+</sup></i>	1302.4	1301.9
<i>[h-Am 1-37] H<sub>4</sub><sup>4+</sup></i>	976.9	976.7

**h-Amylin 1-37 pH=7.4 (10 mM of NH<sub>4</sub>CH<sub>3</sub>COO) + Cu (II) (molar ratio 1:1)**

<i>Structure</i>	<i>M/z observed</i>	<i>M/z calculated</i>
<i>[h-Am 1-37] H<sub>2</sub><sup>2+</sup></i>	1952.5	1952.4
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup></i>	1983.0	1982.9
<i>[h-Am 1-37 + Cu - 2H] Na<sub>2</sub><sup>2+</sup></i>	1994.4	1993.9
<i>[h-Am 1-37] H<sub>3</sub><sup>3+</sup></i>	1301.5	1301.9
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup></i>	1322.1	1322.2
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sup>+</sup></i>	1329.9	1329.6
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>K<sup>+</sup></i>	1335.4	1334.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1336.6	1336.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sup>+</sup>K<sup>+</sup></i>	1341.5	1342.2
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>K<sub>2</sub><sup>2+</sup></i>	1348.0	1347.6
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1357.0	1357.6
<i>[h-Am 1-37] H<sub>4</sub><sup>4+</sup></i>	976.6	976.7
<i>[h-Am 1-37] H<sub>3</sub><sup>3+</sup>Na<sup>+</sup></i>	982.2	982.2
<i>[h-Am 1-37] H<sub>3</sub><sup>3+</sup>K<sup>+</sup></i>	986.2	986.2
<i>[h-Am 1-37] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	988.2	987.7
<i>[h-Am 1-37 + Cu - 2H] H<sub>4</sub><sup>4+</sup></i>	991.8	992.0
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>Na<sup>+</sup></i>	997.8	997.5
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>K<sup>+</sup></i>	1001.5	1001.4
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	1002.7	1002.9
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>K<sub>2</sub><sup>2+</sup></i>	1011.6	1011.0

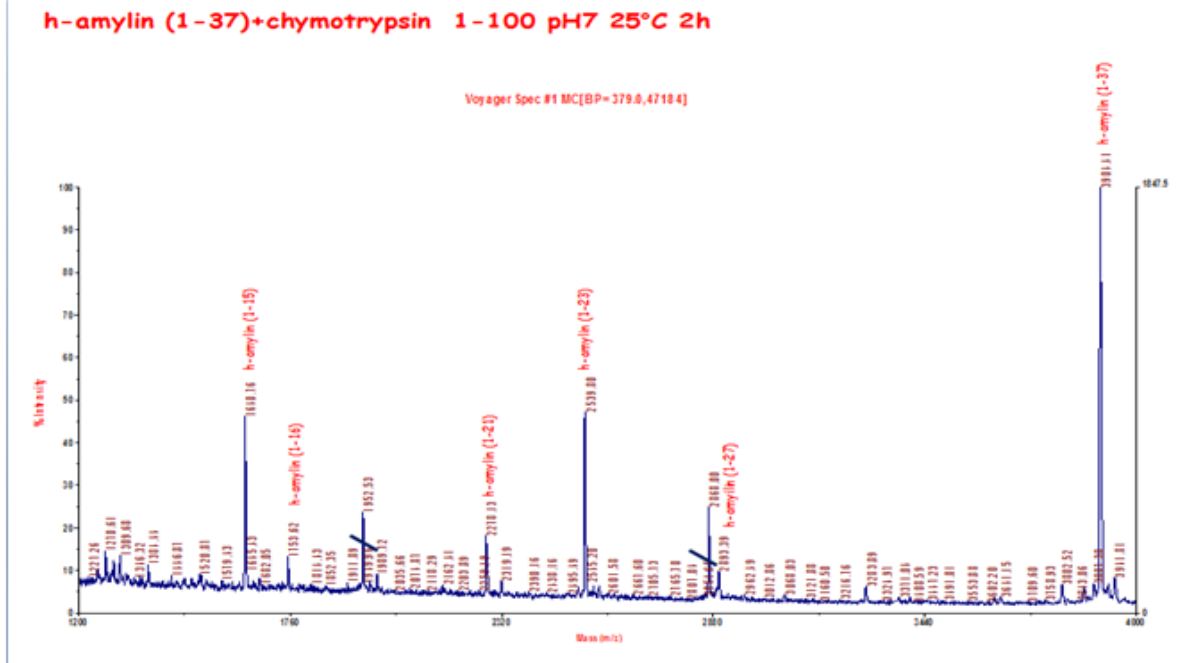
**h-Amylin 1-37 pH=7.4 (10 mM of NH<sub>4</sub>CH<sub>3</sub>COO) + Cu (II) (molar ratio 1:5)**

