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## **C3Or3B-07: 50 Years of Innovation: Cryogenics and Superconductivity in Biomedical Applications**

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Cryogenics and superconductivity have revolutionized biomedical applications, particularly in cryosurgery and cryo-diagnostics. These technologies enable groundbreaking instruments and methods for precise medical interventions and advanced diagnostics. The development journey has been marked by significant technical challenges and milestones. This paper summarizes key achievements (including those of the authors) in this field and explores future advancements. Highlights include major cryosurgery instruments designed for various diseases, specialized particle accelerators for medical treatment, and superconducting quantum interference devices (SQUID) for cardiac and brain diagnostics, etc. Additionally, the paper briefly examines superconducting MRI and in-cell structural biology by NMR technologies, and as well as the potential of cryogenic organ preservation for transplantation. Together, these innovations underscore the transformative impact of cryogenics and superconductivity on modern medicine.

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