

Abstract Submitted  
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**Salt effects on the sol-gel transitions of aqueous peptide-amphiphile solutions**<sup>1</sup> MASASHI YAMAMOTO, TOMOKI MAEDA, ATSUSHI HOTTA, Department of Mechanical Engineering, Keio University — A hydrogel made of a peptide amphiphile (PA) is an interesting soft material especially in the biomedical fields due to its controllable nanoscale structures with excellent biocompatibility. To extend the practical use of PA, a comprehensive study of the sol-gel transitions of PA is necessary to be used as e.g. a biomedical material. The effects of the types of salts in our body or in medicinal agents on the physical properties of the PA solution are not fully understood. In this study, different types of salt with various negative ions were added to a PA (C16-W3K) solution. The salt effects on the rheological properties, the pH, and the zeta potentials of the PA solutions were studied. From the rheological testing, it was found that the C16-W3K solutions could not gelate in the presence of  $\text{Na}_2\text{CO}_3$  or  $\text{Na}_3\text{PO}_4$ , which could be caused by the aggregation of the wormlike micelles made of C16-W3K. pH-wise, the sol-gel transitions could be observed only when the PA solutions were relatively acidic (the Zeta potential was positive) instead of basic (the Zeta potential was very negative). It was therefore concluded that the sol-gel transitions of the PA solution could be effectively controlled by the types of salt.

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