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(54) Title: METHOD AND APPARATUS FOR ULTRA-RAPID PREPARATION OF CORNEAS FOR VITRIFICATION

(57) Abstract: A method is disclosed for handling, treating, and storing corneas that enables vitrification in air and/or liquid nitrogen vapor and rewarming without appreciable cell loss, cell death, or functional impairment after transplantation compared to untreated control corneas. The method employs extreme cornea shrinkage through osmotic disequilibrium and corneal dehydration, enabling cryoprotectant toxicity to be avoided despite prolonged exposure to peak (vitrifiable) concentrations of cryoprotectant above 0°C and cryoprotectant washout without osmotic buffering. The cornea apparatus enables ideal handling and storage and air cooling inside or outside the container used for storage.



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