

ABSTRACT

NOVEL GOLD-BASED NANOCRYSTALS FOR MEDICAL TREATMENTS AND ELECTROCHEMICAL MANUFACTURING PROCESSES THEREFOR

The present invention relates to novel gold nanocrystals and nanocrystal shape distributions that have surfaces that are substantially free from organic impurities or films. Specifically, the surfaces are "clean" relative to the surfaces of gold nanoparticles made using chemical reduction processes that require organic reductants and/or surfactants to grow gold nanoparticles from gold ions in solution. The invention includes novel electrochemical manufacturing apparatuses and techniques for making the gold-based nanocrystals. The invention further includes pharmaceutical compositions thereof and the use of the gold nanocrystals or suspensions or colloids thereof for the treatment or prevention of diseases or conditions for which gold therapy is already known and more generally for conditions resulting from pathological cellular activation, such as inflammatory (including chronic inflammatory) conditions, autoimmune conditions, hypersensitivity reactions and/or cancerous diseases or conditions. In one embodiment, the condition is mediated by MIF (macrophage migration inhibiting factor).

Figure 1a