

Supporting Information

Targeting and Inhibiting *Plasmodium falciparum*

Using Ultra-small Gold Nanoparticles

*Silvia Varela-Aramburu^{†,‡}, Chandradhish Ghosh[†], Felix Goerdeler^{†,‡}, Patricia Priegue^{†,‡},
Oren Moscovitz^{†,‡} and Peter H. Seeberger^{*,†,‡}*

[†]Department of Biomolecular Systems, Max Planck Institute of Colloids and Interfaces, Am
Mühlenberg 1, 14476 Potsdam, Germany

[‡]Department of Biology, Chemistry, Pharmacy, Freie Universität Berlin, Arnimallee 22, 14195
Berlin, Germany

*Corresponding author: Peter.Seeberger@mpikg.mpg.de

Supporting images

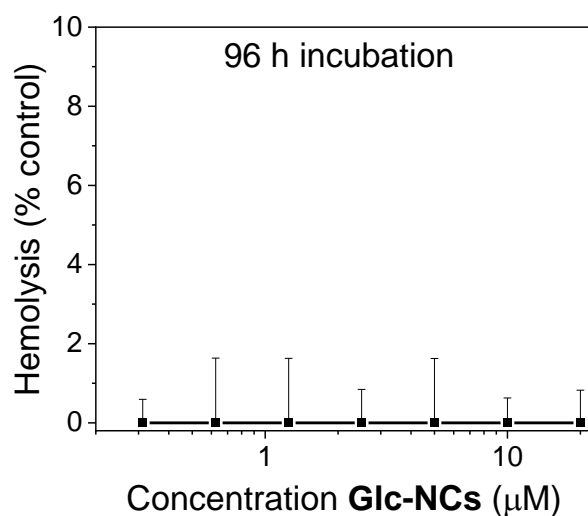


Figure S1. Hemolysis assay of **Glc-NCs** (0.3 to 20 μM) incubated with RBCs for 96 h showed no hemolytic effect.

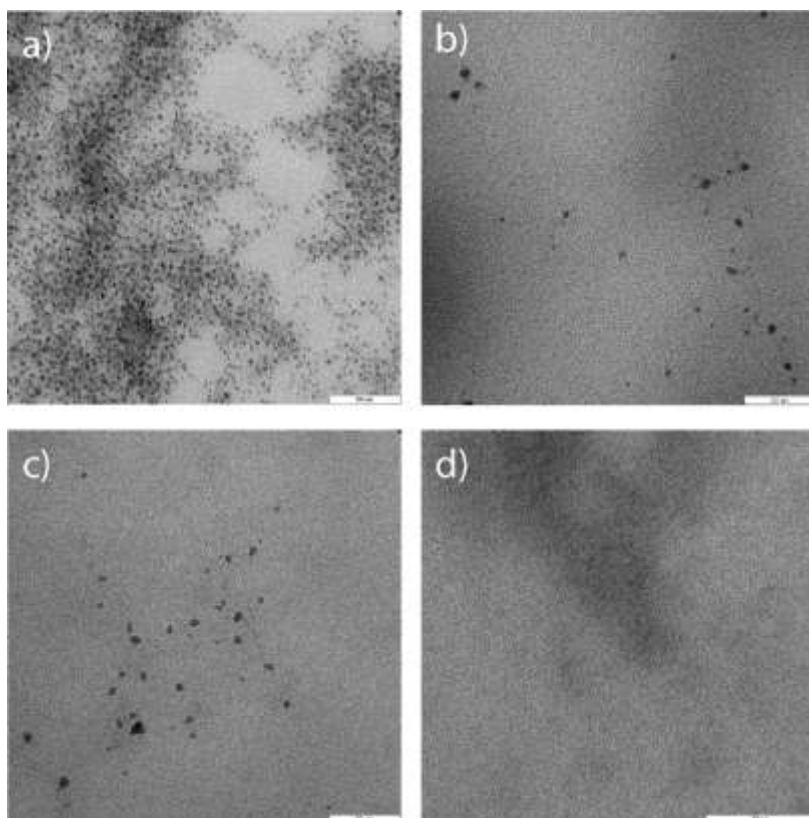


Figure S2. TEM imaging of a) **Glc-NCs** in water; b) **Glc-NCs** and c) **Cipro@Glc-NCs** in RPMI medium containing FBS and d) RPMI medium containing FBS as control. Scale bars = 50 nm.

