

Supporting Information

Polyacrylic acid-reinforced organic-inorganic composite bone adhesives with enhanced mechanical properties and controlled degradability

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Table S1. Primer sequences.

Primer	Primer sequences (5' to 3')	Product size (bp)
CoL1a1-F	AGCACGTCTGGTTTGGAGAG	111
CoL1a1-R	ACATTAGGCGCAGGAAGGTC	
RUNX2-F	GACACTGCCACCTCTGACTT	160
RUNX2-R	CTGGGTAGTGCATTCGTGGG	
β -actin-F	ACTGTCGAGTCGCGTCC	227
β -actin-R	CTGACCCATCCCCACCATCA	

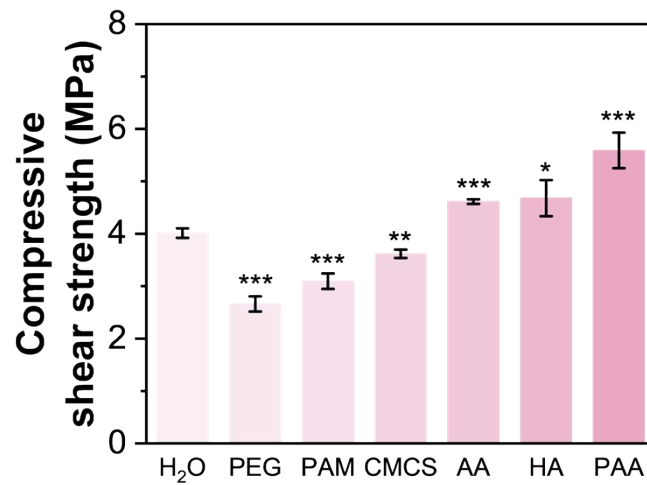


Figure S1. Compressive shear strength of titanium alloys bonded by adhesives incorporated with different polymers after incubation in deionized water at room temperature for 24 h (* denotes significant difference ($p < 0.05$) compared with adhesive prepared with H₂O (i.e., OTH)).

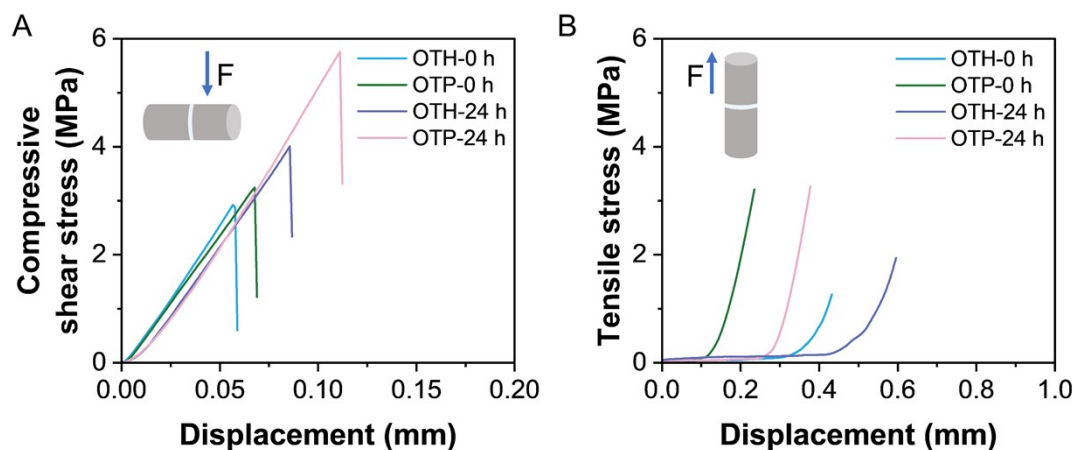


Figure S2. (A) Compressive shear stress-displacement curves, and (B) tensile stress-displacement curves of titanium alloys bonded by OTH and OTP adhesives before and after soaking in deionized water at room temperature for 24 h.

