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[\[PDF \(623K\)\]](#) [\[References\]](#)**The Development of Ti Alloys for Dental Implant with High Corrosion Resistance and Mechanical Strength**[Junichi YAMAZOE](#)<sup>1)</sup>, [Masaharu NAKAGAWA](#)<sup>1)</sup>, [Yoshinari MATONO](#)<sup>2)</sup>, [Akari TAKEUCHI](#)<sup>1)</sup> and [Kunio ISHIKAWA](#)<sup>1)</sup>

1) Department of Biomaterials, Faculty of Dental Science, Kyushu University

2) Department of Fixed Prosthodontics, Faculty of Dental Science, Kyushu University

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**Abstract:**

The corrosion behaviors of Ti and Ti-6Al-4V, Ti-6Al-7Nb, Ti-0.5Pt, Ti-6Al-4V-0.5Pt, and Ti-6Al-7Nb-0.5Pt alloys were examined using an electrochemical analyzer in artificial saliva containing 0.1 and 0.2% NaF at a pH of 4.0. The SEM observations revealed that the surfaces of the alloys containing 0.5 wt% Pt were not affected in fluoride-containing environments, whereas the surfaces of Ti, Ti-6Al-4V, and Ti-6Al-7Nb alloys were markedly rough. In artificial saliva containing 0.1% NaF at a pH of 4.0, the amounts of Ti dissolved from the Ti, Ti-6Al-4V, and Ti-6Al-7Nb alloys were about 50 times larger than those of the alloys containing 0.5 wt% Pt. The tensile strengths of the alloys containing 0.5 wt% Pt were equal to or higher than those of pure Ti or the alloys without Pt. The Ti-0.5Pt, Ti-6Al-4V-0.5Pt, and Ti-6Al-7Nb-0.5 alloys are expected to be useful in clinical dentistry as new Ti alloys with high corrosion resistance and mechanical strength.

**Key words:**[Titanium alloy](#), [Corrosion](#), [Mechanical strength](#)

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