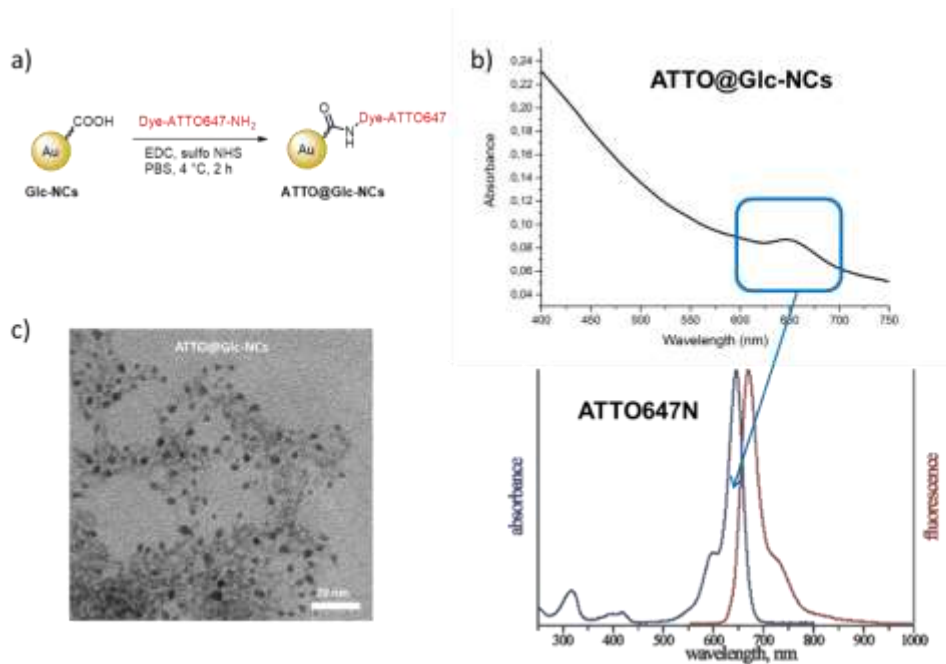


Figure S3. a) Synthesis of fluorescently tagged **ATTO@Glc-NCs** through an amidation reaction; b) UV showed reaction completion as an additional band at 650 nm appeared after purification; c) TEM image of **ATTO@Glc-NCs** (scale bar: 20 nm).

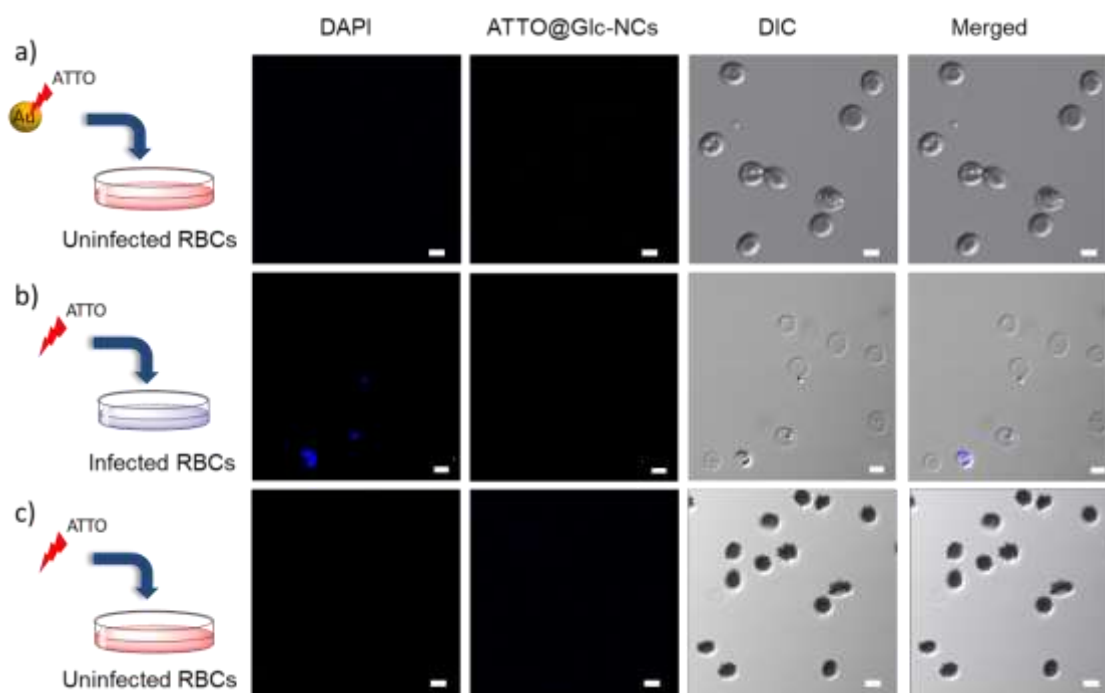


Figure S4. CLSM images of a) **ATTO@Glc-NCs** incubated with uninfected RBCs, b) **ATTO647N** free dye incubated with infected RBCs and, c) **ATTO647N** free dye incubated with uninfected RBCs; (red channel = **ATTO647N**; blue channel = **DAPI**; scale bar 5 μ m).

