Electronic Supplementary Information

Construction of the drug-contained microenvironment for in situ bone regeneration

Zhen Wu,[a] Zhou Zhong,[b] Wenchao He,[a] Yanmei Wu,[a] Yuyan Cai,[a] Huilin Yang[c] and Youliang Hong[a,*]

[a] National Engineering Research Center for Biomaterials; Department of Biomedical Engineering, Sichuan University, Chengdu, 610064, P. R. China

[b] Department of Orthopaedic Surgery, West China Hospital, Sichuan University, Chengdu 610041, P. R. China

[c] Department of Orthopaedics, the first Hospital Affiliated to Suzhou University, Suzhou, 215006, P. R. China

** Corresponding authors. hyl@scu.edu.cn (Y. Hong)*

Table S1. The chemical components of TCP slurry.

Component	Amount
water	30.0g
TCP	30.0g
PMA	0.25g
AM	2.0g
HPMC	1.0g
MBAM	0.3g
APS	0.10g
TMED	0.1g

Table S2. The chemical components of the BG precursors

Component	Amount
TEOS	4.0 ml
$Ca(NO_3)_2•4H_2O$	1.7 g
H_2O	2.0 ml
C_2H_5OH	20.0 ml
HCl	0.5 ml
P123	1.0 g

Table S3. Detailed information about the primer sequences used for qRT-PCR.

Symbol		Primers
GAPDH	Forward	5'-GCTCTCTGCTCCTCCCTGTT-3'
	Reverse	5'-TGGTAACCAGGCGTCCGAT-3'
Runx-2	Forward	5'-ATCCAGCCACCTTCACTTACACC-3'
	Reverse	5'-GGGACCATTGGGAACTGATAGG-3'
OPN	Forward	5'-CCAAGCGTGGAAACACACAGCC-3'
	Reverse	5'-GGCTTTGGAACTCGCCTGACTG-3'
OCN	Forward	5'-GCCCTGACTGCATTCTGCCTCT-3'
	Reverse	5'-TCACCACCTTACTGCCCTCCTG-3'

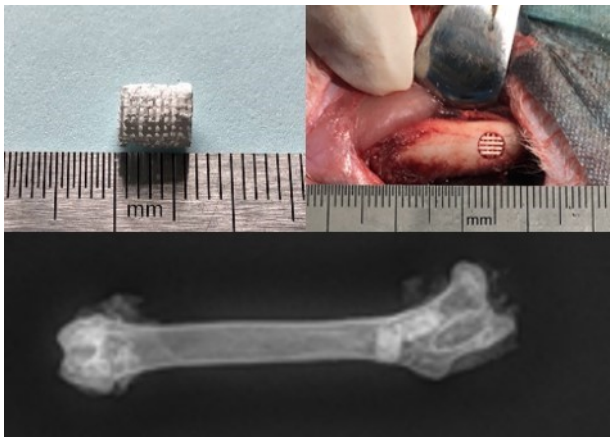

Fig. S1. The ceramics were implanted in marrow and bone defects.

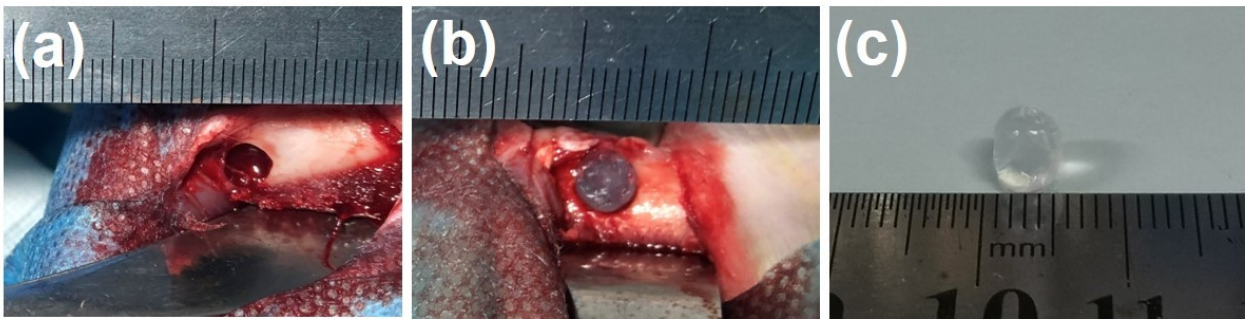

Fig. S2. Bone infection model. (a) A bone defect (Φ: 5 mm) was established by an electric drill and then the *S. aureus suspension* (100 μl, 10^8 CUF/ml) was injected into the bone marrow cavity from the defects. (b,c) The bone defect was filled with a block of alginate hydrogel (Φ: 5 mm, high: 5 mm).

