Organoids are becoming an important solution to further advancements in regenerative medicine, epidemiology, and biomedical research. Using these microscopic models, scientists can study the in vivo function of mammalian organs without performing invasive surgeries or facing complicated ethical barriers. The cultivation and sustainability of such organisms require the proper methods and resources and their further usage in medical settings demands the long-term storage of organoids through stable cryopreservation (biopreservation at low temperatures). However, organoids may be damaged during cryopreservation if improper cryopreservation protocol is applied. By utilization of optimal cryoprotective agents (CPAs), optimal protocols for CPA addition, cooling, rewarming, and CPA removal to avoid osmotic injury and cryoinjury, organoids can be safely cryopreserved for long time for future applications. Having such a valuable organ model on hand for biomedical experimentation and clinical applications will expedite future research compared to studies without organoids.