

CLAIMS

What is claimed is:

1. A system for magnetic separation of a target bioentity from a fluid suspension of target bioentities and bystander bioentities in a processing chamber, comprising:
a platform configured to receive the processing chamber at an upper surface of the platform, the chamber having an opening through which the processing chamber can be filled with a cell suspension having magnetized or magnetizable target bioentities, wherein the processing chamber is a fluid chamber having a collection surface; and
a magnetic element mounted to the platform and movable relative to the platform such that in a first selected position of the platform the magnetic element is magnetically coupled to the processing chamber to apply a magnetic field to the collection surface to attract the target bioentities to the collection surface.
2. The system of claim 1, comprising a chamber control assembly connected with the processing chamber and the magnetic element operable to pivot the separation chamber and the magnetic element about an axis to move the magnetic element from the first selected position to a second selected position in response to rotation of the platform, the second selected position further away from the platform than the first selected position.
3. The system of any one the preceding claims, wherein the magnetic element is movable in a direction perpendicular to the upper surface.
4. The system of any one the preceding claims, wherein the platform includes one or more posts on which the magnetic element is movably mounted to permit the magnetic element to move from the first selected position to a second selected position on the one or more posts, the second selected position further away from the platform than the first selected position.
5. The system of claim 4, wherein magnetic element is configured to move on the one or more posts from the first selected position to the second selected position in response to rotation of the platform.
6. The system of any one the preceding claims, wherein magnetic element is configured to move from the first selected position to a second selected position further away from the platform than the first selected position in response to rotation of the platform.
7. The system of any one of the preceding claims, wherein the magnetic element comprises an array of magnets.

8. The system of any one of the preceding claims, wherein the platform includes a cavity extending therethrough.
9. The system of claim 8, wherein magnetic element is dimensioned to fit within the cavity.
10. The system of any one of claims 8–9, comprising a plurality of longitudinal non-magnetic bars disposed parallel to one another in spaced apart relation in the cavity with a plurality of openings disposed between respective pairs of the longitudinal non-magnetic bars.
11. The system of claim 10, wherein magnetic element includes an array of longitudinally extending magnets dimensioned to fit within respective ones of the plurality of openings when the magnetic element is in the first selected position.
12. The system of any one of claims 10–11, wherein platform includes a non-magnetic sheet disposed over and in contact with the plurality of longitudinal non-magnetic bars to provide a flat surface for engagement with the processing chamber.
13. The system of any one the preceding claims, comprising a cover disposed over the upper surface to define a space between the cover and upper surface for receiving and retaining the processing chamber.
14. The system of claim 13, comprising a cam in contact with the upper surface and the cover, the cam rotatable to vary a distance between the upper surface and the cover.
15. The system of any one of claims 13–14, wherein the cover is movable along a direction perpendicular to the upper surface to vary the distance therebetween.
16. The system of any one the preceding claims, wherein the processing chamber is a blood bag.
17. A system for magnetic separation of a target bioentity from a fluid suspension of target bioentities and bystander bioentities in a processing chamber in the form of a bag, the chamber having an opening through which the chamber can be filled with a cell suspension having magnetized or magnetizable target bioentities, wherein the processing chamber is a fluid chamber having a collection surface, the system comprising:
 - a platform having a cavity extending therethrough from an upper surface to an opposing lower surface;
 - a plurality of longitudinal non-magnetic bars disposed parallel to one another in spaced apart relation in the cavity with a plurality of openings disposed between respective pairs of the longitudinal non-magnetic bars; and

a plurality of magnets disposed in the plurality of openings in the cavity proximate the upper surface, such that the plurality of magnets may be magnetically coupled to the processing chamber to apply a magnetic field to the collection surface to attract the target bioentities to the collection surface.

18. The system of claim 17, comprising a non-magnetic sheet disposed on the upper surface and in contact with the plurality of longitudinal non-magnetic bars to provide a flat surface for receiving and supporting the processing chamber.