Supplementary Files 2

Supplementary Figures and Legends

Figure S7. Correlation relationships between PRG4 and surface roughness parameters. (A-D) PRG4 surface continuity was found negatively correlated with Ra and Rq before and after wear ($P < 0.0001$, respectively). (E-H) PRG4 expression quantity was also found negatively correlated with Ra and Rq before and after wear ($P < 0.0001$, respectively).

Figure S8-S11. O2PLS multivariate model scatter plots displayed the relationship and distribution between $\Delta V/\Delta W$ and independent variables in the three groups, with the dot size referring to the volume/weight loss amount, and blue to red indicating the increase of variable quantitative value.

Figure S12. IHC images of negative control stainings of PRG4 and SOX9 antibodies in normal cartilage (400X, scale bar 50 μm). Rabbit polyclonal antibody PRG4 and only rabbit serum was respectively used as primary antibody (upper row). Mouse monoclonal antibody SOX9 and only mouse serum was respectively used as primary antibody (bottom row).
Figure S7

A. PRG4 Continuity vs. Roughness (Ra) Before Wear
   
   \[ r = -0.8654, \quad P < 0.0001 \]

B. PRG4 Continuity vs. Roughness (Rq) Before Wear
   
   \[ r = -0.8149, \quad P < 0.0001 \]

C. PRG4 Continuity vs. Roughness (Ra) After Wear
   
   \[ r = -0.8796, \quad P < 0.0001 \]

D. PRG4 Continuity vs. Roughness (Rq) After Wear
   
   \[ r = -0.8140, \quad P < 0.0001 \]

E. PRG4 Expression vs. Roughness (Ra) Before Wear
   
   \[ r = -0.8905, \quad P < 0.0001 \]

F. PRG4 Expression vs. Roughness (Rq) Before Wear
   
   \[ r = -0.8585, \quad P < 0.0001 \]

G. PRG4 Expression vs. Roughness (Ra) After Wear
   
   \[ r = -0.9126, \quad P < 0.0001 \]

H. PRG4 Expression vs. Roughness (Rq) After Wear
   
   \[ r = -0.8589, \quad P < 0.0001 \]
Figure S9

Scatter Color according to

COL II expression

Aggrecan expression

SOX9 expression
Figure S10

Scatter
Color
according to

ICRS II: Surface/Superficial assessment

ICRS II: Overall assessment

ICRS II: Mid/deep zone assessment

Scatter Size Values with

$\Delta V$

$\Delta W$
Figure S12

Antibody

PRG4

Serum

SOX9