



radicals [2,21,39,46]

10. Augmentation of leukocyte antimicrobial activities [2,5,24,47]
11. Facilitation the ability of lymphocytes to recognize and respond to microbial pathogens [2,40]

Accordingly, platelet-derived preparations can be considered as important antimicrobial products due to biocompatibility and biosafety, high clinical efficacy, few adverse effects, ease of preparation and simple legal requirements [6,10,14,48].

### PLATELET-RICH PLASMA

Platelet-rich plasma (PRP), one of platelet-derived preparations, was first introduced in 1984 by Assoian [49]. It contains a minimum platelet concentration of more than  $1 \times 10^6$ /lit or a 2- to 6-fold increase in platelet concentration from baseline [48,50,51]. PRP also contains multiple platelet-derived bioactive molecules and leucocytes which are involved in inflammatory response and antimicrobial properties [20,52].

Platelet-rich plasma can be prepared from the whole blood using double centrifugation protocol in which soft spin and high-speed centrifugation is used respectively [53-56].

However, donor's blood characteristics [57] well as preparation methods and devices [40] cause variations in PRP bioformulations and impact their quality, biological efficacy and clinical outcomes [11,40,58].

Therefore, using PRP preparations as a new achievement to combat microbial infections, requires facing many challenges, including standardization and validation of PRP preparation protocols.

### CONCLUSION

Platelet-rich plasma can be considered as an important biocompatible and safe antimicrobial product. However, standardization and validation of PRP preparation protocols are necessary in order to achieve consistent and acceptable outcomes.

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