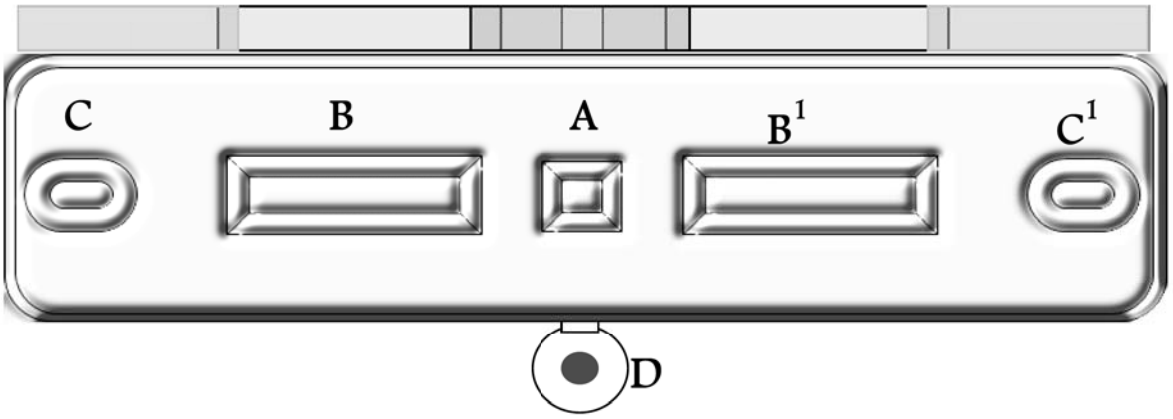
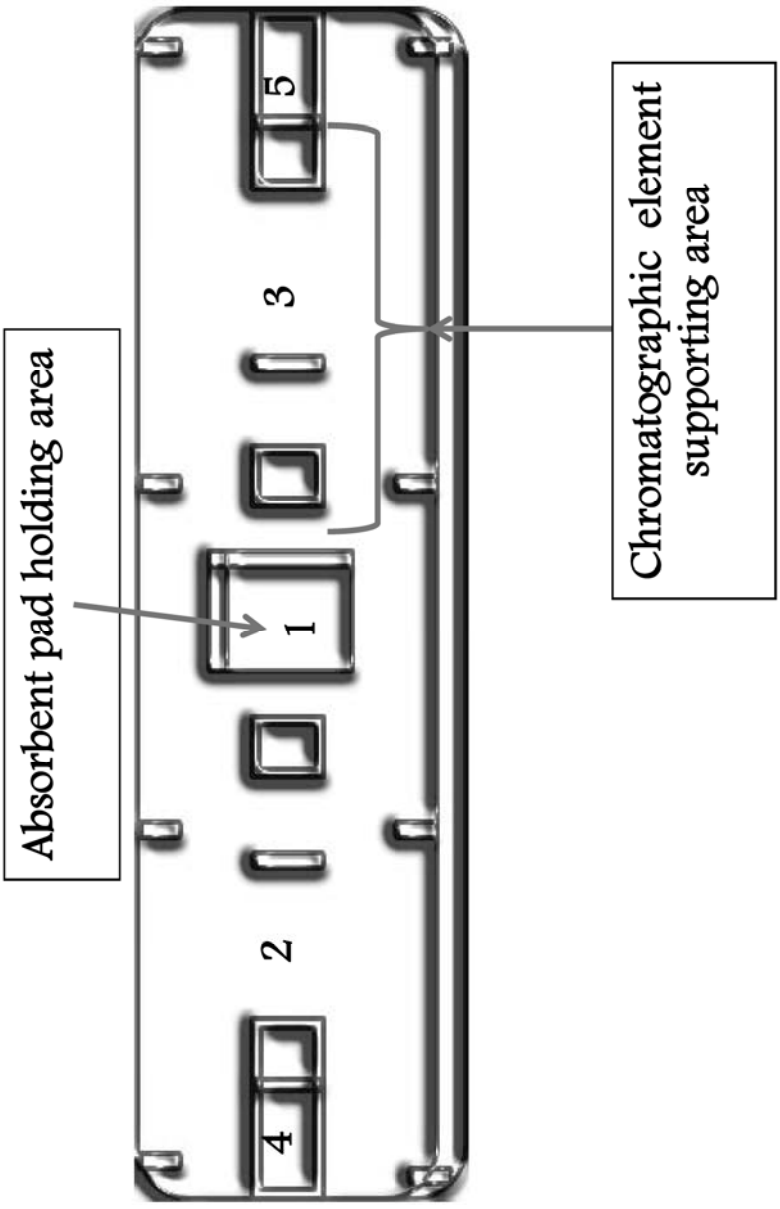


