v. optionally comprises one or more anti-swirl and / or heat exchange baffle(s).

In some embodiments, a mobile carriage assembly to which a disposable reaction container may be removably attached, the mobile carriage assembly comprising at least one wheel and / or track and an implement for mixing the components of the reaction in the reaction chamber, is provided. Exemplary of such embodiments may be those shown in **Figs. 1** and **2**. Such a mobile carriage assembly may be placed into a holder as, for example, described herein to carry out a reaction within the disposable reaction container **(Fig. 3)**.

The reactor systems described herein may be used to carry out any of a variety of reactions, such as a chemical process, a pharmaceutical process, and / or a biological process (or combinations thereof). Exemplary biological processes may include, for example, microbiological culture, mammalian cell culture, and plant cell culture. In some embodiments, the reaction ~~may be~~ may be used in at least one step of a process for the production of a composition comprising a peptide, protein, nucleic acid, complex thereof, combination thereof, or the like for use in, for example, for the prevention and / or treatment of a disease (e.g., as a vaccine). Also provided are methods for carrying out such reactions using the reactor systems described herein. The products of such reactions are also provided by this disclosure. Additional embodiments and advantages of these systems are described below.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1. Exemplary carriage assembly.

Figure 2. Exemplary carriage assembly with reversibly attached reaction container (4).

Figure 3. Exemplary carriage assembly and holder (e.g., external jacket system) and exemplary tracks (8) for reversibly inserting carriage assembly (optionally also comprising reaction container) into holder.

Figure 4. Exemplary reactor system in which carriage assembly is contained within holder and separated from exterior by door (7).

CLAIMS

What is claimed is:

1. A reactor system comprising:
    a. a mobile carriage assembly comprising:
        i) a carriage platform;
        ii) at least one primary ~~mobility implement~~wheel and at least one secondary ~~mobility implement~~wheel;
        iii) a shaft and impellar assembly attached to the carriage platform;
    b. a disposable reaction container removably attached to the carriage platform; and,
    c. a mobile carriage assembly holder into which the mobile carriage assembly may be removably inserted, the holder comprising ~~a~~ one or more wheels and/or tracks for receiving ~~implement~~the mobile carriage assembly;

    wherein:

    the mobile carriage assembly ~~is~~ may be removably inserted into and removed from the holder using the secondary ~~mobility implement~~wheel of the mobile carriage assembly and the one or more wheels and/or tracks for receiving the mobile carriage assembly~~implement of the holder; and,~~

    ~~the secondary mobility implement comprises implements proximal to and distal from the receiving implement in the pre-assembled position~~.

2. The reactor system of claim 1 wherein the carriage holder comprises a heat transfer jacket.

~~3. The reactor system of claim 1 or 2 wherein the mobile carriage assembly further comprises an implement for mixing the components of the reaction.~~

4.3. The reactor system of claims 1 or 2, wherein the disposable reaction container:
    a. comprises a sterile, sealable interior chamber in which reaction components may be reacted with one another;
    b. may be removed from the mobile carriage assembly after the reaction is complete;
    c. functions to separates the contents of the reaction separated from the external environment after removal from the mobile carriage assembly; and / or,
    d. comprises a sparge.

~~5~~4. The reactor system of any one of claims 1-~~4~~3 wherein the holder:

~~i. comprises a receiving implement with which the mobile carriage assembly may be inserted into and optionally affixed to, and removed from, the holder;~~

ii. is configured to maintains the desired geometry of the disposable reaction container, optionally including reaction container anti-swirl baffles;

~~ii~~iii. is configured to provides for heating and / or cooling of the reaction components within the reaction container;

~~iv~~iii. comprises a door for maintaining the reaction container separated from the exterior of the holder; and / or,

iv. comprises one or more anti-swirl and / or heat exchange baffles.

~~6. The reactor system of claim 5 wherein the receiving implement comprises one or more wheels and / or tracks.~~

~~7.~~5. The reactor system of any one of claims 1-~~5~~4 wherein the reaction is selected from the group consisting of a chemical process, a pharmaceutical process, and a biological process.

~~8.~~6. The reactor system of claim ~~7~~5 wherein the biological process is selected from the group consisting of microbiological culture, mammalian cell culture, and plant cell culture.

~~9.~~7. The reactor system of claim ~~7~~5 wherein the reaction is at least one step of a process for the production of a composition comprising a peptide, protein, nucleic acid, complex thereof, or combination thereof.

~~10.~~8. The reactor system of any one of claims 1-~~9~~7 wherein the holder comprises one or more vertical seams at which the holder may be opened and / or closed and further comprises one or more vertical hinges.

~~11.~~9. The reactor system of claim ~~10~~8 wherein the one or more vertical hinges are positioned approximately opposite the one or more vertical seams.

~~12.~~10. A method for carrying out a reaction using a reactor system of any one of claims 1-~~11~~9.

~~13.~~11. The method of claim ~~12~~10 wherein the reaction is selected from the group consisting of a chemical process, a pharmaceutical process, and a biological process.

~~14.~~12. The method of claim ~~13~~11 wherein the biological process is selected from the group consisting of microbiological culture, mammalian cell culture, and plant cell culture.

~~15.~~13. The method of claim ~~12~~10 wherein the reaction is at least one step of a process for the production of a composition comprising a peptide, protein, nucleic acid, complex thereof, or combination thereof.

~~16. A reaction product produced using a reactor system of any one of claim 1-11.~~

~~17. A reaction product produced using a method of any one of claim 12-15.~~

~~18.~~14. A mobile carriage assembly to which a disposable reaction container may be removably attached, the mobile carriage assembly comprising a carriage platform, at least one primary ~~mobility implement~~wheel for moving the carriage assembly and at least one secondary ~~mobility implement~~wheel, ~~comprising implements proximal to and distal from the receiving implement in the pre-assembled position for removably inserting the mobile carriage assembly into a holder,~~ and an implement for mixing the components of the reaction in the reaction container, the implement being attached to the carriage platform; and wherein the carriage platform is capable of removably attaching the disposable reaction container.

~~19. The reactor system of claim 1 wherein the primary mobility implement comprises one or more wheels or tracks.~~

~~20. The reactor system of claim 19 wherein the primary mobility implement comprises one or more wheels.~~

~~21. The reactor system of claim 1 wherein the secondary mobility implement comprises one or more wheels or tracks.~~

~~22. The reactor system of claim 21 wherein the primary mobility implement comprises one or more wheels.~~

~~23. The reactor system of claim 1 wherein each of the primary mobility implement and the secondary mobility implement comprises one or more wheels.~~

~~24. The reactor system of claim 1 wherein the receiving implement comprises one or more wheels or tracks.~~

~~25. The reactor system of claim 24 wherein the receiving implement comprises one or more tracks.~~

~~26. The mobile carriage assembly of claim 18 wherein the primary mobility implement comprises one or more wheels or tracks.~~

~~27. The mobile carriage assembly of claim 26 wherein the primary mobility implement comprises one or more wheels.~~

~~28. The mobile carriage assembly of claim 18 wherein the secondary mobility implement comprises one or more wheels or tracks.~~

~~29. The mobile carriage assembly of claim 28 wherein the primary mobility implement comprises one or more wheels.~~

~~30. The reactor system of claim 19 wherein each of the primary mobility implement and the secondary mobility implement comprises one or more wheels.~~