CLAIMS

What is claimed is:

1. A method comprising:

(A) obtaining a device comprising a rotational axis and a mixing chamber with a curved side that is not coaxial with the rotational axis, wherein the mixing chamber contains a fluid comprising two or more different components;

(B) accelerating the device to a first speed in a direction towards the curved side of the mixing chamber; and

(C) decelerating abruptly the device such that the fluid moves towards the curved side of the mixing chamber due to inertia, wherein the curved side of the mixing chamber translates movement of the fluid into a circular motion that produces vortices, thereby promoting mixing of the two or more different components in the fluid.

2. The method of claim 1, further comprising:

(D) repeating the accelerating (B) and the decelerating (C) for one or more times.

3. The method of claim 2, wherein the mixing chamber comprises a pathway at a side opposite to the curved side and not coaxial with the rotational axis, the method further comprising:

(E) accelerating the device at a second speed in a direction towards the pathway; and

(F) decelerating abruptly the device such that the fluid moves towards the pathway of the mixing chamber due to inertia.

4. A method comprising:

(A) obtaining a device having a rotational axis and a chamber having a pathway that is not coaxial with the rotational axis, wherein the chamber contains a fluid;

(B) accelerating the device in a direction towards the pathway of the chamber; and

(C) decelerating abruptly the device such that the fluid moves towards the pathway of the chamber due to inertia.

5. The method of claim 1 or 4, wherein a volume of the fluid is at most 70% of the mixing chamber.

6. The method of claim 1, wherein the first speed and/or the second speed is based at least in part on a type of the fluid, an amount of the fluid, a shape of the mixing chamber, or any combination thereof, and/or wherein the first speed is about 300 rpm to about 1000 rpm.

7. The method of claim 1 or 4, wherein the liquid comprises blood.

8. The method of claim 1 or 4, wherein the decelerating (C) is performed at a deceleration of at least 500 rpm/s and/or wherein the decelerating (C) brings the device to a full stop.

9. The method of claim 1 or 4, wherein the curved side of the mixing chamber has a circular size of about 1 mm to about 30 mm.

10. A device configured for mixing a fluid comprising two or more components,

wherein the device comprises a rotational axis and a mixing chamber, and

wherein the mixing chamber comprises a curved side that is not coaxial with the rotational axis.

11. The device of claim 10, wherein the curved side of the mixing chamber is configured to translate movement of the fluid into a circular motion that produces vortices, thereby promoting mixing of the two or more different components in the fluid, and/or wherein the curved side of the mixing chamber has a circular size of about 1 mm to about 30 mm.