Optimal Temperature Condition Carrier Device for the Transportation of Biological Samples

Biological samples need to be maintained at or near body temperature during transportation to satellite locations for accurate clinical analysis of certain laboratory tests. The quality of the sample, especially blood, cord blood, or urine samples, may be compromised by the use of a transport carrier that takes on ambient temperatures during transportation. Compromised samples are often rejected, and patients are subjected to a second sample collection. Researchers at The University of Alabama at Birmingham (UAB) have devised a two-polymer carrier transport system that ensures that biological samples are maintained at optimal homeostatic conditions.

Commercial Advantages
- The carrier can maintain a constant temperature for six hours or longer.
- The carrier material composition can be adjusted to maintain a predetermined temperature setting.
- The carrier can be modified to accommodate single or multiple samples for transportation and shipping.
- The carrier works with existing hospital vacuum transport systems.
- The carrier is inexpensive to manufacture and replicate.
- The carrier is currently used in the UAB hospital system and clinical analysis facilities.

Technology Summary
Samples often are transported in polystyrene containers with only ice or hot packs to control sample temperature. These carrier types are used because they are readily available and inexpensive. However, narrow range temperature maintenance is especially critical when the blood test panel includes testing for specific proteins such as cryoglobulin and proteins associated with autoimmune diseases. The UAB sample carrier technology provides a secure transportation system with a greater likelihood of delivering uncompromised samples of blood and other biological materials to satellite locations or through a hospital transport system under optimal tissue-specific temperature conditions.

Patent Status

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