

Exploring the reactions of β -amyloid (A β) peptide 1-28 with Al^{III} and Fe^{III} ions.

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The reactions of human β -amyloid peptide 1–28 (A β 28) with Al^{III} and Fe^{III} ions were investigated by ¹H NMR and electrospray ionization mass spectrometry (ESI-MS) under pH conditions close to physiological ones. ¹H NMR titrations, performed in the 5.3–8.0 pH range, revealed that no measurable amounts of A β 28-Al^{III} or A β 28-Fe^{III} adducts are formed; such metal adducts could not be obtained even by changing a number of experimental conditions, e.g., temperature, buffer, nature of the salt, etc. These observations were later confirmed by ESI-MS. It is thus demonstrated that A β 28, at physiological pH, is not able to form binary complexes with Al^{III} and Fe^{III} ions of sufficient stability to compete with metal hydroxide precipitation. The biological implications of these findings are discussed in the frame of current literature.

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