Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Table S1. Shear tensile strength of composite adhesives

Group	Composite Ratio	Shear tensile strength (kPa)[a)]
A	1:4 BCA:CA-TEG-CA	149 ± 56.5
B	1:1 BCA:CA-TEG-CA	197.5 ± 62.9
C	4:1 BCA:CA-TEG-CA	150.2 ± 70
D	1:4 BCA:CA-PEG600-CA	41.2 ± 14.91
E	1:1 BCA:CA-PEG600-CA	190.8 ± 31.4
F	4:1 BCA:CA-PEG600-CA	378.82 ± 48.3
G	1:4 BCA:CA-PEG2000-CA	--[b)]
H	1:1 BCA:CA-PEG2000-CA	186.2 ± 78.6
I	2:1 BCA:CA-PEG2000-CA	276.7 ± 23.7
J	4:1 BCA:CA-PEG2000-CA	283.9 ± 49.3
K	100% BCA(control)	310.4 ± 26.2

[a)]Samples of fresh pig skin with an area of 2.5×7.5cm^2 were prepared by removing the horny layer and the inner fat layer, with a thickness of less than 5mm. After the uniform application of 20μL of adhesive to one end of the sample within an area of 2.5×1cm^2, this end was quickly overlapped with one other sample end; the two samples should align in 180 degrees. A perpendicular force of 10N was applied for approximately 15 min. The complex sample was then fixed on a tensile test machine (FGS-500TW-SL, AIPU, China, 20mm/min). The stress direction was in the direction of the longitudinal axis of the specimen. The maximum tensile force was recorded when the adhesive region was destroyed, and the shear tensile strength was calculated as the maximum force divided by the area. Six samples of each formula were tested. Data are given as mean ± standard

deviation.

[b)] the two components could not mix uniformly and retain transparent liquid state at room temperature.

Table S2. Results of the Water-vapor permeability (WP) test

	LKJ11	BCA	Control (not covered)	Control (airproofed)
WP (g·m-2·24h)[a)]	2013.8±83.3	1015±105.6	6808.1 ±305.2	36.5 ±20.4

[a]A total of 40 μL of LKJ11 or BCA was spread and polymerized on gauze within a circular area of 1.5 cm in diameter. The polymer film was then covered over a small cylindrical container containing 3 mL of water. The container was placed in a 25°C environment, weighed, and then weighed again after 24h. The WP was calculated as the weight loss divided by the area of the polymer film. A container that was completely airproofed as well as a container without any cover were tested as controls.

Figure S1. ^{1}H-NMR spectra of the residual solid glue of P-LKJ11.

