

**[0150]** In some embodiments, the present invention includes the step of bringing an antibody or other species into association or contact with a suitable carrier, which may constitute one or more accessory ingredients. The final compositions may be prepared by any suitable technique, for example, by uniformly and intimately bringing the composition into association with a liquid carrier, a finely divided solid carrier or both, optionally with one or more formulation ingredients as previously described, and then, if necessary, shaping the product.

**[0151]** In some embodiments, the antibody or other species may be present as a pharmaceutically acceptable salt. The term "pharmaceutically acceptable salts" includes salts of the composition, prepared in combination with, for example, acids or bases, depending on the particular compounds found within the composition and the treatment modality desired. Pharmaceutically acceptable salts can be prepared as alkaline metal salts, such as lithium, sodium, or potassium salts; or as alkaline earth salts, such as beryllium, magnesium or calcium salts. Examples of suitable bases that may be used to form salts include ammonium, or mineral bases such as sodium hydroxide, lithium hydroxide, potassium hydroxide, calcium hydroxide, magnesium hydroxide, and the like. Examples of suitable acids that may be used to form salts include inorganic or mineral acids such as hydrochloric, hydrobromic, hydroiodic, hydrofluoric, nitric, carbonic, monohydrogencarbonic, phosphoric, monohydrogenphosphoric, dihydrogenphosphoric, sulfuric, monohydrogensulfuric, phosphorous acids and the like. Other suitable acids include organic acids, for example, acetic, propionic, isobutyric, maleic, malonic, benzoic, succinic, suberic, fumaric, mandelic, phthalic, benzenesulfonic, p-tolylsulfonic, citric, tartaric, methanesulfonic, glucuronic, galacturonic, salicylic, formic, naphthalene-2-sulfonic, and the like. Still other suitable acids include amino acids such as arginate, aspartate, glutamate, and the like.

**[0152]** As mentioned, in some embodiments of the invention, a nucleotide sequence encoding an antibody or a portion of antibody (e.g., a light chain or a heavy chain) may be delivered into a cell, for example, to be expressed by the cell. The cell may be, for example, a CHO cell, a bacteria, an immortal cell, etc. For instance, an antibody-producing cell may be determined as discussed herein, and its DNA sequenced using techniques known to those of ordinary skill in the art. In some cases, portions of genetic sequence used to produce antibodies or antibody fragments may be identified, and the portions transfected or inserted into another, host cell that causes the cell to produce the target nucleotide sequence (for example, a gene that causes the cell to produce an antibody). Any method or delivery system may be used for the delivery and/or transfection of the nucleic acid in the cell, for example, but not limited to particle gun technology, colloidal dispersion systems, electroporation, vectors, and the like.

**[0153]** In its broadest sense, a "delivery system," as used herein, is any vehicle capable of facilitating delivery of a nucleic acid (or nucleic acid complex) to a cell and/or uptake of the nucleic acid by the cell. Other example delivery systems that can be used to facilitate uptake by a cell of the nucleic acid include calcium phosphate and other chemical mediators of intracellular transport, microinjection compositions, and homologous recombination compositions (e.g., for integrating a gene into a preselected location within the chromosome of the cell).

**[0154]** The term "transfection," as used herein, refers to the introduction of a nucleic acid into a cell. Transfection may be accomplished by a variety of means known to the art. Such methods include, but are not limited to, particle bombardment mediated transformation (e.g., Finer et al., *Curr. Top. Microbiol. Immunol.*, 240:59 (1999)), viral infection (e.g., Porta and Lomonosoff, *Mol. Biotechnol.* 5:209 (1996)), microinjection, electroporation, and liposome injection. Standard molecular biology techniques are common in the art (See e.g., Sambrook, J. et al., *Molecular Cloning: A Laboratory Manual*, 2<sup>nd</sup> ed., Cold Spring Harbor Laboratory Press, New York (1989)).

**[0155]** For instance, in one set of embodiments, genetic material may be introduced into a cell using particle gun technology, also called microprojectile or microparticle bombardment, which involves the use of high velocity accelerated particles. In this method, small, high-density particles (microprojectiles) are accelerated to high velocity in conjunction with a larger, powder-fired macroprojectile in a particle gun apparatus. The microprojectiles have sufficient momentum to penetrate cell walls and membranes, and can carry DNA or other nucleic acids into the interiors of bombarded cells. It has been demonstrated that such microprojectiles can enter cells without causing death of the cells, and that they can effectively deliver foreign genetic material into intact tissue.

**[0156]** In another set of embodiments, a colloidal dispersion system may be used to facilitate delivery of the nucleic acid (or nucleic acid complex) into the cell. As used herein, a "colloidal dispersion system" refers to a natural or synthetic molecule, other than those derived from bacteriological or viral sources, capable of delivering to and releasing the nucleic acid to the cell. Colloidal dispersion systems include, but are not limited to, macromolecular complexes, beads, and lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. One example of a colloidal dispersion system is a liposome. Liposomes are artificial membrane vessels. It has been shown that large unilamellar vessels ("LUV"), which range in size from 0.2 to 4.0 microns can encapsulate large macromolecules within the aqueous interior and these macromolecules can be delivered to cells in a biologically active form (Fraleay, et al., *Trends Biochem. Sci.*, 6:77 (1981)).

**[0157]** Lipid formulations for transfection and/or intracellular delivery of nucleic acids are commercially available, for instance, from QIAGEN, for example as EFFECTENE® (a non-liposomal lipid with a special DNA condensing enhancer) and SUPER-FECT® (a novel acting dendrimeric technology) as well as Gibco BRL, for example, as LIPO-FECTIN® and LIPOFECTACE®, which are formed of cationic lipids such as N-[1-(2,3-dioleoyloxy)-propyl]-N,N,N-trimethylammonium chloride (DOTMA) and dimethyl dioctadecylammonium bromide (DDAB). Methods for making liposomes are well known in the art and have been described in many publications. Liposomes were described in a review article by Gregoriadis, G., *Trends in Biotechnology* 3:235-241 (1985), which is hereby incorporated by reference.

**[0158]** Electroporation may be used, in another set of embodiments, to deliver a nucleic acid (or nucleic acid complex) to the cell. Electroporation, as used herein, is the application of electricity to a cell in such a way as to cause delivery of the nucleic acid into the cell without killing the cell. Typically, electroporation includes the application of one or more electrical voltage "pulses" having relatively short durations (usually less than 1 second, and often on the scale of milli-