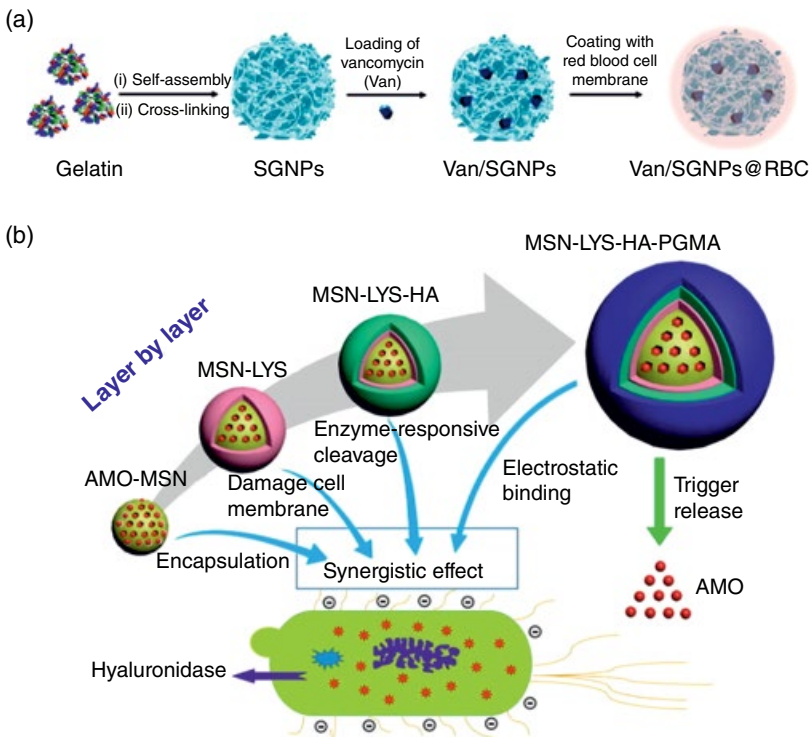
16.5 Antibiotic Modification by Complexed with Other Materials

With the continuous development of material science, we have acquired more biological functional materials with desired properties. It is also a unique way for handling drug resistance that combines antibiotics with these new material systems through a reasonable and ingenious method. Hao Wang et al. successfully constructed a supramolecular antibiotic delivery platform and realized the loading and transportation of vancomycin (Li et al. 2014). In this smart system, the cross-linked gelatin nanoparticles (SGNPs) were used as the core, and the uniform red blood cell (RBC) membrane is the shell. As shown in Scheme 16.13a, after loading vancomycin (Van) on SGNPs, the Van⊂SGNPs@RBC system could release drugs and efficiently killed the pathogens on demand. As shown in Scheme 16.13b, Hui Gao and Yang Ying-Wei groups co-reported



Scheme 16.13 Schematic illumination of the preparation process of (a) Van⊂SGNPs@RBC. Source: Reprinted from Bai et al. (2015) with permission. Copyright 2014, American Chemical Society. (b) MSN-LYS-HA-PGMA. Source: Reprinted from Bai et al. (2016) with permission. Copyright 2015, American Chemical Society.