**Simvastatin delivery on PEEK for bioactivity and osteogenesis enhancements**

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**Figure S1.** The EDS spectra show the elemental compositions of the PEEK, SP-PLLA, SP-SIM, and SP-HA scaffolds.

 

**Figure S2.** The survey spectra of different group in XPS result.



**Figure S3.** The in vitro release profiles of simvastatin from SP-PLLA scaffold.

As shown in **Figure S3**, 68.41 μg SIM was released from SP-PLLA scaffolds after 8 days, and it is about 16.29 wt% for the amount of released SIM. So, SIM can be released from PLLA film and thus work.

**Table S1.** The concentration of C-C, C-O, C=O in different scaffolds.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PEEK | SP-PLLA | SP-SIM | SP-HA |
| C-C (%) | 69.65 | 51.04 | 46.73 | 47.83 |
| C-O (%) | 25.05 | 26.23 | 27.04 | 34.77 |
| C=O (%) | 5.29 | 22.73 | 26.23 | 17.39 |

**Table S2.** Primer pairs used in real-time PCR analysis.

|  |  |  |
| --- | --- | --- |
| Gene | Forward primer | Reverse primer |
| GAPDH | GGTGAAGGTCGGTGTGAACG | CTCGCTCCTGGAAGATGGTG |
| *Col1a1* | GCTCCTCTTAGGGGCCACT | CCACGTCTCACCATTGGGG |
| *Runx2* | AGGAATGCGCCCTAAATCACT | ACCAAGAAGGCACAGACAGAAG |
| VEGF | GCACATAGAGAGAATGAGCTTCC | CTCCGCTCTGAACAAGGCT |