Fig-1: Schematic Diagram of Multi Chamber Bi-directional Reverse Flow (DCBRF) Device


Absorbent pad holding area
Chromatographic element supporting area
1
2
3
4
5

Fig~2

Reagent Window
Reaction Chamber
Sample Window
C¹
B¹
A
B
C
Reagent releasing pad
Reaction Zone
Sample releasing pad
Z
Y
X
Chromatographic Element

Fig~3

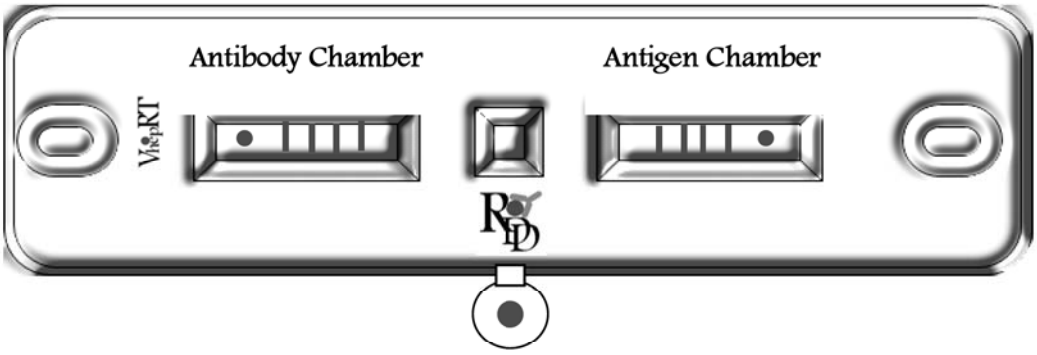


Fig-4. Detection of two different and contract multiple bio-markers using single Device

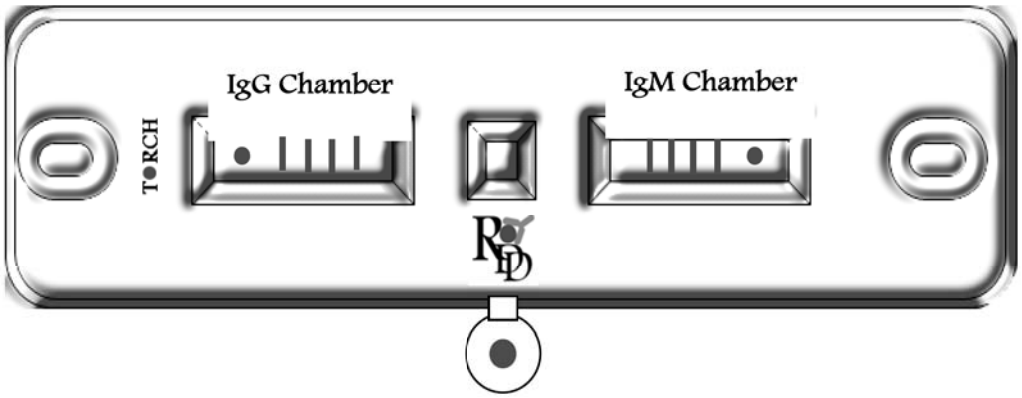


Fig-5. A schematic diagram of simultaneous detection of two different types of antibodies against ToRCH panel.