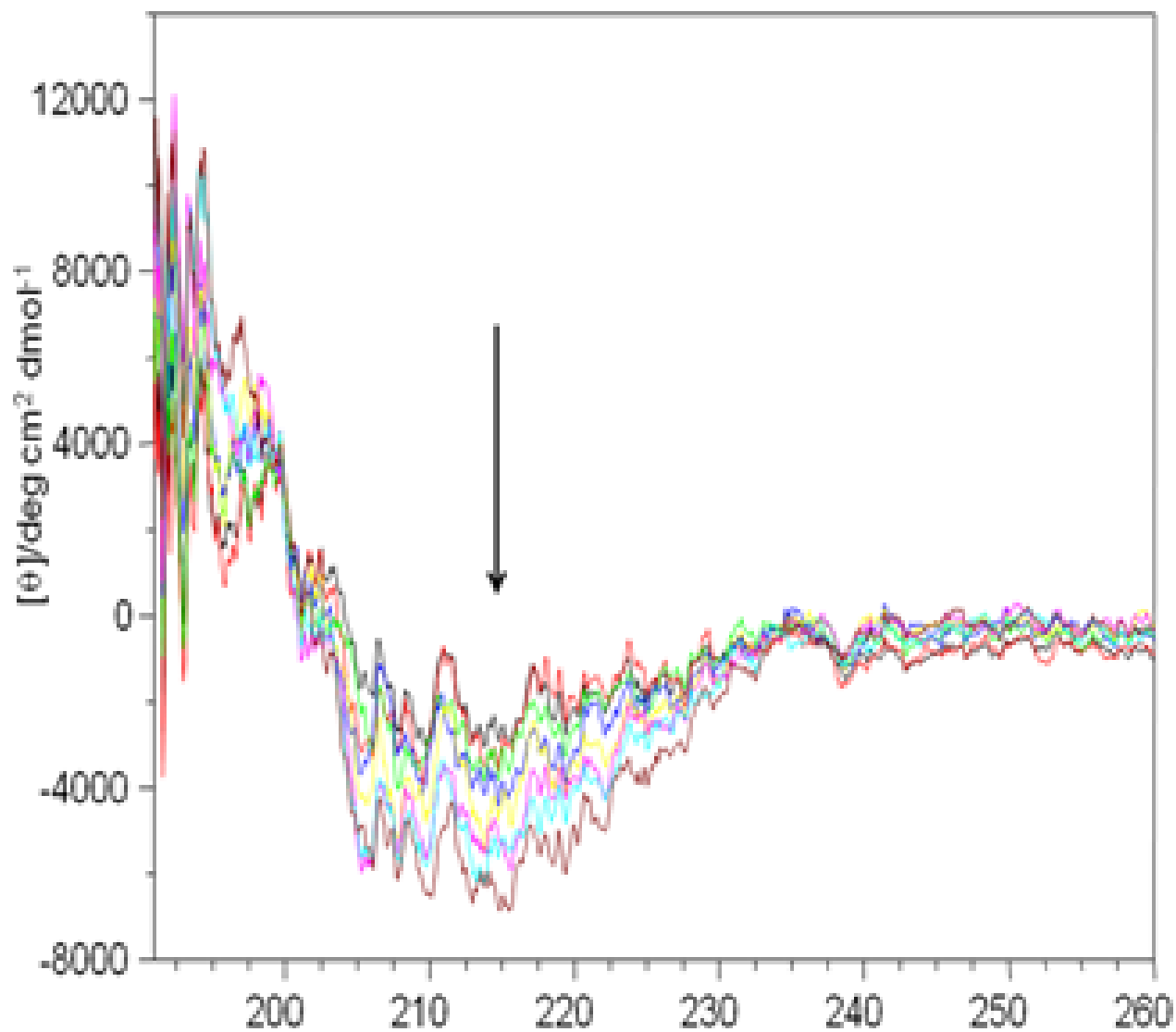
<i>Structure</i>	<i>M/z observed</i>	<i>M/z calculated</i>
<i>[h-Am 1-37] H<sub>2</sub><sup>2+</sup></i>	1952.5	1952.4
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup></i>	1983.0	1982.9
<i>[h-Am 1-37 + Cu - 2H] Na<sub>2</sub><sup>2+</sup></i>	1994.5	1993.9
<i>[h-Am 1-37] H<sub>3</sub><sup>3+</sup></i>	1301.5	1301.9
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup></i>	1321.9	1322.2
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sup>+</sup></i>	1329.2	1329.6
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>K<sup>+</sup></i>	1334.4	1344.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1336.6	1336.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sup>+</sup>K<sup>+</sup></i>	1341.5	1342.2
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>3</sub><sup>3+</sup></i>	1342.2	1342.6
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>Na<sup>+</sup></i>	1350.1	1350.0
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>K<sup>+</sup></i>	1355.5	1355.3
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1357.2	1357.6
<i>[h-Am 1-37 + Cu - 2H] H<sub>4</sub><sup>4+</sup></i>	991.7	992.0
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>Na<sup>+</sup></i>	997.7	997.5
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>K<sup>+</sup></i>	1001.5	1001.4
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	1002.9	1002.9
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>4</sub><sup>4+</sup></i>	1007.3	1007.2
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>K<sub>2</sub><sup>2+</sup></i>	1011.3	1011.0
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>3</sub><sup>3+</sup>K<sup>+</sup></i>	1017.1	1016.7
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	1018.2	1018.2
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>K<sub>2</sub><sup>2+</sup></i>	1026.4	1026.2

