Plasmodium Phenotypic Profiling for Antimalarial Drug Discovery

Malaria remains a dominant global health problem, with more than 200 million cases causing >400,000 deaths each year. Antimalarial chemotherapy is critical for treating symptomatic infections, but chemoprotection, using drugs that target Plasmodium parasite liver stage before malaria develops or the infection can be transmitted back to the mosquito vector, will be central to protecting both individuals and populations in the malaria elimination era. We have developed a multimodal assay allowing identification of compounds active at any point during the model P. berghei liver stage, which culminates with image-based single parasite phenotyping. Compound activity profiles permit triage of active compounds based on induced phenotype in addition to potency and can generate mechanistic hypotheses directly from a primary screen.

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