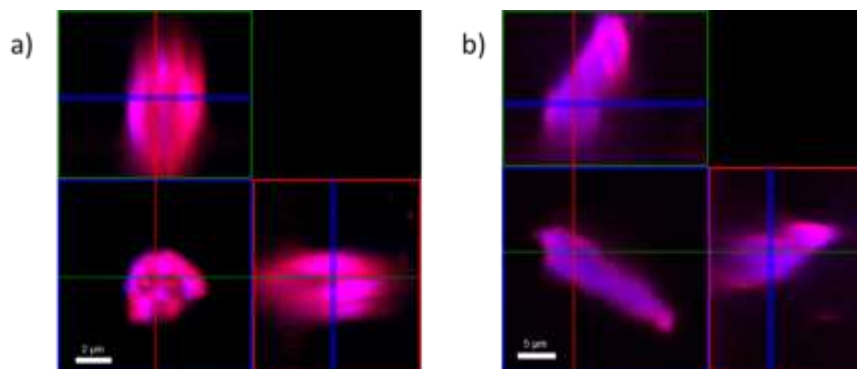


Figure S5. Z-Stack confocal imaging of ATTO@Glc-NCs a) incubated with schizonts and b) with gametocytes (stage V).

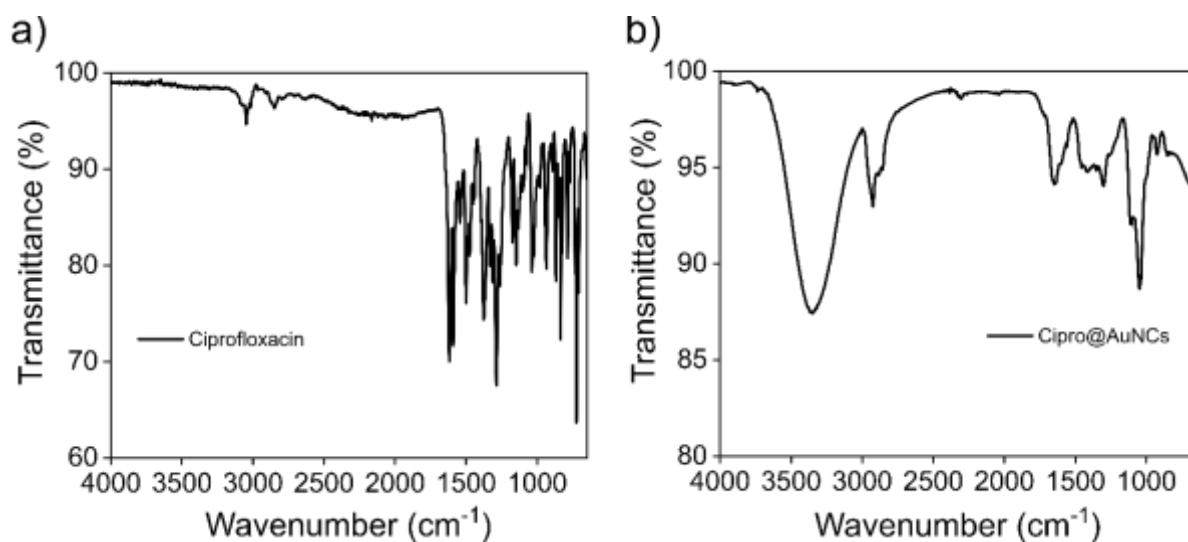


Figure S6. FT-IR spectra of a) ciprofloxacin alone and b) **Cipro@AuNCs**. The band at 1650 cm^{-1} is typical for a tertiary amide bond showing the successful loading of ciprofloxacin to **Glc-NCs**.