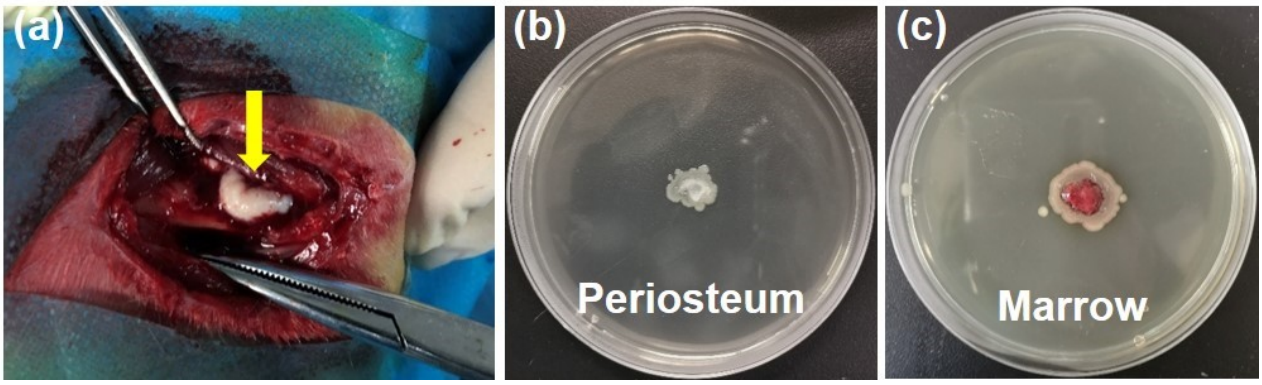

Fig. S3. The outcomes of the established bone infection. After the *S. aureus* suspension has been injected into the bone marrow cavity for 7 days (The bone defect: 5 mm), (a) a purulent discharged from wound when the wound was opened. The periosteum and marrow were harvested and cultured in vitro for 24 h, and the results showed that both periosteum (b) and marrow (c) had been infected.

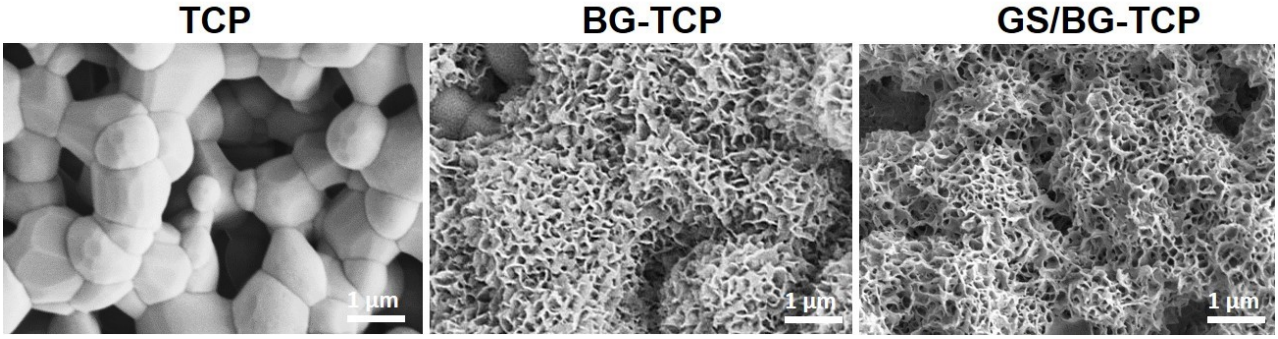

Fig. S4. SEM images of the ceramics were soaked in SBF for 36 h.