ACCSCIENCE PUBLISHING

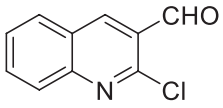
INNOSC Theranostics and Pharmacological Sciences

ORIGINAL RESEARCH ARTICLE

Plasmodium falciparum histoaspartic protease inhibitor: Toxicity investigation and docking study of 2-(2-benzoyl-4-methylphenoxy) quinoline-3-carbaldehyde derivatives

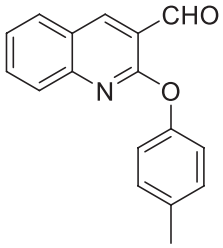
Supplementary Files

(A) Synthesis of 2-chloroquinoline-3-carbaldehyde (2)



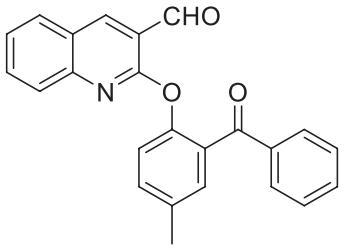
White solid; reaction time: 9 h; yield: 85 % (78 mg); m.pt: 209 – 210°C; proton nuclear magnetic resonance (^{1}H NMR) (400 MHz, $CDCl_3$) δ 10.55 (s, 1H), 8.75 (s, 1H), 8.06 (d, *J* = 8.5 Hz, 1H), 7.98 (d, *J* = 8.2 Hz, 1H), 7.89 (dd, *J* = 7.0, 1.4 Hz, 1H), 7.66 (d, *J* = 8.0 Hz, 1H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 189.23, 150.14, 149.60, 140.35, 133.67, 129.77, 128.62, 128.19, 126.55, 126.36. High-resolution mass spectrometry (HRMS) (ESI): N/A.

(B) Synthesis of 2-(p-tolyloxy)quinoline-3-carbaldehyde (4)



White solid; reaction time: 11 h; yield: 84 %, m.pt: 135 – 136°C; ^{1}H NMR (400 MHz, $CDCl_3$) δ 10.63 (s, 1H), 8.71 (s, 1H), 8.00 (s, 1H), 7.87 (d, *J* = 8.1 Hz, 1H), 7.73 (d, *J* = 8.1 Hz, 1H), 7.71 – 7.65 (m, 1H), 7.45 (d, *J* = 6.8 Hz, 1H), 7.25 (t, *J* = 4.2 Hz, 3H), 2.40 (s, 3H). ^{13}C NMR (101 MHz, $CDCl_3$) δ 189.13, 162.61, 160.69, 150.71, 148.66, 140.47, 134.79, 132.67, 130.06, 129.64, 127.81, 125.69, 125.08, 121.53, 120.17, 20.97. HRMS (ESI): Calc. for [($C_{17}H_{13}NO_2$)] $(M+H)^+$ 264.1019, found 264.1016.

(C) Structural elucidation of 2-(2-benzoyl-4-methylphenoxy)quinoline-3-carbaldehyde (5)



White solid; reaction time: 12 h; yield: 60 %; m.pt: 119 – 121°C; IR (neat) *ν* max (cm^{-1}) 3057, 2922, 2856, 2739, 1754, 1690, 1612, 1590, 1494, 1461, 1343, 1257, 1199, 1097, 760; ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.75 (s, 1H), 8.32 (s, 1H), 7.97 (d, *J* = 8.3 Hz, 1H), 7.82 (d, *J* = 8.2 Hz, 1H), 7.80 (t, *J* = 8.2 Hz, 1H), 7.74 (t, *J* = 7.5 Hz, 1H), 7.61 (d, *J* = 8.2 Hz, 1H), 7.51 (d, 1H), 7.39 (t, 1H), 7.19 (s, 1H), 6.86 (d, 1H), 6.84 (d, 1H), 2.41 (s, 3H). HRMS (ESI): Calc. for [($C_{24}H_{17}NO_3$)] $(M+H)^+$ 368.1281, found 368.1283.