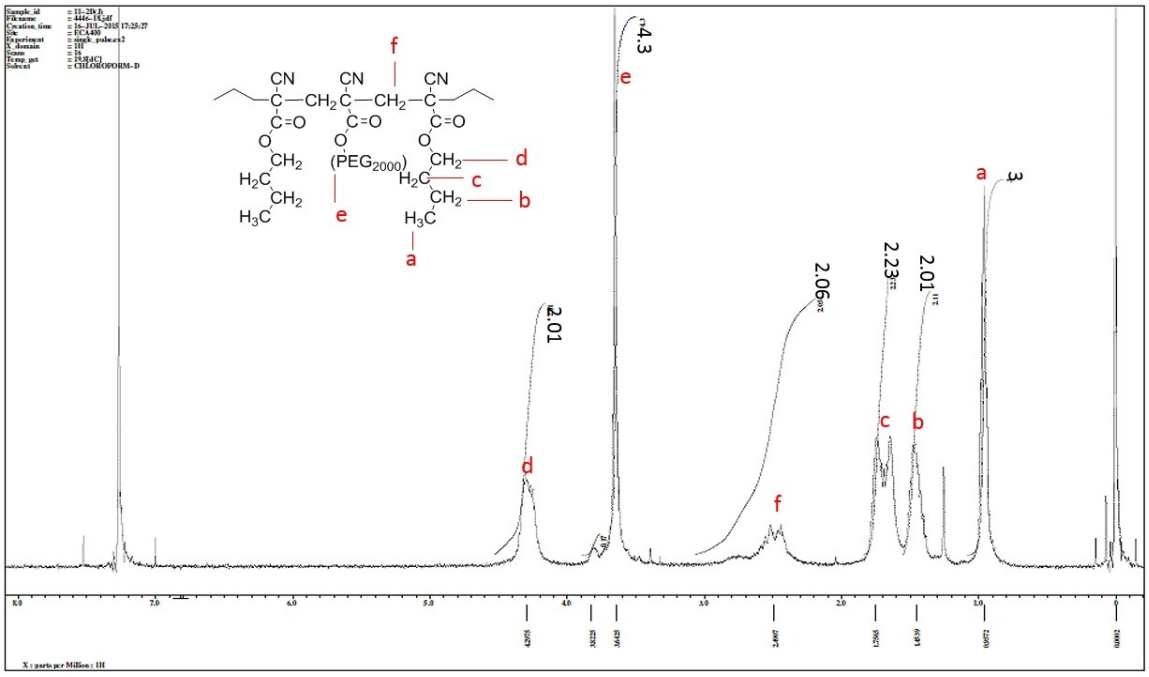


Figure S2. ^{1}H-NMR (A) and MALDI-TOF (B) spectra of the degradation product in PBS.

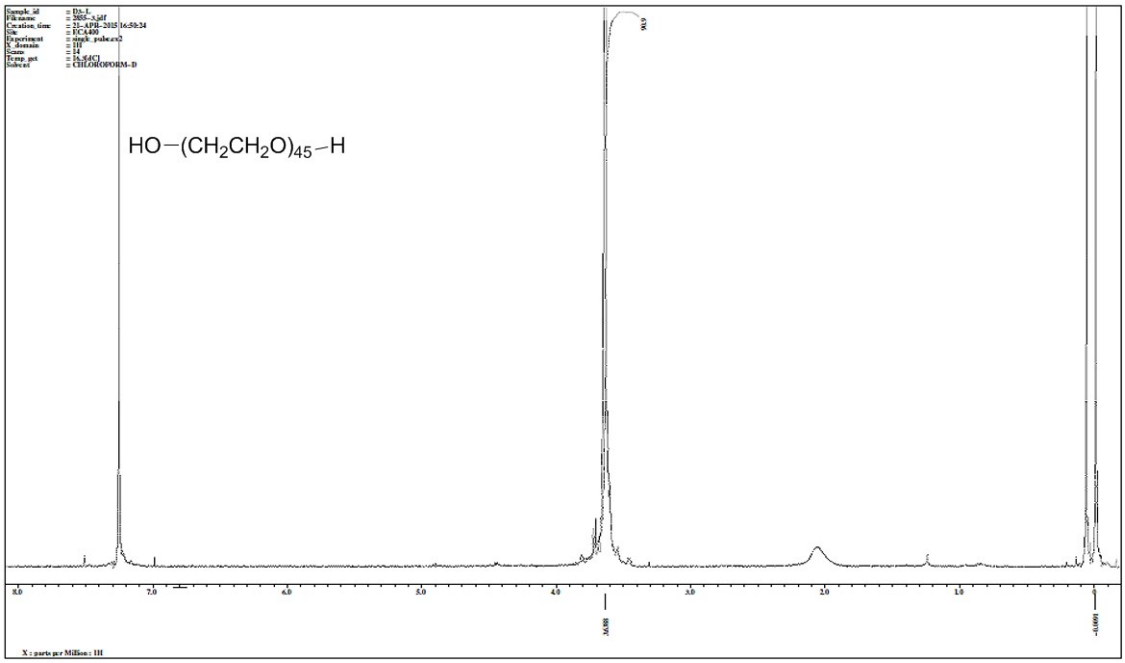
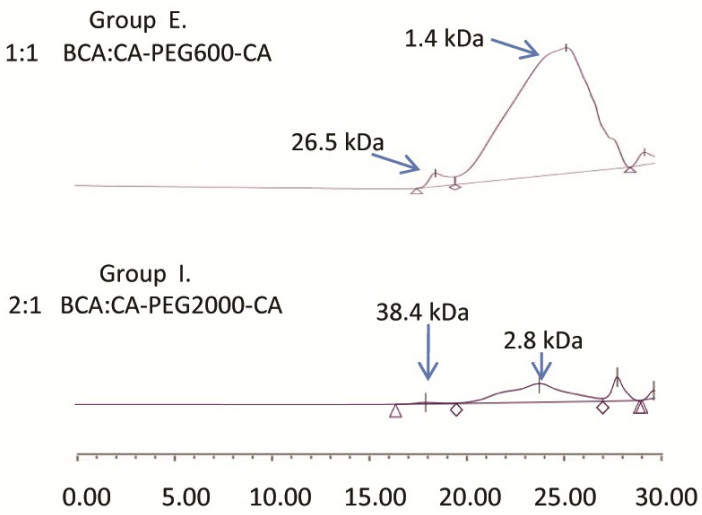


Figure S3. GPC chromatogram.



GPC chromatogram results of Group E and Group I in Table 1, samples were collected in the 14th day of *in vitro* degradation test.