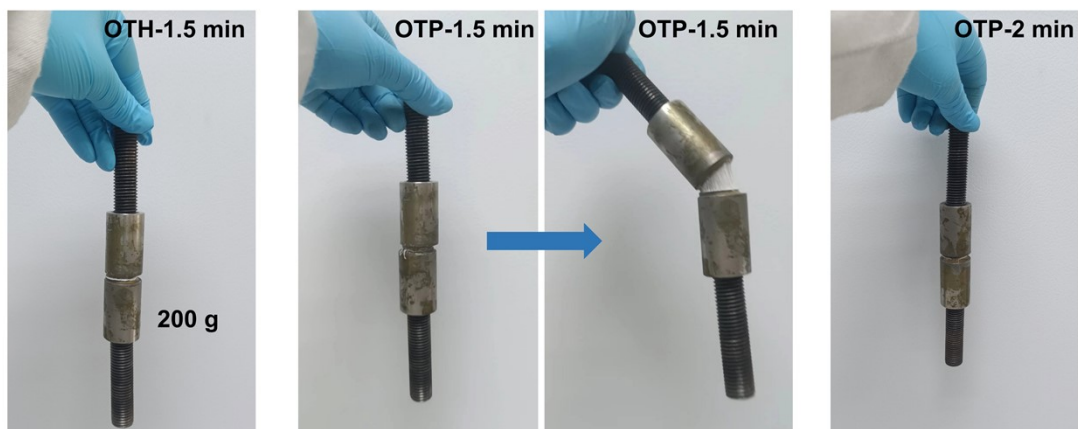


Figure S3. Digital photograph of OTH and OTP bonded titanium alloy surface after curing for different periods.

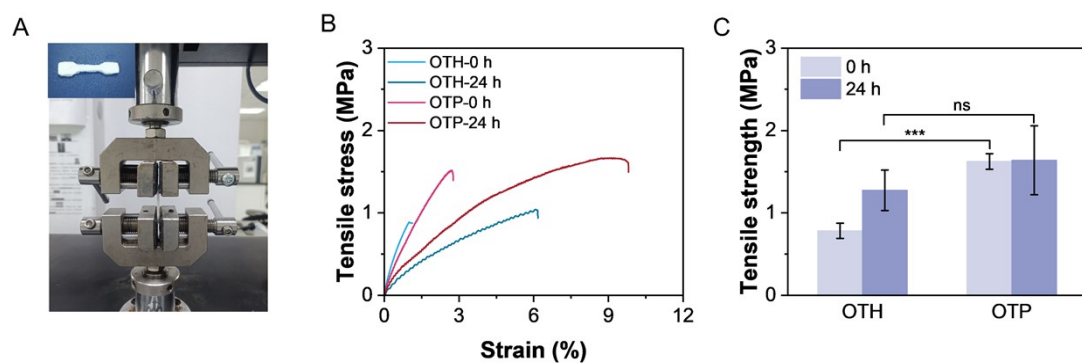


Figure S4. (A) Digital photograph of the setup for tensile test, inset showing the adhesive sample. (B) Tensile stress-strain curves, and (C) tensile strength of OTH and OTP adhesives before and after soaking in deionized water at room temperature for 24 h.

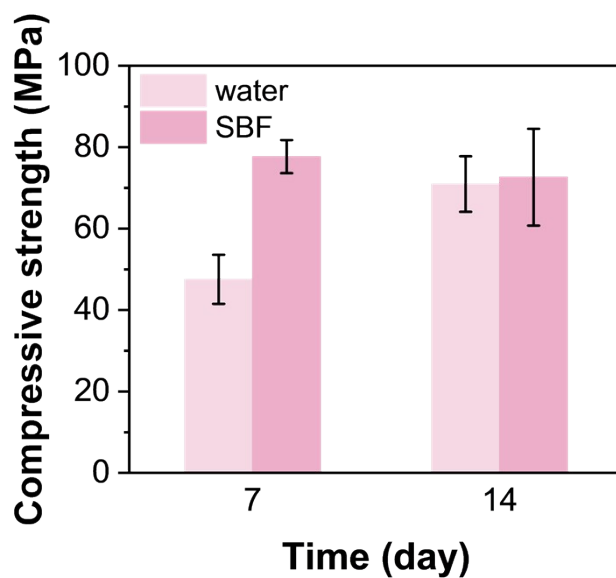


Figure S5. Compressive strength of OTP adhesives after incubation in SBF at 37 °C or in deionized water at room temperature for 7 and 14 days.