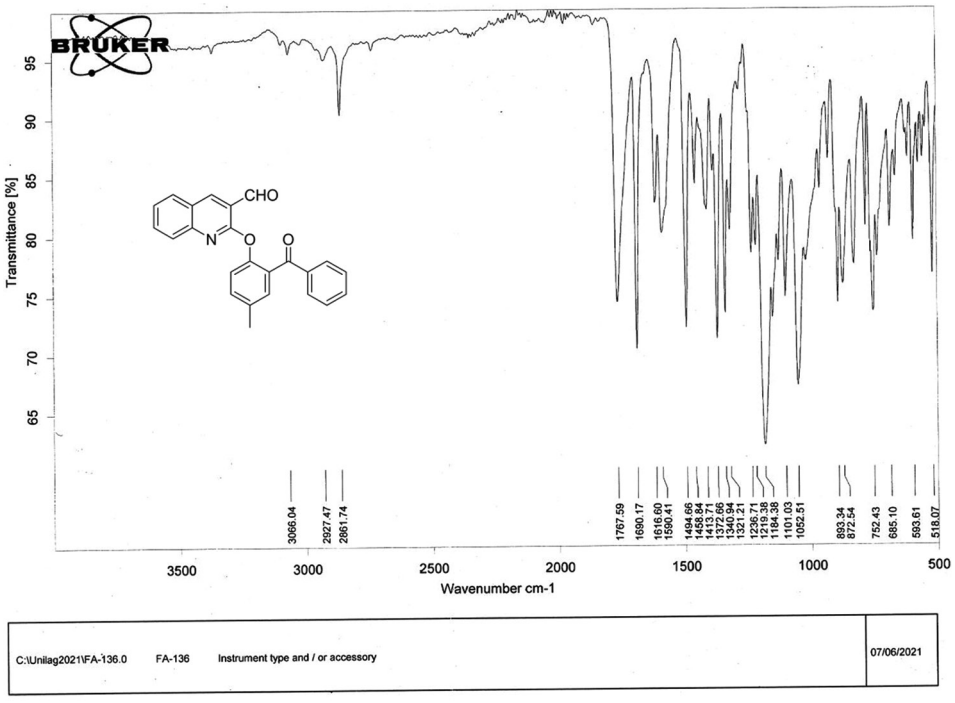


Figure S1. Infrared spectral characterization of 2-(2-benzoyl-4-methylphenoxy)-quinoline-3-carbaldehyde (5).

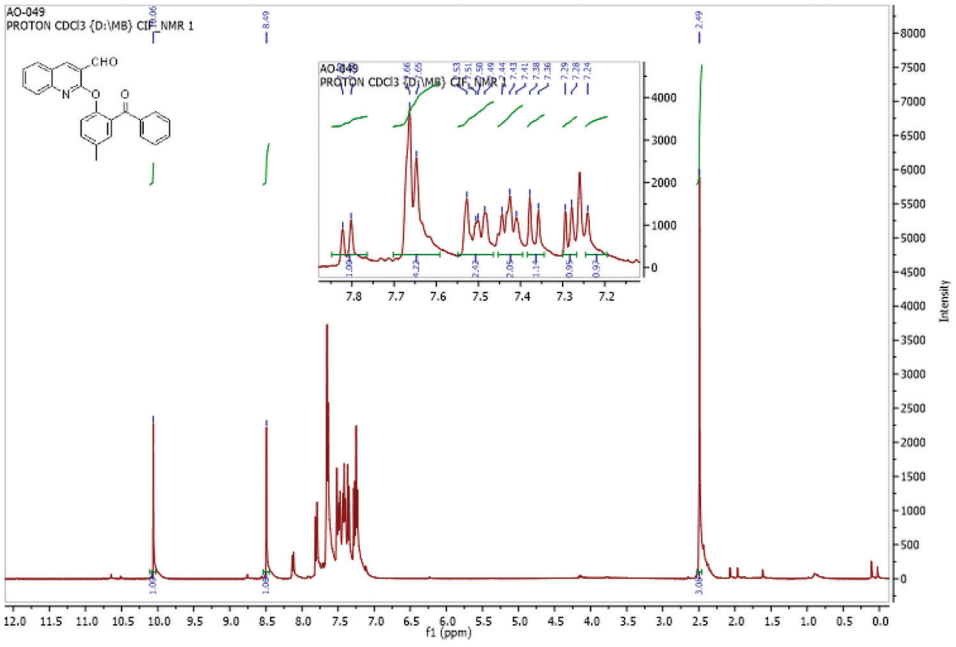


Figure S2. Proton nuclear magnetic resonance spectrum of 2-(2-benzoyl-4-methylphenoxy)-quinoline-3-carbaldehyde (5).

