ABSTRACT OF THE INVENTION

METHOD AND PACKAGE DESIGN FOR CRYOPRESERVATION AND STORAGE OF CULTURED TISSUE EQUIVALENTS

This invention is directed to an efficient cryopreservation package design of harvested mammalian tissues and living cultured tissue equivalents made by in vitro technology. The invention involves immersing a mammalian tissue or cultured tissue equivalent in a cryoprotectant solution, agitating the cryoprotectant solution and the immersed tissue to achieve effective penetration of the cryoprotectant solution into the tissue, and then freezing the tissue at a very slow freezing rate. In the freezing step, extracellular ice formation is initiated by seeding. The cryopreserved tissue may be stored for indefinite periods of time prior to use. The cultured tissue equivalent is an in vitro model of the equivalent human tissue, such as skin or cornea, which, when retrieved from storage can be used for transplantation or implantation in vivo or for screening compounds in vitro.