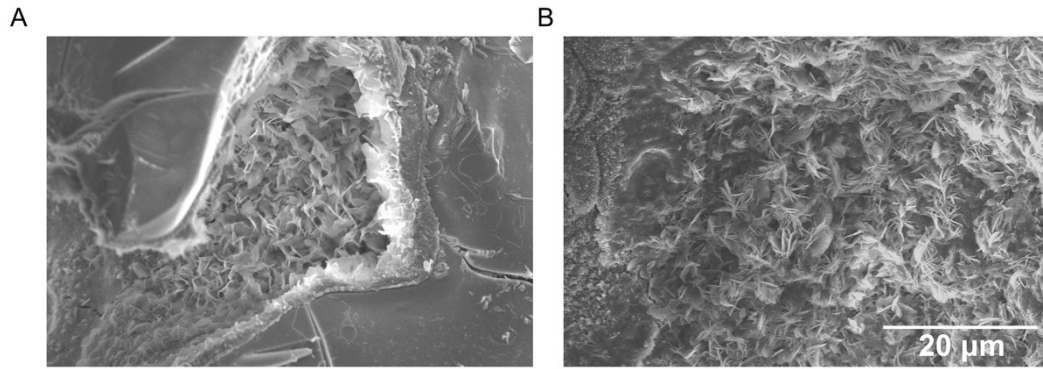


Figure S6. Formation of flake HAP on (A) OTH and (B) OTP after incubation in SBF at 37 °C for 14 days.

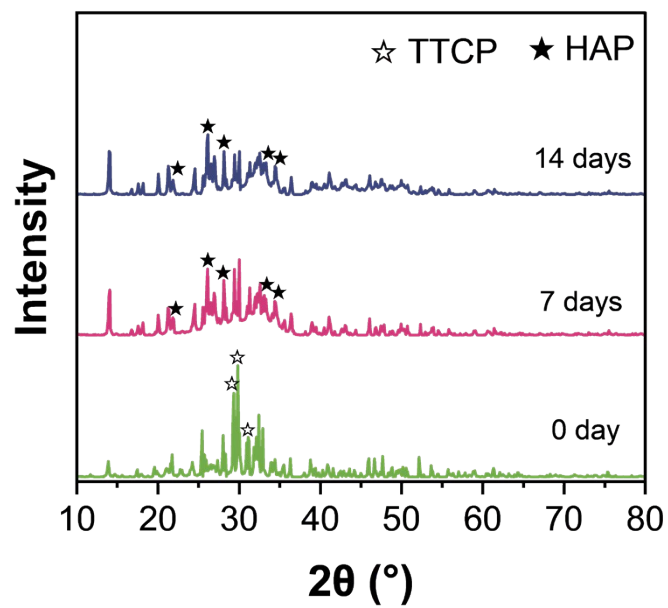


Figure S7. XRD results of OTH adhesive before and after incubation in SBF at 37 °C.