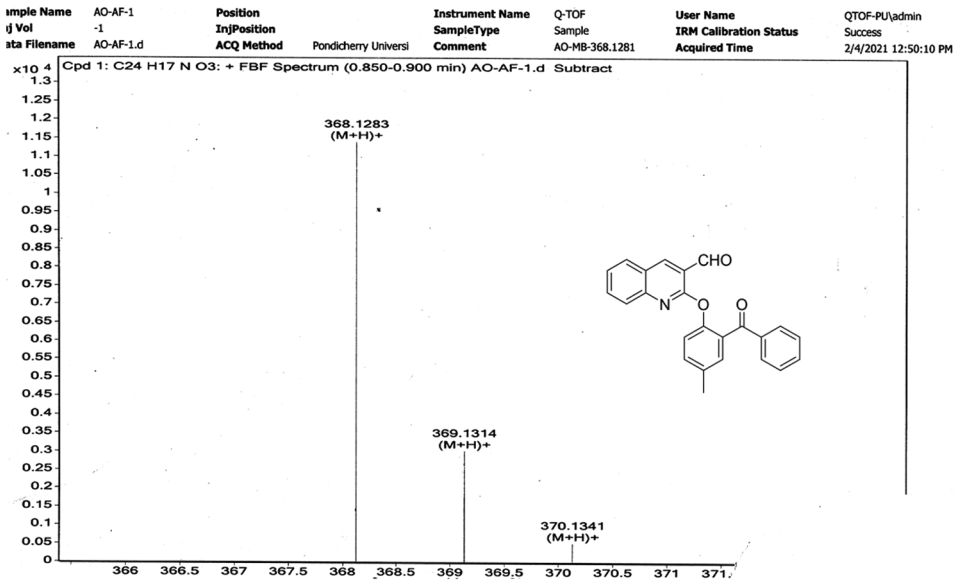


Figure S3. Mass spectrum of 2-(2-benzoyl-4-methylphenoxy)-quinoline-3-carbaldehyde (5).

