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(71) Applicant (for all designated States except US): **INTEGRATED BIOSYSTEMS, INC.** [US/US]; 445 Devlin Road, Napa, CA 94558 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WISNIEWSKI, Richard** [US/US]; 15 White Plains Court, San Mateo, CA 94402 (US). **LEE, Eric, K.** [US/US]; 3 Jay Lane, Acton, MA 01720 (US).

(74) Agents: **CARDONA, Victor** et al.; 5 Columbia Circle, Albany, NY 12205 (US).

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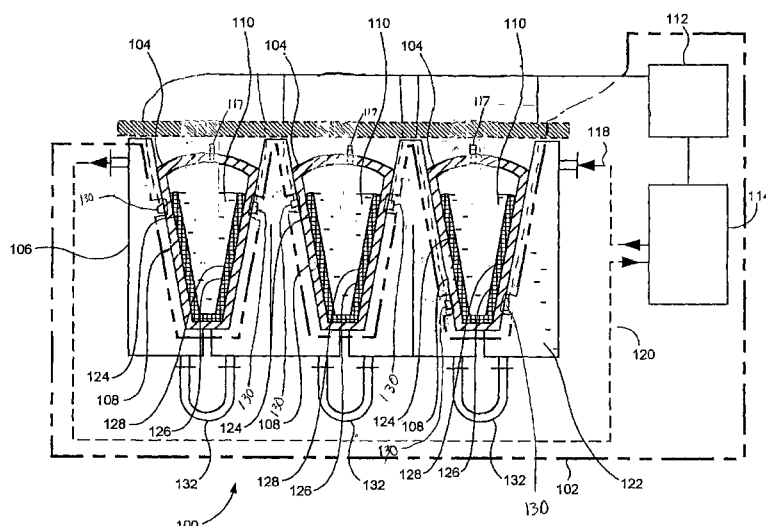
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(54) Title: CRYOPRESERVATION SYSTEM WITH CONTROLLED DENDRITIC FREEZING FRONT VELOCITY



(57) Abstract: A biopharmaceutical cryopreservation system (100) includes a container (104) having an outer surface area with the container being adapted to contain a biopharmaceutical material (110) for freezing and thawing therein. The container may be received in a cryocooling enclosure (106) having an interior cavity (108) configured to receive it. The cryocooling enclosure includes at least one heat transfer surface configured to contact the outer surface area of the container when the cryocooling enclosure interior cavity receives the container. Also, a cryocooler (114) is thermally coupled to the cryocooling enclosure and is configured to flow a fluid to the at least one heat transfer surface to control the temperature of the heat transfer surface and the biopharmaceutical material within the container. The fluid is isolated from contacting the container. Further, a temperature sensor (130) is thermally coupled to the cryocooling enclosure, the at least one heat transfer surface, the fluid and/or the cryocooler.



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