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[\[PDF \(455K\)\]](#) [\[References\]](#)**Chemical Interaction between Titanium Implant Surface and Amino Acids**[Kyou HIASA](#)¹⁾, [Yasuhiko ABE](#)¹⁾, [Yasuhiro YOSHIDA](#)²⁾³⁾, [Tsuyoshi TAJI](#)¹⁾, [Kazuomi SUZUKI](#)²⁾³⁾ and [Yasumasa AKAGAWA](#)¹⁾

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Abstract:

The purpose of this study was to investigate the chemical interaction between titanium implant surface and amino acids. Pure titanium disks were pretreated with 10 N HCl and ultrapure water at room temperature for 30 minutes each. Disks were then modified with one of the three amino acids—L-aspartic acid, L-serine, or L-threonine—at 37°C for 12 hours. Modification with oxalic acid was used as a control. By means of X-ray photoelectron spectroscopy (XPS), amino acid powders and the modified surfaces without or with ultrasonic water rinsing were chemically analyzed. It was revealed that the N 1s peak which originated from amino acids was not or hardly detected in the wide scan spectra of amino acid-modified surfaces. Moreover, the COO⁻ peak which originated from oxalic acid could hardly be detected in the narrow scan spectrum of the C 1s region of oxalic acid-modified surface with ultrasonic water rinsing. Based on the results of this study, it was concluded that amino acids could not chemically bond to the titanium surface.

Key words:[Titanium implant](#), [Amino acid](#), [Chemical interaction](#)

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