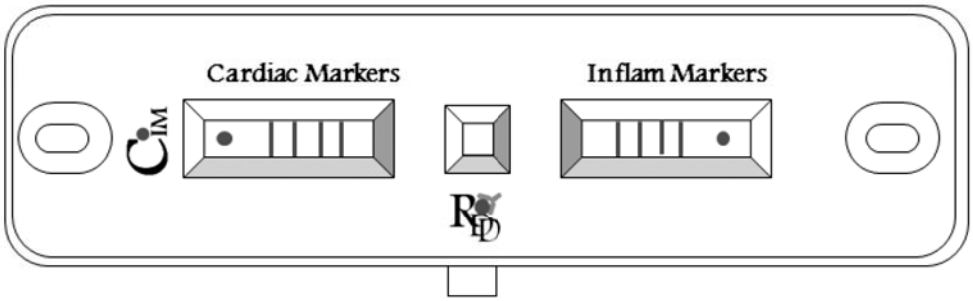
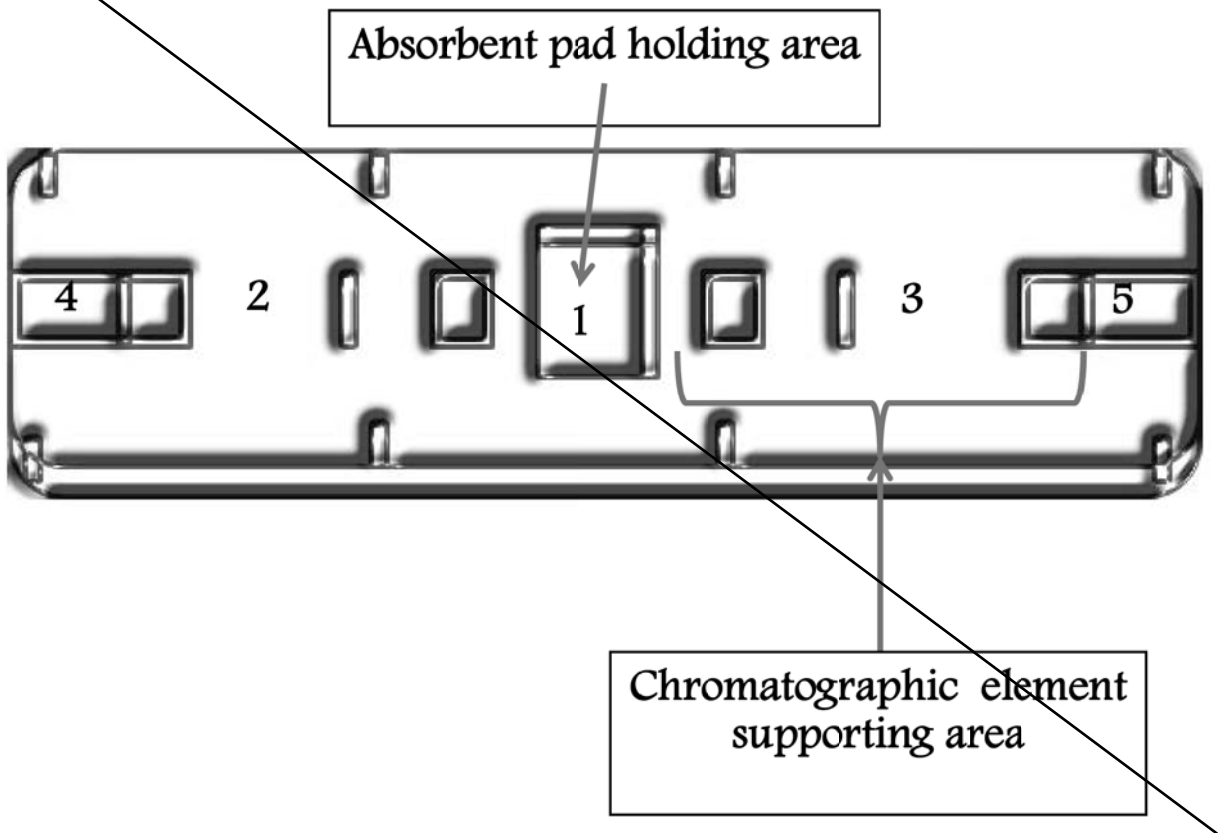