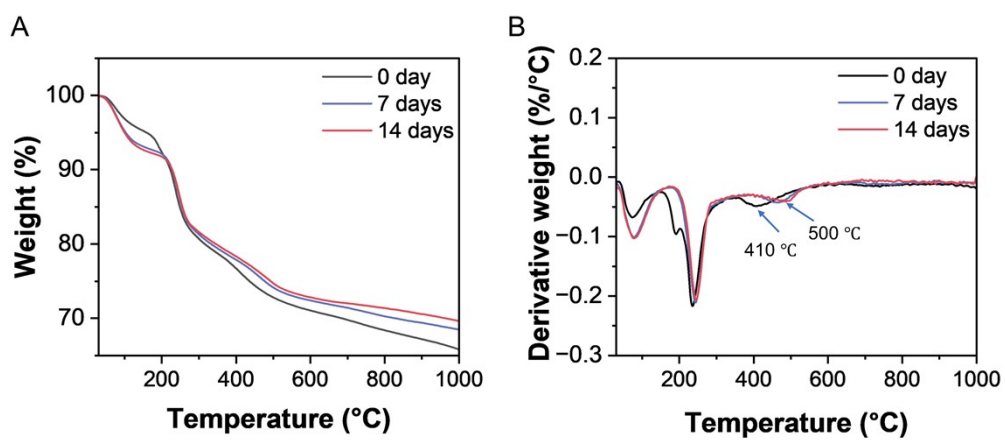


Figure S8. (A) Thermal gravimetric analysis (TGA) curves and (B) derivative thermal gravimetric (DTG) curves of OTP before and after incubation in SBF at 37 °C.

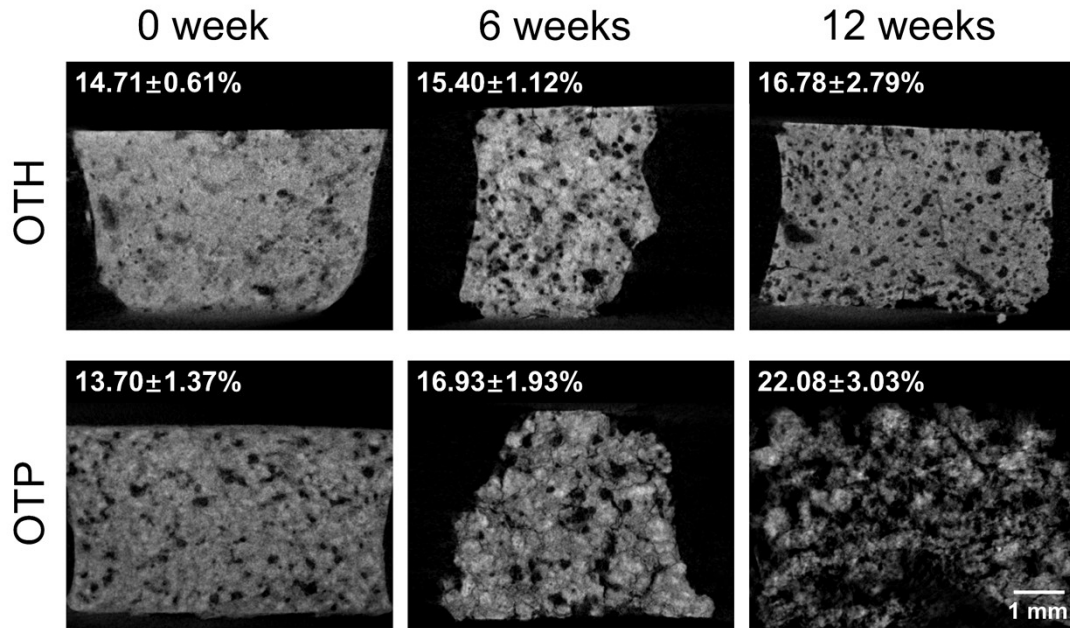


Figure S9. Representative micro-CT scanning images and the corresponding porosity of OTH and OTP adhesives before and after incubation in SBF at 37 °C for 6 and 12 weeks.

