Introduction

Solid organ transplantation (SOT) has become a life-saving treatment for end-stage organ failure. However, despite advancements in immunosuppre1I28.9(o)12msr(un)4(os)5e oicells [2]. While these two types of rejection are o en considered distinct entities, they can also interact and contribute to a mixed rejection phenotype. e development of e ective immunosuppressive agents has signi cantly reduced the incidence of acute rejection in the early

is review is limited by the complexity of the immunological mechanisms involved in acute rejection and the rapid pace of research in this eld. Further research is needed to fully understand the long-term impact of these new diagnostic and therapeutic strategies on clinical outcomes.

Conclusion

Future research should focus on developing more e ective strategies for preventing acute rejection, particularly through the induction of immune tolerance. Clinical trials are needed to evaluate the e cacy and safety of new immunosuppressive agents, cell-based therapies, and diagnostic tools. Further research is also needed to explore the potential of AI and machine learning in the diagnosis and management of acute rejection. Signi cant progress has been made in understanding the mechanisms and treatment of acute rejection in SOT. Advances in immunosuppressive therapy, diagnostic techniques, and emerging therapeutic approaches have improved gra survival rates and patient outcomes. Continued research in this eld is crucial for further reducing the incidence of acute rejection and achieving long-term gra acceptance.

References

1. Khosravi N, Pishavar E, Baradaran B, Oroojalian F, Mokhtarzadeh A, et al. (2022) Stem cell membrane, stem cell-derived exosomes and hybrid stem cell camou aged nanoparticles: A promising biomimetic nanoplatforms for cancer theranostics. J Control Release 348:706-722.
2. Wu HH, Zhou Y, Tabata Y, Gao JQ (2019) Mesenchymal stem cell-based drug delivery strategy: from cells to biomimetic. J Control Release 28: 102-113.
3. Yan K, Zhang J, Yin W, Harding JN, Ma F et al. (2022) Transcriptomic heterogeneity of cultured ADSCs corresponds to embolic risk in the host. IScience 4: 104822.
4. Zhang W, Huang X (2022) Stem cell membrane-camou aged targeted delivery system in tumor. Mater Today Bio 1: 100377.
5. Li Y, Wu H, Jiang X, Dong Y, Zheng J, et al. (2022) New idea to promote the clinical applications of stem cells or their extracellular vesicles in central nervous system disorders: Combining with intranasal delivery. Acta Pharm Sin B 12: 3215-3232.
6. Ji B, Cai H, Yang Y, Peng F, Song M, et al. (2020) Hybrid membrane