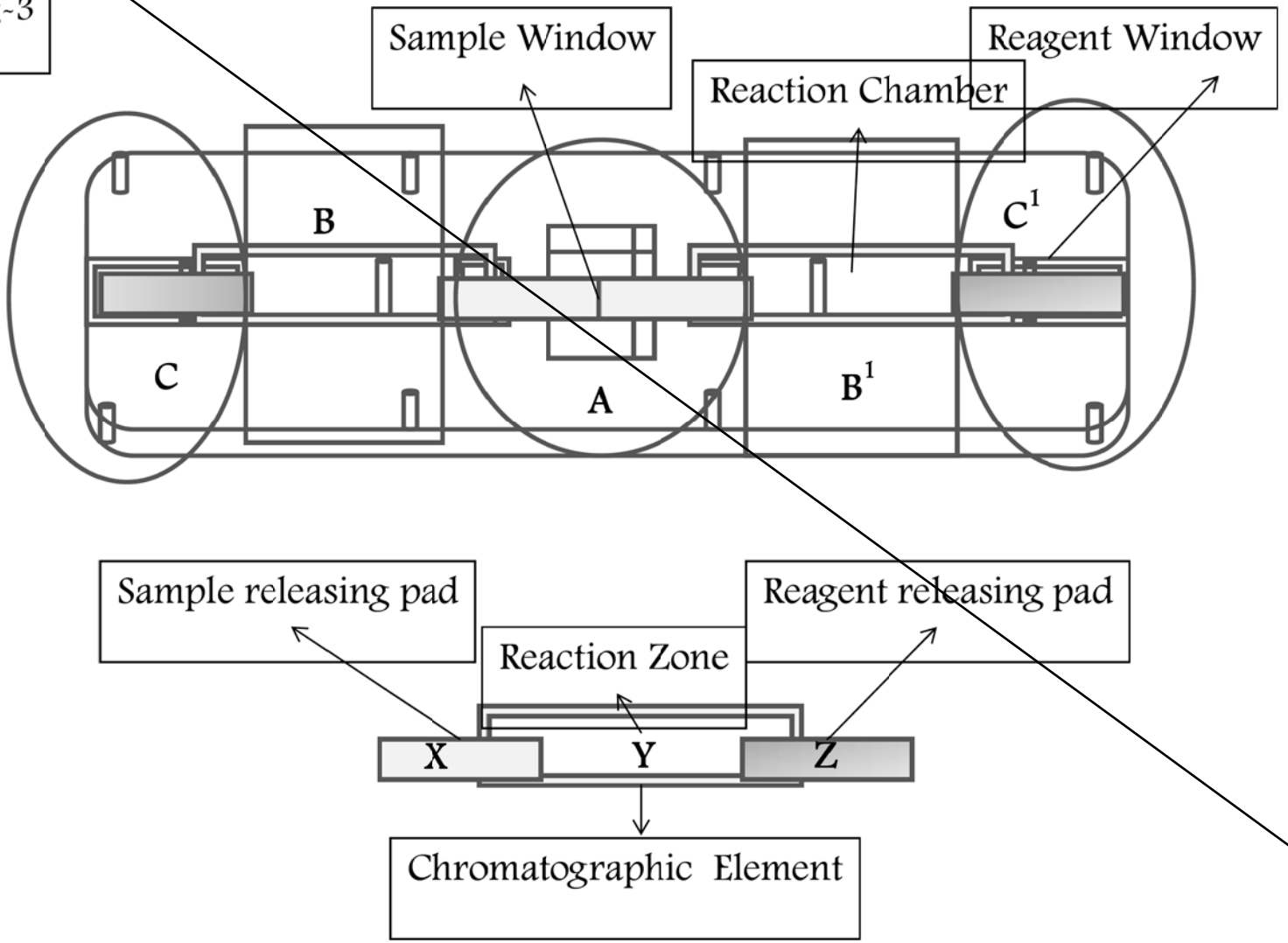
Fig-6. A schematic diagram of Multiple Cardiac Biomarkers using Double Chamber Bi-directional Device

Fig-2


Absorbent pad holding area
4
2
1
3
5
Chromatographic element supporting area

- Fig-2 is a view of Double Chamber Bi-directional Reverse Flow showing the view of lower case of present invention which is made of plastic and has several supporting areas to hold chromatographic elements, separator and absorbent pad. The central notch is designed to hold absorbent pad on top of which separator is placed to separate sample pad and is connected two chromatographic elements. The each chromatographic element has three distinct areas; sample pad area (common for two membranes), reaction zone and reagent pad area. The membrane is held by lower case of the device with appropriate supporting notches on the lower plastic case.

Fig-3


Sample Window
Reaction Chamber
Reagent Window
B
C
A
B1
C1
Sample releasing pad
Reagent releasing pad
Reaction Zone
X
Y
Z
Chromatographic Element

- Fig-3 showing different components of assay device and how they adjust on the bottom part of the plastic case. Each side of the device has three major components: chromatographic element which is connected and positioned on separator and is placed above absorbent pad. The each chromatographic element is consists of three parts: sample receiving end (X), reaction zone (Y) and reagent releasing end (Z). The common sample receiving end is positioned at the centre of device and placed on the separator, so that once sample is added it flows in both directions over reaction zones. The chromatographic elements are supported by plastic backing. In this embodiment of present invention, optional filter pad is attached to and constitutes the part of sample receiving end while optional reagents bearing pad is impregnated with releasable reagents. Reaction zones contain colored indicators as well as immobilized capturing agents. Optionally reaction zones also contain known protein (Protein-A or Protein-L) which ultimately used as an indicator of the validity of the device during assay procedure.