

Tailored Surface Roughness & Porosity of Titanium Bodies for Biomedical Use via Gas/Solid Displacement Reactions

Gas/solid treatments tailor micro-pores that promote bone growth on dental and orthopedic implants.

Researchers at Purdue University have utilized a well-controlled gas/solid displacement reaction to provide a high and uniform concentration of fine-scale pores and protuberances on titanium surfaces. Such surfaces include external and internal surfaces, such as are present in porous titanium-bearing bodies. The sizes of such pores and protuberances can be tailored by the conditions used in this gas/solid displacement reaction. This process can yield titanium-bearing composite surfaces which can further aid in the bone formation process. Recent studies on porous Ti-bearing surfaces generated by the process of this invention have indicated that such surfaces exhibit enhanced responses by bone-forming cells.

Potential Applications:

- Dental implants
- Orthopaedic implants

TRL: 2

Intellectual Property:

Provisional-Gov. Funding, 2020-06-04, United States

PCT-Gov. Funding, 2021-06-03, WO

NATL-Patent, 2022-12-01, United States

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Category

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