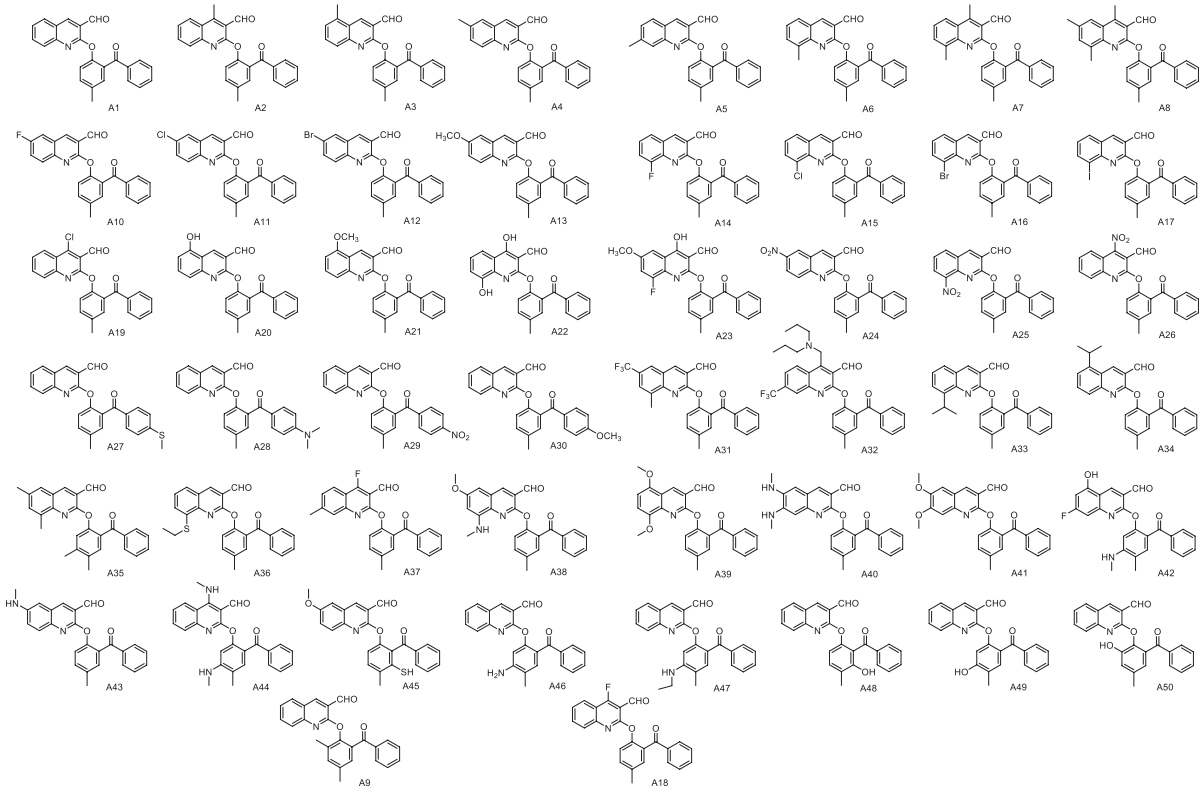


Figure S4. Hypothetical compounds obtained from structural modifications of synthesized quinoline (5).

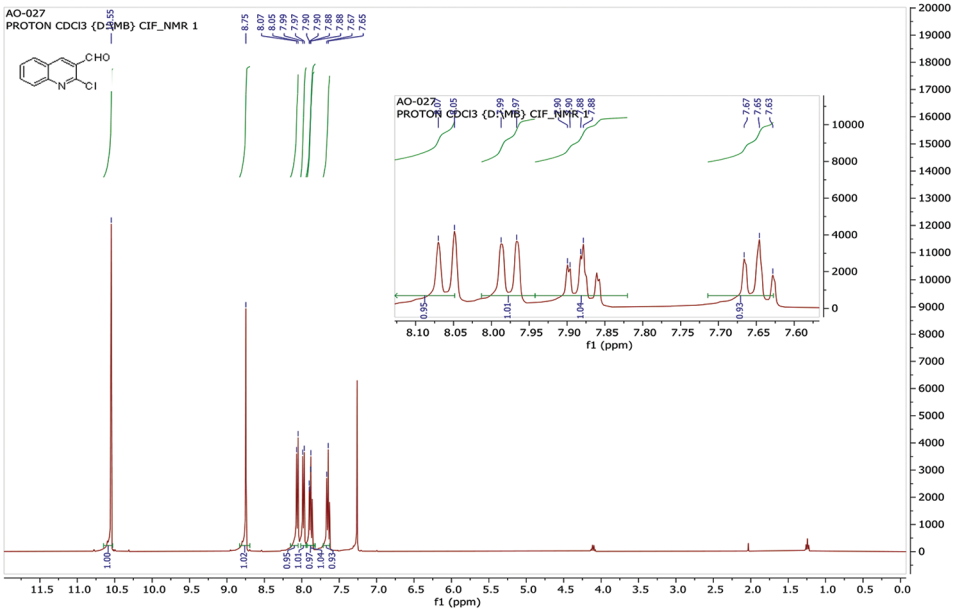


Figure S5. Proton nuclear magnetic resonance of synthesized 2-chloroquinoline-3-carbaldehyde (2).