**h-Amylin 1-37 pH=7.4 (10 mM of NH<sub>4</sub>CH<sub>3</sub>COO) + Cu (II) (molar ratio 1:10)**

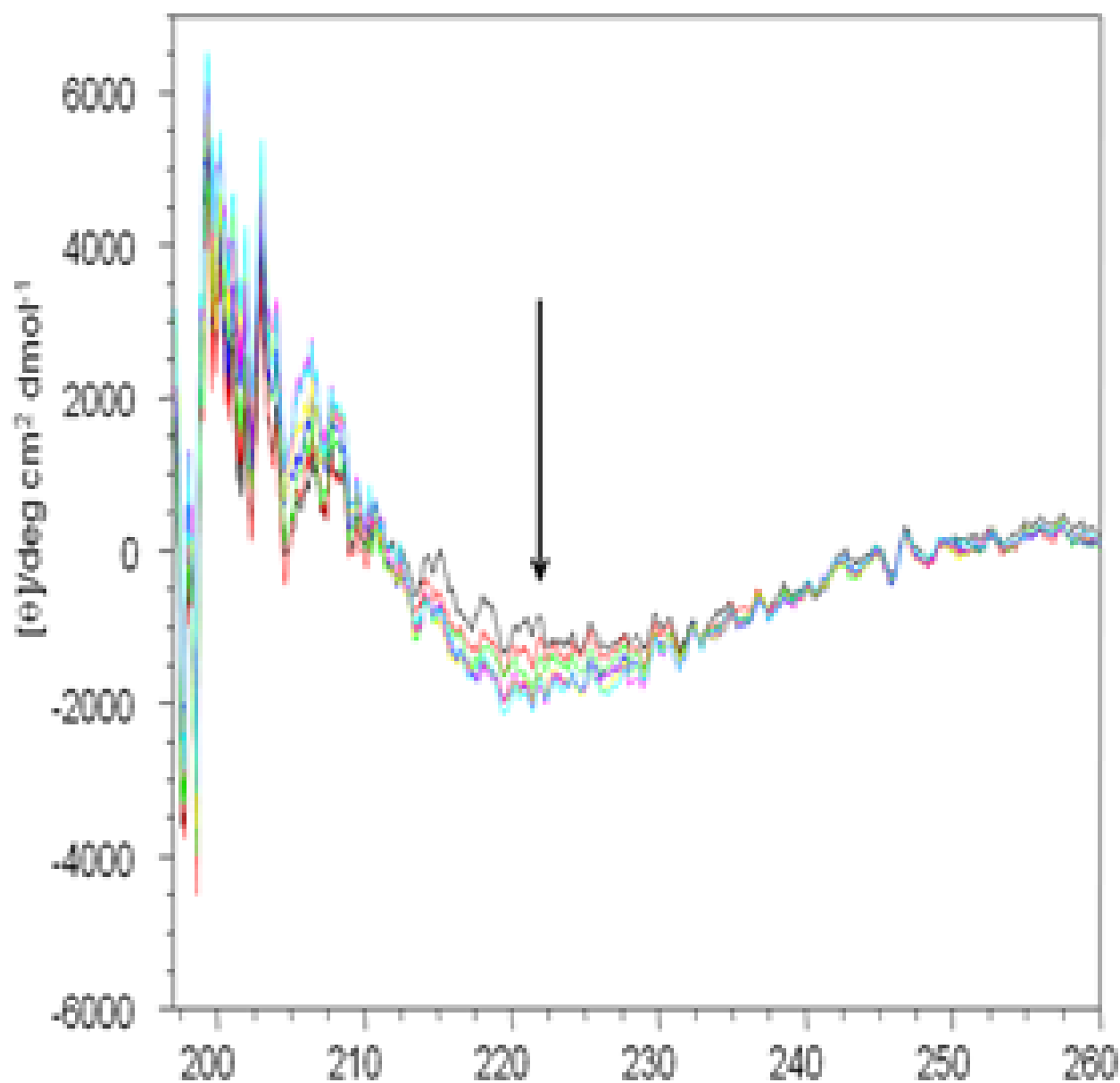
<i>Structure</i>	<i>M/z observed</i>	<i>M/z calculated</i>
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup></i>	1982.6	1982.9
<i>[h-Am 1-37 + Cu - 2H] Na<sub>2</sub><sup>2+</sup></i>	1993.6	1993.9
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup></i>	1322.3	1322.2
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sup>+</sup></i>	1329.7	1329.6
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>K<sup>+</sup></i>	1334.6	1334.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1336.2	1336.9
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sup>+</sup>K<sup>+</sup></i>	1342.0	1342.2
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>3</sub><sup>3+</sup></i>	1343.0	1342.6
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>Na<sup>+</sup></i>	1355.2	1355.3
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>K<sup>+</sup></i>	1363.1	1363.3
<i>[h-Am 1-37 + Cu - 2H] H<sup>+</sup>Na<sub>2</sub><sup>2+</sup></i>	1370.6	1370.3
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup></i>	1383.7	1383.3