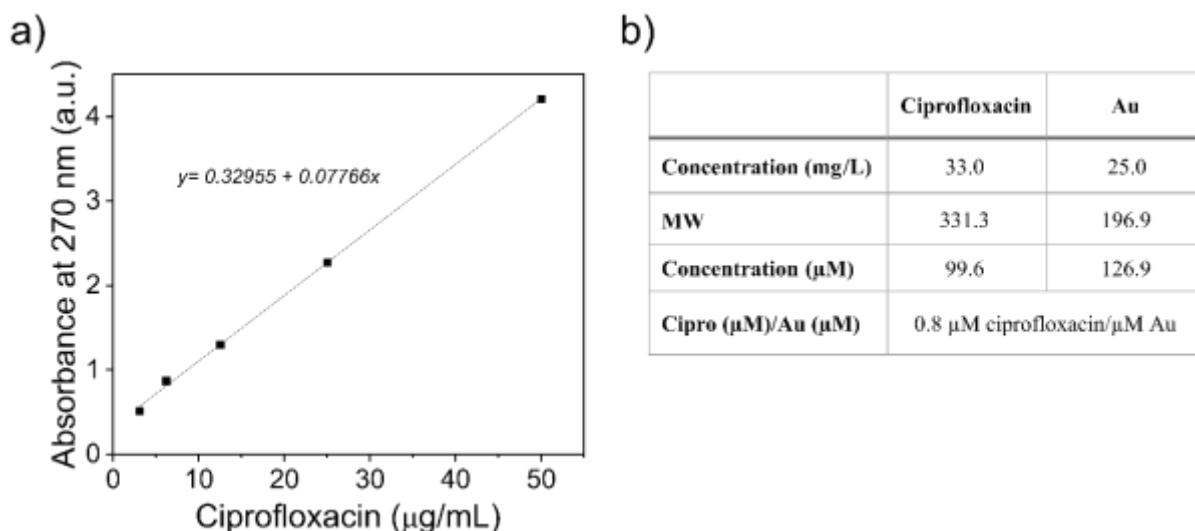


Figure S7. a) Calibration curve made from different concentrations of ciprofloxacin at 277 nm for the calculation of drug loaded on **Cipro@Glc-NCs**; b) Calculations for the loading of ciprofloxacin (calculated by UV-Vis spectroscopy) per concentration of gold (calculated by ICP-AES).

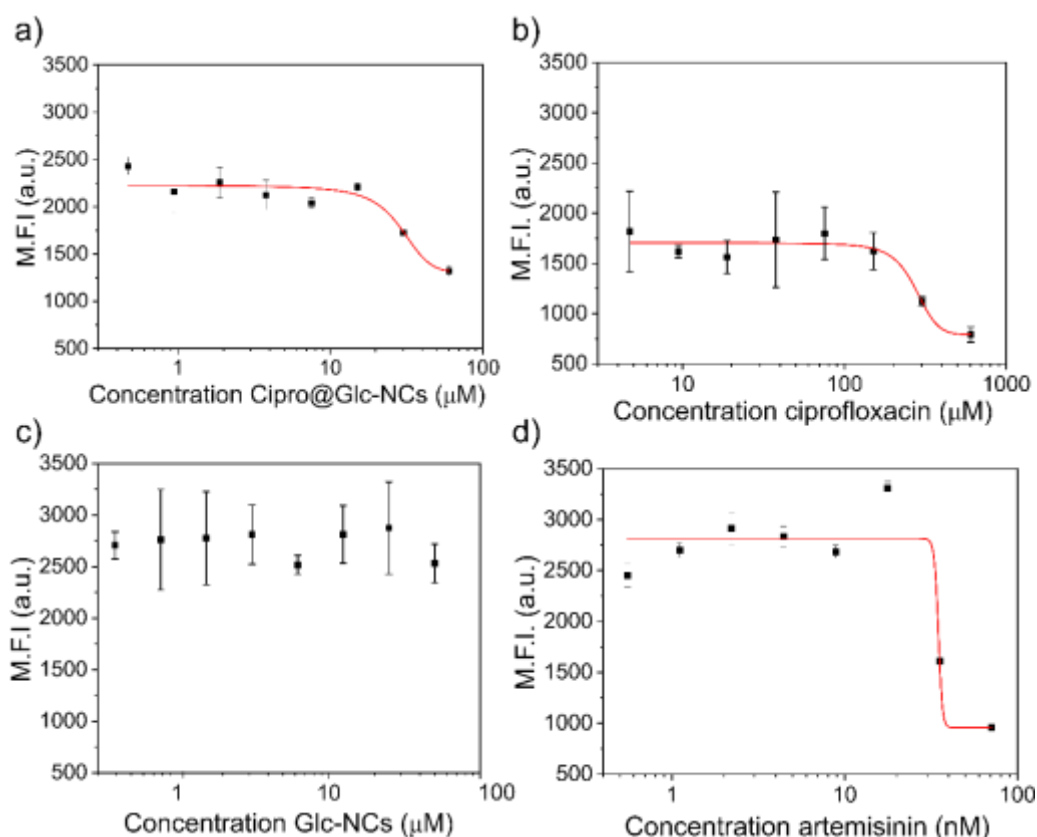


Figure S8. Inhibition curves of *P. falciparum* for a) **Cipro@Glc-NCs**; b) ciprofloxacin; c) **Glc-NCs** (could not be fitted); d) artemisinin. MFI = mean fluorescence intensity, error bars represent standard error of the mean.

Table S1. P values calculated from ANOVA with Tukey post-hoc test.

P values	Ciprofloxacin	Cipro@Glc-NCs	Artemisinin
Ciprofloxacin			
Cipro@Glc-NCs	0.05		
Artemisinin	0.02	0.79	