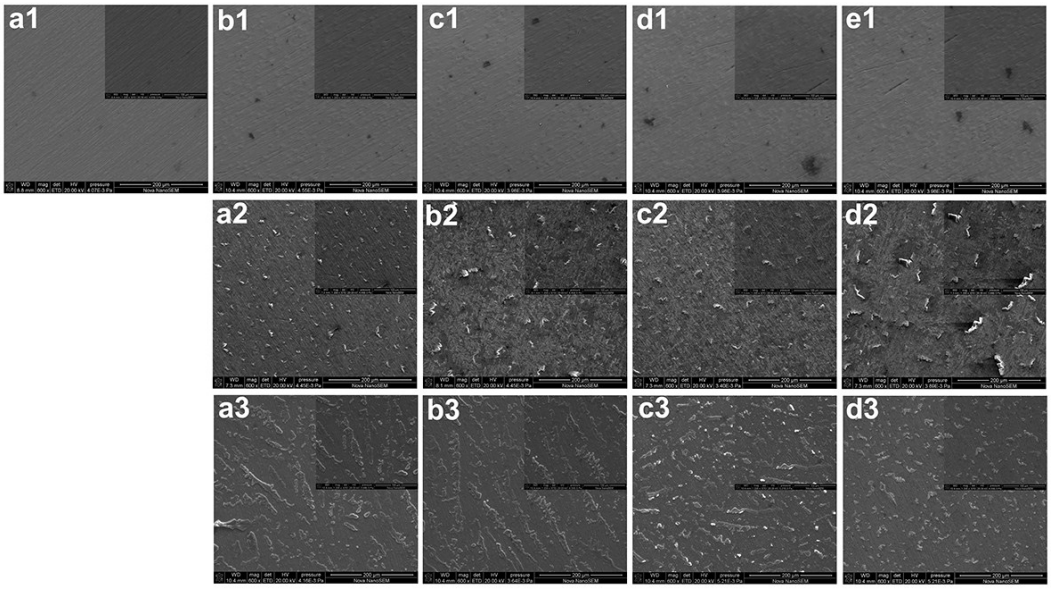

Fig. S1 SEM images of different substrates after immersing in PBS solution for different time interval: (a1) Ti, (b1) Ti/LBL, (c1) Ti/LBL-SP_L, (d1) Ti/LBL-SP_M, and (e1) Ti/LBL-SP_H. (a1-e1) for 0 day; (a2) Ti/LBL, (b2) Ti/LBL-SP_L, (c2) Ti/LBL-SP_M, and (d2) Ti/LBL-SP_H for 7 days; (a3) Ti/LBL, (b3) Ti/LBL-SP_L, (c3) Ti/LBL-SP_M, and (d3) Ti/LBL-SP_H for 14 days.

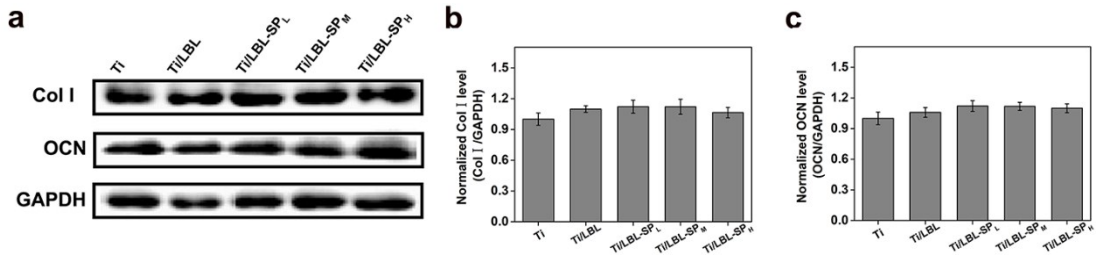

Fig. S2 (a) Representative images of western blotting. Quantitative analysis of Col Ⅰ (B), OCN (C), in MSCs by western blotting after culturing for 2 weeks. Error bars represent means ± SD, n=3.

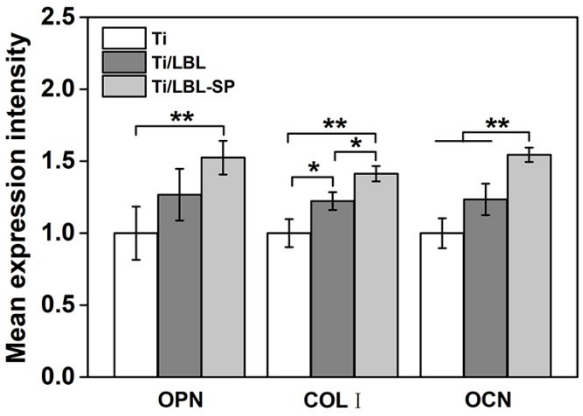

Fig. S3 Mean protein expression (optical density) of immunohistochemical staining in the tissue section of different Ti implants.

Previous studies confirmed that the target protein expression level of tissue was presented as the color depth and area of immunostaining image when performed with immunohistochemical staining [1, 2]. The image analysis software of image pro plus 6.0 can make a quantitative measurement of the color depth and area of immunostaining images, since gray scale could be used to indicate the degree of lightness and darkness of a point. And the degree of brightness of a point on the images are determined by the "OD (optical density)" of the immunostaining on immunostaining images. There is a positive theoretical linear correlation between the measurement results and the protein expression level on the tissue section. It was also reported that the protein expression level of OPN, COL Ⅰ and OCN represented the tissue osteogenic capacity [3]. Therefore, the optical density of immunostaining image of tissues around the implants were employed to reflect the protein expression level of OPN, COL Ⅰ and OCN and their osteogenic capacity.

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