Figure S4. Rate of radioactivity in urine, feces, stomach residue, and blood of PBCA group.

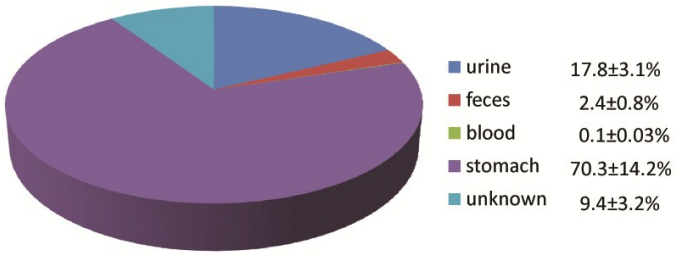
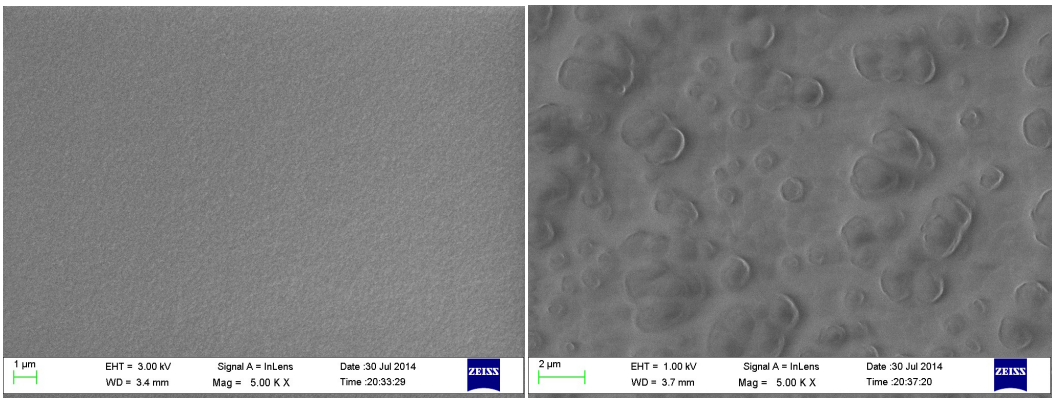


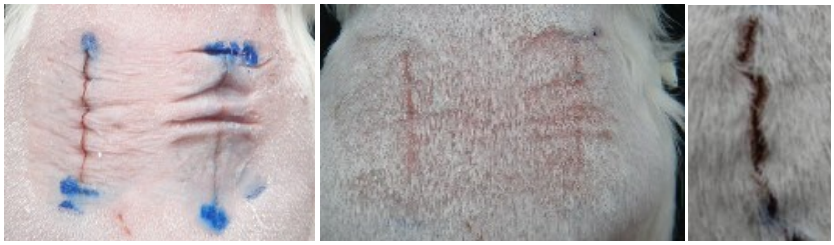
Figure S5. Scanning electron microscopy (SEM)



A B

SEM images obtained to analyze the membrane structure of PBCA (A) and P-LKJ11 (B) at 5000× magnification. The adhesives were uniformly smeared onto a support and polymerized to form the membrane. After spraying with gold, the analyses were performed using a JSM-5310 scanning microscope from Jeol.

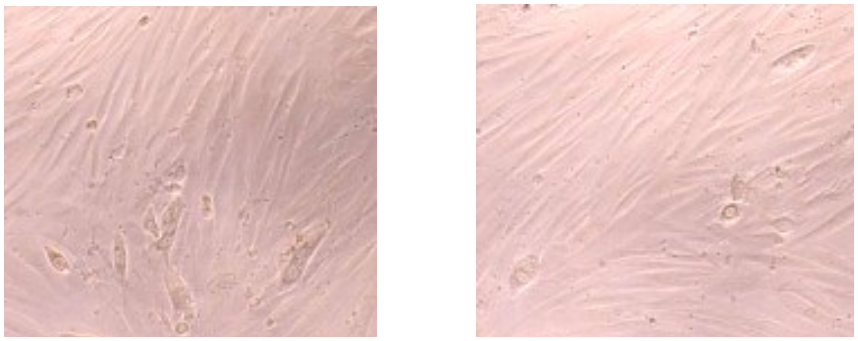
Figure S6. Guinea pig skin wound healing test



A B C

Photographs of skin wound healing on a guinea pig. LKJ11 was administered to the left wound, and BCA was administered to the right wound. A, 1 day after the operation. B, 7 days after the operation. C, control group at 7 days after the operation with no treatment.

Figure S7. A. Hs27 cells that came into contact with medium exposed to P-LKJ11, observed under microscopic examination. B. control normal group.



A **B**