wash-containing storage compartment, which preferably has a much larger volume that the volume of the first-mentioned storage compartment; c) a storage compartment having pre-incorporated therein, detection reagents, namely a peroxide and leuco dye, for example 2-(4-hydroxy-3,5-dimethoxyphenyl)-4,5-bis(4-methoxyphenyl)imidazole, preferably in combination with poly(vinyl pyrrolidone) as a stabilizer; and d) optionally, a storage compartment having pre-incorporated therein a stop solution to prevent too much leuco dye from converting to the dye, for example, pure water. Since these reagents are well known, further explanation is not needed.

Compartment **40**, FIG. **1**, is the detection site for this embodiment, discussed hereinafter, and compartment **42** is the waste compartment, preferably initially deflated to provide for expansion as liquid is forced into it. Compartment **42** connects to compartment **40** via passageway **43**. Optionally, a one-way check valve (not shown) can be included in passageway **43** to prevent waste liquid from backwashing into compartment **40**, thus creating undesirable background color.

Besides passageway **21**, the interconnections are as follows: passageway **44** connects reaction compartment **26** with detection compartment **40**, except that a temporary seal is provided at **46** to keep introduced DNA in compartment **26** until pressure is generated by roller **60**. Other passageways, not shown, connect the other compartments, not shown, all with detection compartment **40**, each preferably with a temporary seal **46** or **56**, that prevents flow out of the respective compartment until roller **60** breaks the seal. One passageway serves as the trunk line to which the others are joined.

The compartments are deliberately positioned, FIG. **1**, so that each one will empty into compartment **40** in the proper sequence as roller **60** advances along path A in the direction of arrows **63**. Thus, first the amplified DNA is pushed into compartment **40**, then the first wash, then the detection probe from its compartment, then the second wash, then the leuco dye solution and finally the stop solution. In some cases, the development of the dye from the leuco dye is done in the dark, for example, if the dye should fade readily in light. The respective passageways are also preferably constructed so as to be squeezed by the roller—that is, they are constructed to always form an angle alpha to arrows **63** that is less than a right angle, within path A. If they were to form a right angle, the roller would tend to jump over the passageway, rather than squeeze it.

It is not essential that both sheets **12** and **14**, FIG. **2**, be collapsible by roller **60**—only that at least one of them be, under a pressure of at least 170 g/cm. Pressures as high as 1500 g/cm are also useful. Thus, sheet **12** can comprise a collapsible, relatively flexible plastic such as a heat-sealable polyester, for example, Scotchpak TM brand heat-sealable film no. 229 made by 3M, whereas sheet **14** can be less flexible and less collapsible, or it can be of the same flexibility as sheet **12**.

At least for compartment **26**, sheet **14** can comprise a laminate of an aluminum foil on the outside and a polymer layer on the inside, preferably a layer of polyester, like sheet **12**. The aluminum foil preferably has a thickness of between about 0.0013 cm and about 0.026 cm, and most preferably about 0.005 cm. The polymer layer has a thickness of between about 0.0013 cm and about 0.03, and most preferably about 0.005 cm. The advantage of the laminate construction over a single sheet of plastic is that, once the compartment is crushed by the roller, the aluminum resists reinflation such as could allow backwashing to occur from liquids under pressure downstream. For this reason, sheet **14** is preferably so constructed as a laminate for the entire length of cuvette **10**.

It is preferred that a liquid, when ejected from its compartment, not backwash up to the passageway used to empty another compartment that is further downstream. To this end, as roller **60** advances from left to right, FIG. **1**, pinching means, e.g., a compression roller, (not shown) can be used to descend onto cuvette 10 to pinch off the passageways.

Alternatively, a prewash compartment can be included, not shown, to insure that all the exit passageways are first filled with water, so that upstream compartments will not backwash into the passageways for downstream compartments.

For detection purposes, chamber **40** includes means anchored to a support **70**, FIG. **2**, for immobilizing amplified DNA, which, when immobilized, can react with a label to produce a detectable signal, such as a color change. Preferably, such means are one or more piles of beads **80**, **82**, **84** and **86**, FIG. **1**, (most preferably, three piles), the beads having attached thereto certain chemicals. The most preferred form of the beads is one in which an immobilizing probe only, is attached to the bead. A detection probe then attaches to the immobilized, targeted DNA, for use with one or more detection reagents. More specifically, the beads have an oligonucleotide bonded to the bead via a chemical link, such nucleotide being effective to anneal to a portion of the targeted DNA, either at room temperature or with slight heating. Useful oligonucleotides are selected depending on the targeted DNA of choice, and include, for example, the sequences 5'-ATC-CTG-GGA-TTA-AAT-AAA-ATA-GTA-AGA-ATG-TAT-AGC-CCT-AC-3'. Any chemical link and bead polymer is useful to bond the oligonucleotide to the bead. For example, tetraethylene-amine dioles can be used, wherein the amine group reacts with pendent carboxylic acid groups on the bead. To provide such carboxylic acid groups, an appropriately modified styrene polymer or copolymer is preferably used. Highly preferred is a bead formed from a copolymer of styrene (about 98 mole percent) and a carboxylic acid-modified styrene (about 2 mole percent) such as 3-(p-vinylbenzylthio)propionic acid. Such beads have a melt temperature that is about 240° C.

The replicated target sequences have biotin bonded to the target DNA. The biotin then reacts with avidin that is pre-attached to a strep-horseradish peroxidase enzyme, one of the detection reagents provided in a storage chamber of cuvette **10**. The other detection reagents include a substrate that will react with the peroxidase to generate a color, as noted above.

Each pile **80**, **82**, **84** and **86** comprises a plurality of beads **90**, FIG. **3**. In accordance with the invention, at least some of the beads of each pile are fused to the support **70**, from a buffer solution. To ensure that a minimum, and preferably no, denaturing occurs to the oligonucleotide on the beads, support **70** is preferably selected from a plastic having a melting point that is significantly (i.e., at least 20° C.) less than that of the beads. Most preferably, that heating temperature is selected to be less than 150° C., as this gives maximum insurance against denaturing the oligonucleotides on the beads. A highly useful plastic meeting this requirement is polyethylene, although others having such a