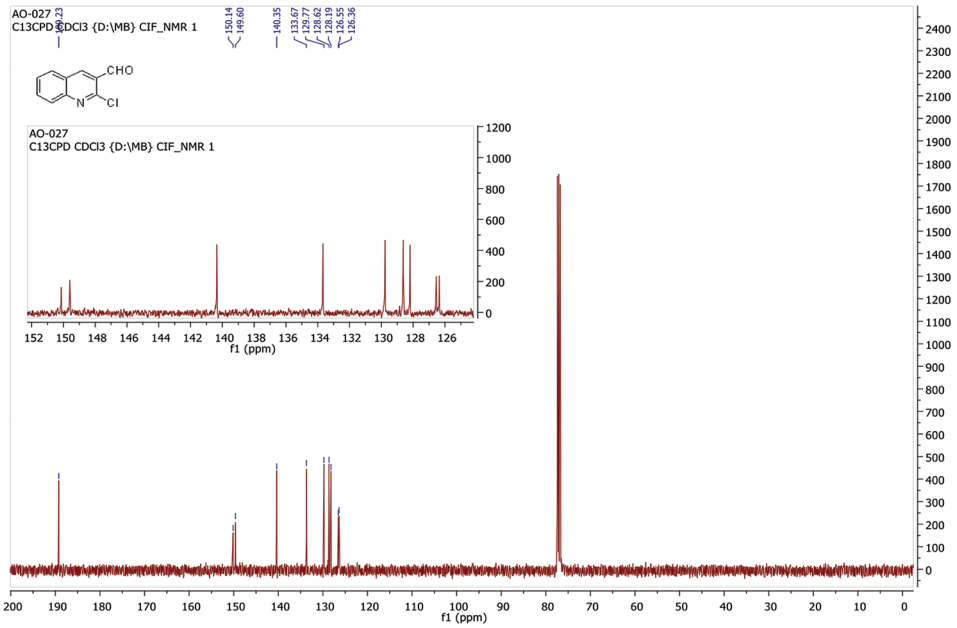


Figure S6. Carbon nuclear magnetic resonance of synthesized 2-chloroquinoline-3-carbaldehyde (2).

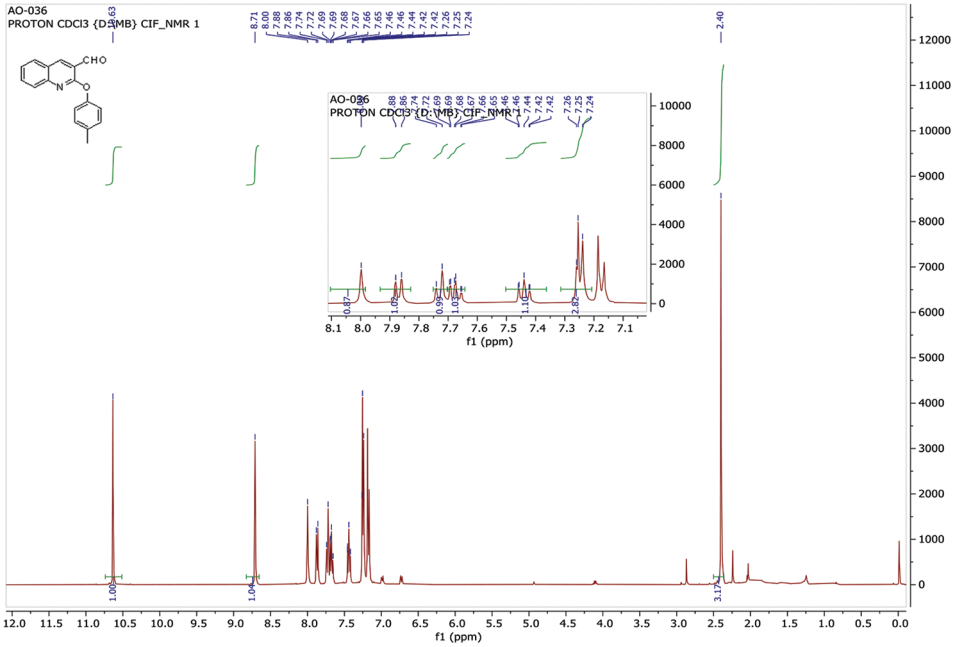


Figure S7. Proton nuclear magnetic resonance of synthesized 2-(p-tolyloxy)quinoline-3-carbaldehyde (4).

