

# Determination of the potency of hexyl-ciprofloxacin molecules that interact with gold nanoparticles in a reversible manner

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This work determined the potency of hexyl-ciprofloxacin molecules that reversibly interact with gold nanoparticles (AuNPs) passivated with 11-mercaptopundecanoic acid (MUA) on *Escherichia coli* cells. For this, partition of modified antibiotic between different compartments of the gold colloid was determined using analytical techniques. First, concentration of hexyl-ciprofloxacin was determined in the continuous phase of the colloid. Subsequently, the colloid was exposed to a volume of organic immiscible solvent and concentration of the transferred molecules was determined in the organic phase. Comparison of the amount of hexyl-ciprofloxacin in each phase revealed that interaction between molecules and nanoparticles was reversible. Later, this work determined the potency of a population of hexyl-ciprofloxacin molecules contained in a volume of the colloid, and the potency of other population of molecules that only interact with the continuous phase of the colloid. The absolute difference between these two values was proportional to the potency of a number of molecules that interact with the nanoparticles of the colloid.