Table for summary of the landscape of drug-resistant malaria in the DRC as of July 2023

Antimalarial drug	Malaria drug-resistance in the DRC as of June 2023
Quinine (QN)	• QN-resistant malaria was not confirmed since there is still no validated molecular marker; but it was only suspected given several isolates carrying *Pf*CRT K76T and *Pf*MDR-1 D1246Y mutations.
Lumefantrine (L)	• LU-resistant malaria was suspected given isolates potentially carrying *Pf*MDR1 the NFD haplotype which consists of N86, Y184F, and D1246 (but there is still no know validated marker for this resistance).
Mefloquine (MQ)	• MQ-resistant malaria was not detected as no isolate was detected with amplified copy numbers of *pfmdr1* and *pfmdr2* genes.
Chloroquine (CQ)	• Median 32.4% [IQR: 45.6] of isolates were CQ-resistant as they carried a *Pf*CRT K76T mutation predominately onto a background with CVIET haplotypes. • *Pf*CRT K76T carriage by parasites substantially decreased from 2000 to 2020. • Wide geographic variations in the prevalence of *Pf*CRT K76T parasites, however, was persisting in 2020 (1.8 to 89.5%) with increased risks of rebound due to the massive reintroduction and misuse of CQ for putative treatment or prevention of COVID-19.
Amodiaquine (AQ)	• AQ-resistant malaria was not confirmed as no parasite isolate carried a *Pf*CRT SVMNT haplotype, but it was suspected since up several isolates carried *Pf*CRT N86Y and D1246Y mutations (and therefore possibly encoded the YYY haplotype consisting of N86Y, Y184 and D1246Y).
Piperaquine (PIP)	• PIP-resistant malaria was not explored (i.e., corresponding *Pf*CRT mutations and gene amplification for *Pf*PM2 and *Pf*PM3 were not analyzed).
Artemisinin (ART) & derivatives	• ART-resistant malaria was not established as only a single isolate (sampled in 2014) was detected with a R561H mutation that mediates for resistance. However, there is significant risk of local emergence or regional expansion of ART-resistant parasites from neighboring countries with reported emerging resistance (e.g., Uganda, Rwanda, and Tanzania) or from sites found with reduced levels of drug efficacy with ACTs. • Isolates harboring mutations that structurally mimic known molecular markers of ART resistance need to be monitored and investigated.
Pyronaridine (PYR)	• PYR-resistant malaria was not explored since corresponding mutations of the *Pf*MRP1 were not analyzed.
Proguanil (PRO)	• The genetic background of the parasites suggests that PRO-resistant malaria is very common (e.g., >70% of parasites carry *Pf*DHFR S108N, N51I, and C59R), suggesting caution in the use of a chemoprophylaxis including PRO (e.g., PRO-AV combination) when traveling to the DRC.
Sulfadoxine-Pyriméthamine (S-P)	• S-P resistant malaria was widespread at high frequencies but with a moderate molecular profile (*Pf*DHPS A437G: 88.0% [IQR: 33.6]; *Pf*DHPS K540E: 38.9% [IQR: 47.7]). • Quintuple mutants (i.e., IRN-GE) were identified in 13.1% of parasites with highest prevalence in areas located in East parts of the country.