activity). The internal layer is represented by the biodegradable hydrogel releasing PAMP to the wound. This dressing has been proposed for the compromised wounds, such as diabetic ulcers, or in the presence of problematic epidermal regeneration, as in the elderly (Reyes-Ortega et al. 2015). One of the most popular strategies to speed up healing is indeed the delivery of peptides, polysaccharides and other molecules that naturally take part in this process. For instance, hyaluronic acid (HA), present in the aforementioned work as well, has been extensively explored for the role that it plays in the early stages, promoting keratinocytes proliferation and migration. Catanzano et al. (Catanzano et al. 2015) developed a hydrogel dressing made of alginate (ALG) and HA by internal gelation, the technique that involves the slow release of calcium ions which can form complexes with ALG leading to the formation of an ionically cross-linked homogenous network without the addition of any toxic cross-linking agents. Here, the presence of HA was shown to significantly reduce the time to wound closure as demonstrated by the *in vivo* excision wound model carried out on rats (Catanzano et al. 2015). Researchers are also considering natural molecules extractable from different sources such as bacteria and insects. A good example is the work presented by Shi et al. (Shi et al. 2015) that combined poly(γ-glutamic acid) (γ-PGA, polyamino acid secreted by some *Bacilli*) and silk sericin (SS, protein obtained from silkworm *Bombyx mori*) to produce an antibacterial hydrogel dressing (Shi et al. 2015). Chitosan-based hydrogel products have been widely investigated because of chitosan's intrinsic activity against bacteria and fungi, and of course due to the biocompatibility of this polymer, but no products are known to have been commercialized yet (Paul and Sharma 2004).

When the wound is microscopic in size or affects particularly delicate organs of the body such as the eyes, treatment can be very challenging. Tsai et al. (Tsai et al. 2016) proposed a thermosensitive chitosan/gelatine/glycerophosphate hydrogel for the delivery of ferulic acid (FA) to corneal burns that may be caused by chemicals or ultraviolet-B light exposure. In this condition, an abnormal production of reactive oxygen species (ROS) is often observed, and it can be very hard for the endogenous anti-oxidant system to manage this high level. FA is a polyphenol, natural anti-oxidant compound that can prevent ROS damages. However, it has low bioavailability and residence time when administered topically in the eye. Its inclusion in the hydrogel system presented by Tsai et al. allows its successful sustained release to the cornea with very interesting clinically relevant results *in vitro* and *in vivo* (Tsai et al. 2016).

Conclusions

Hydrogels represent an excellent choice of treatment for many types of wounds, which can be difficult to manage with traditional dry dressings. However, patients would benefit from more advanced, efficient, cost-effective hydrogel products in order to significantly enhance healing time and quality. For these reasons, it is important that industry and academia continue to join their efforts and expertise. In future, it is hoped that specific novel computer technologies and equipment will enable the development of improved wound management techniques. For instance, new wound image evaluation systems such as the one proposed by Veredas et al. (Veredas et al. 2015) could give healthcare professionals a great help establishing the correct diagnosis in the shortest possible time (Veredas et al. 2015; Engel et al. 2011). The