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Glow discharge assisted oxynitriding process of titanium for medical application

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Highlights

1. A new, hybrid, glow discharge oxynitriding process of titanium is presented.
2. Oxynitrided $\text{TiO}_2+\text{Ti}_2\text{N}+\alpha\text{Ti}(\text{N})$ type layer has diffusive character.
3. Outer TiO_2 (rutile) layer has nanocrystalline structure and decreased wettability.
4. Oxynitrided layer on titanium increases hardness, wear and corrosion resistance.
5. Nanocrystalline TiO_2 exhibits better antithrombogenic properties than titanium.

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