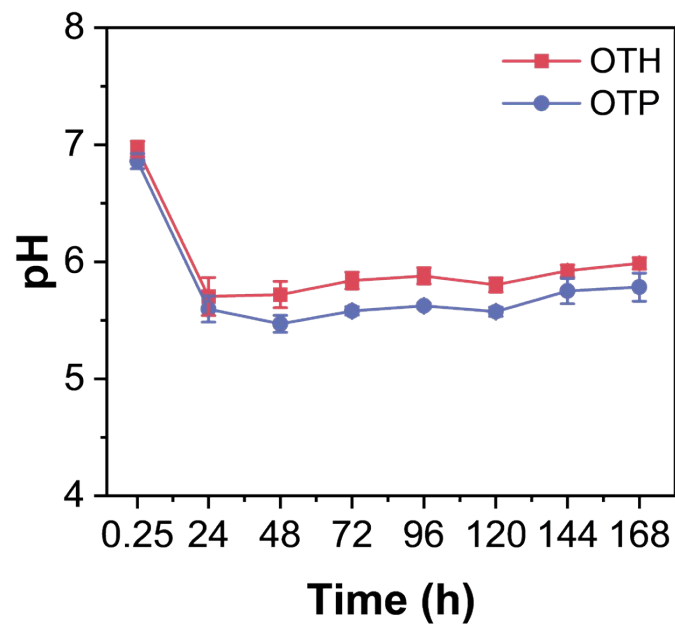


Figure S10. Change in pH of PBS soaked with OTH or OTP adhesives.

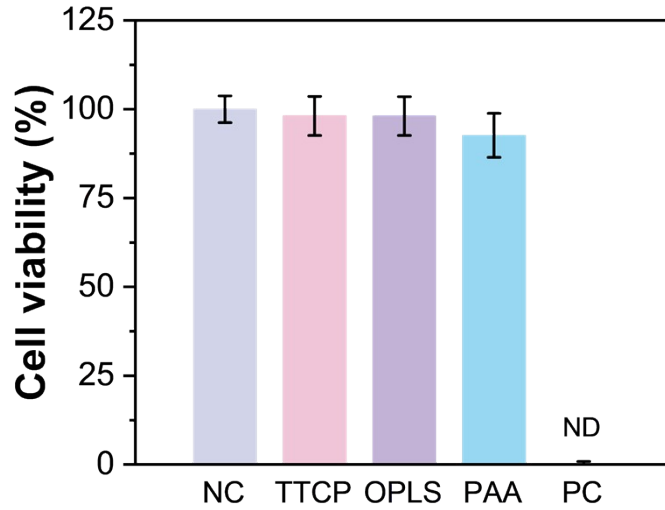


Figure S11. Cell viability of MC3T3-E1 cells after cultured in medium containing TTCP (5 mg/mL), OPLS (3 mg/mL), and PAA (1 mg/mL) for 1 day. NC: negative control, PC: positive control, ND: not detected.

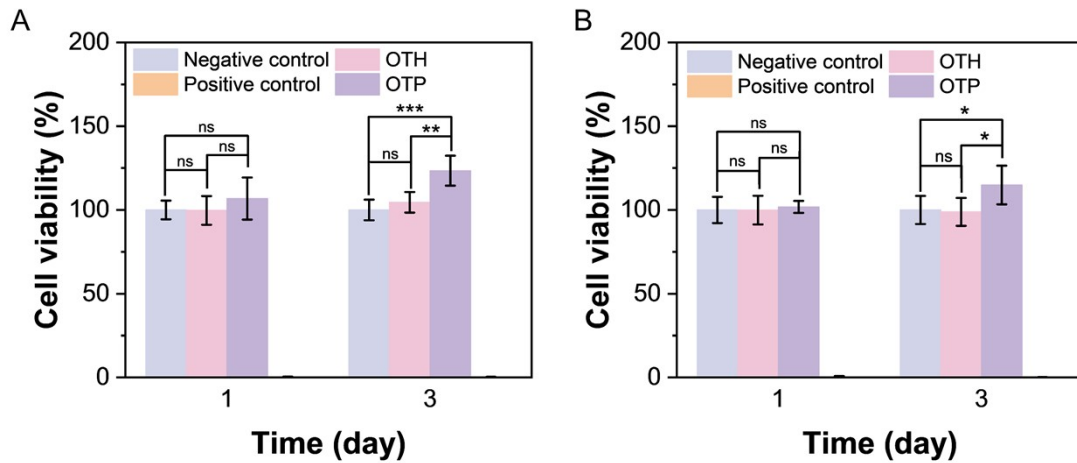


Figure S12. OTH and OTP adhesives incubated in deionized water for (A) 7 days, and (B) 14 days and then co-cultured with MC3T3-E1 cells for 1 and 3 days.