

## **ABSTRACT**

### **INTRAVENOUS FORMULATIONS OF COENZYME Q10 (COQ10) AND METHODS OF USE THEREOF**

Disclosed herein are formulations suitable for parenteral administration of certain hydrophobic active agents such as Coenzyme Q10. Methods of preparing the same and methods of treatment of oncological disorders using the same are also provided herein. The formulations comprise an aqueous solution; a hydrophobic active agent dispersed to form a colloidal nano-dispersion of particles; and at least one of a dispersion stabilizing agent and an opsonization reducer wherein the colloidal nano-dispersion of the active agent is dispersed into nano-dispersion particles having a mean size of less than 200-nm. Methods of preparing the parenteral formulations comprise dispersing the hydrophobic active agent by high pressure homogenization by (1) adding hydrophobic active agent to a 65°C bath of water and mixing to form a hydrophobic active agent/water mixture; (2) adding a dispersion stabilizing agent to the hydrophobic active agent/water mixture and mix at 65°C to form a hydrophobic active agent/water/stabilizer mixture; (3) adding an opsonization reducer to form a hydrophobic active agent/water/stabilizer/reducer mixture; (4) pre-heating a Microfluidizer to 65°C; and (5) processing by mixing the hydrophobic active agent/water/stabilizer/reducer mixture in the Microfluidizer at 65°C such that a hydrophobic active agent colloidal nano-dispersion having a mean particle size less than 200-nm is formed. Provided herein are also methods of treating oncological disorders by administering formulations described herein to a subject such that treatment or prevention of the oncological disorder occurs.

Figure 1