ABSTRACT

MINIATURIZED THERMAL CYCLER

The invention describes a thermal cycler which permits simultaneous treatment of multiple individual samples in independent thermal protocols, so as to implement large numbers of DNA experiments simultaneously in a short time. The chamber is thermally isolated from its surroundings, heat flow in and out of the unit being limited to one or two specific heat transfer areas. All heating elements are located within these transfer areas and at least one temperature sensor per heating element is positioned close by. Fluid bearing channels that facilitate sending fluid into, and removing fluid from, the chamber are provided. The chambers may be manufactured as integrated arrays to form units in which each cycler chamber has independent temperature and fluid flow control.. Two embodiments of the invention are described together with a process for manufacturing them.

(FIGURE 1A IS SUGGESTED FOR PUBLICATION)