PATENT NEWS: NANOPHARMACEUTICALS

1. **High shear application in drug delivery (WO/2011/139479)**

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   In this disclosure, methods and systems for drug delivery utilizing high shear are disclosed. In an embodiment, a method comprises (1) subjecting a therapeutic fluid containing a drug to high shear; and (2) obtaining a processed therapeutic fluid, wherein the processed therapeutic fluid contains the drug in nano-size. In an embodiment, a method comprises (1) subjecting a drug carrier and a therapeutic fluid containing a drug to high shear; and (2) obtaining a processed therapeutic fluid, wherein the processed therapeutic fluid contains the drug carrier loaded with the drug. In an embodiment, a method comprises (1) applying high shear to a drug carrier and a therapeutic fluid containing a drug; (2) obtaining a processed therapeutic fluid, wherein the processed therapeutic fluid contains the drug-loaded carrier; and (3) modifying the drug-loaded carrier with a targeting moiety to obtain a modified drug-loaded carrier.

2. **Methods and systems for generating nanoparticles (WO/2011/119262)**

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   In one aspect, the present invention provides a process for forming polymeric nanoparticles, which comprises using a static mixer to create a mixed flowing stream of an anti-solvent, e.g., by introducing a liquid anti-solvent into a static mixer, and introducing a polymer solution into the mixed flowing anti-solvent stream such that controlled precipitation of polymeric nanoparticles occurs. The nanoparticles can then be separated from the anti-solvent stream.

3. **Targeted PRDM gene or protein modulation therapeutic agents (WO/2011/050178)**

   Bookbinder Lonnie

   A medicinal new chemical entity is created when a targeted nanocarrier is combined with a PRDM gene- or protein-modulating agent. The present invention comprises

a therapeutic agent comprising a nanocarrier labeled with one or more cell- or tissue-targeting moieties, which can deliver a therapeutic payload that modulates the activity of one or more PRDM genes or proteins or associated genes or proteins (*e.g.*, the PRDM14 gene or protein). Nanocarriers incorporating the payload (*e.g.*, a PRDM gene- or protein-modulating agent) and the targeting moieties are assembled. The compound is next administered to an animal (*e.g.*, a human) with a disease or malady associated with the gene or a protein or other endogenous substance contributing to the disease process (*e.g.*, cancer, a proliferative disease or other genetic disorder) so as to bring about a therapeutic effect.

4. **Topical drug delivery systems for ophthalmic use (WO/2010/144194)**

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Topical drug delivery systems for ophthalmic use including mixed nanomicellar formulations of water-insoluble drugs and methods of treating diseases affecting the posterior ocular segments are disclosed. In an embodiment, an aqueous ophthalmic solution includes nanomicelles in a physiologically acceptable buffer, having a pH of 5.0 to 8.0, wherein a corticosteroid at a concentration from about 0.01 % w/v to about 1.00 % w/v is solubilized through entrapment in a mixed micellar hydrophobic core with a corona composed of hydrophilic chains extending from the hydrophobic core, wherein the nanomicelles comprise vitamin E TPGS at a concentration ranging from about 3.0 % w/v to about 5.0 % w/v stabilized with octoxynol-40 at a concentration ranging from about 1.0 % w/v to about 3.0 % w/v.

5. **Guanosine/GMP gels and uses thereof (WO/2010/132047)**

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The invention relates in some aspects to guanosine/GMP gel compositions for delivering antibodies, nucleic acids, and particles. In other aspects the invention relates to guanosine/GMP gel compositions and methods of use thereof for controlled-release of antibody, nucleic acid, and micro- and nano-particles.

6. Use of inclusion bodies as therapeutic agents (WO/2010/131117)

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The present invention relates to the use of inclusion bodies as vehicles for therapeutic protein delivery. This method is applicable to the delivery of therapeutic proteins to intracellular locations. In addition, the invention also relates to the administration of a cell or a pharmaceutical composition comprising inclusion bodies formed by therapeutic proteins. These inclusion bodies formed by therapeutic proteins could be used for the treatment of different diseases.