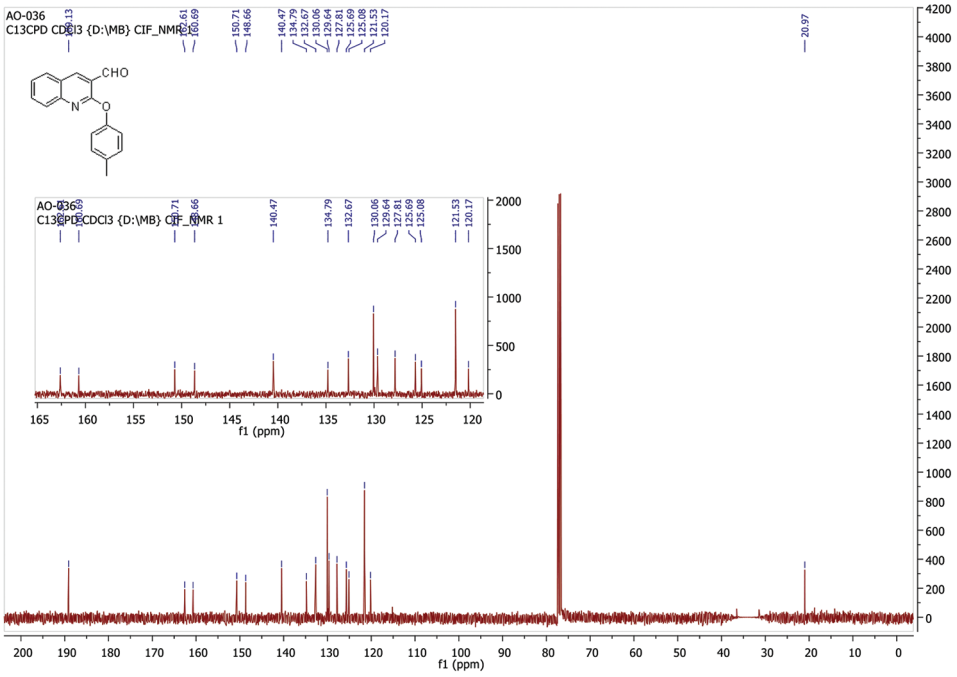


Figure S8. Carbon nuclear magnetic resonance of synthesized 2-(p-tolyloxy)quinoline-3-carbaldehyde (4).

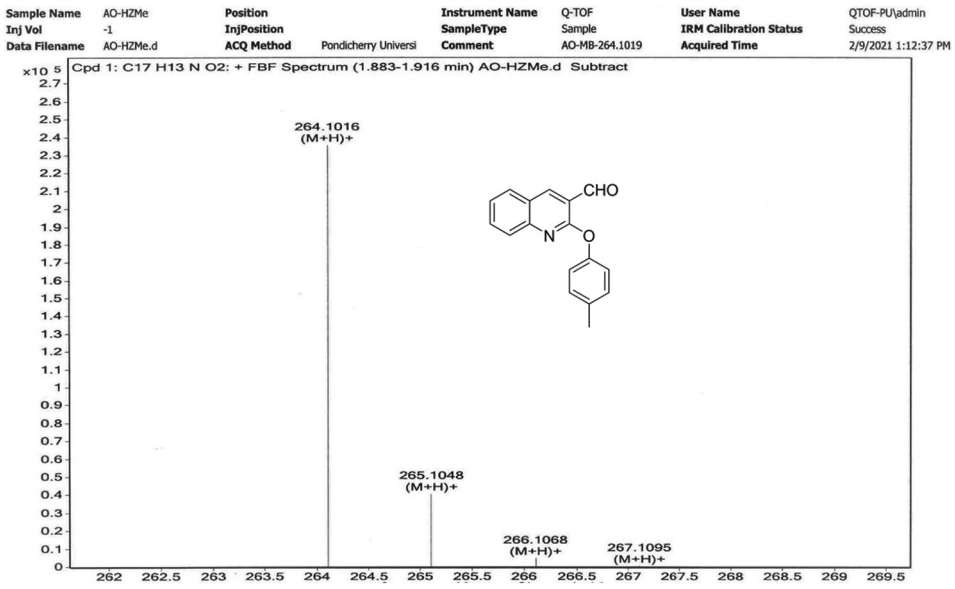


Figure S9. High-resolution mass spectrometry spectrum of synthesized 2-(p-tolyloxy)quinoline-3-carbaldehyde (4).