<i>[h-Am 1-37 + Cu - 2H] H<sub>4</sub><sup>4+</sup></i>	991.7	992.0
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>Na<sup>+</sup></i>	997.9	997.5
<i>[h-Am 1-37 + Cu - 2H] H<sub>3</sub><sup>3+</sup>K<sup>+</sup></i>	1001.6	1001.4
<i>[h-Am 1-37 + Cu - 2H] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	1003.2	1002.9
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>4</sub><sup>4+</sup></i>	1010.8	1011.0
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>Na<sub>2</sub><sup>2+</sup></i>	1018.2	1018.2
<i>[h-Am 1-37 + 2Cu - 4H] H<sub>2</sub><sup>2+</sup>K<sub>2</sub><sup>2+</sup></i>	1026.4	1026.2

**Fig. 2Sa**





**Figure 3Sa:** Time dependent difference spectra of h-amylin 1-37 obtained by subtracting the CD spectrum of the Apo h-amylin 1-37 from the one in the presence of one molar equivalent of Cu(II). From top to bottom (arrow)  $t=0\text{ h}$ ,  $t=21\text{h}$ .



**Figure 3Sb:** Time dependent difference spectra of h-amylin 17-29 obtained by subtracting the CD spectrum of the Apo h-amylin 17-29 from the one in the presence of one molar equivalent of Cu(II). From top to bottom (arrow)  $t=0$  h,  $t=21$ h.