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1 Cholesterol-dependent enrichment of understudied erythrocytic
2 stages of human *Plasmodium* parasites
3

4 Audrey C. Brown¹, Christopher C. Moore², Jennifer L. Guler^{1,2}
5

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9 **Abstract**

10 *Plasmodium* protozoan parasites undergo rounds of asexual replication inside human
11 erythrocytes, progressing from ring stage, to trophozoites and schizonts, before egress and
12 reinvasion. Given the discovery of ring-specific artemisinin tolerance and quiescence in
13 *Plasmodium falciparum*, there is great urgency to better understand ring stage biology. However,
14 the lack of an effective enrichment method has left rings and related parasite stages
15 understudied compared to their late stage counterparts, which can be easily isolated due to their
16 paramagnetic properties. Here, a method for separating all *Plasmodium* infected erythrocytes
17 from uninfected erythrocytes is presented. This approach takes advantage of streptolysin-O
18 (SLO) to preferentially lyse uninfected erythrocytes as previously shown by Jackson, et al.
19 Following lytic treatment, Percoll gradient centrifugation removes lysed cells, leaving an intact
20 cell population enriched in infected erythrocytes. This SLO-Percoll (SLOPE) method is effective
21 on stages from the entire erythrocytic cycle, including previously inaccessible forms such as
22 circulating rings from malaria-infected patients and artemisinin-induced quiescent parasites.

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REVIEW QUESTIONS

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The results are new



The conclusions are supported by the data and analyses



The writing is appropriate and readable



The Manuscript does not raise ethical or research integrity concerns



The results are likely to lead to future research.



Technical comment on methods, data, limitations



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Cholesterol-dependent enrichment of understudied erythrocytic stages of human *Plasmodium* parasites

Audrey C. Brown, Christopher C. Moore, Jennifer L. Culley

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Cholesterol-dependent enrichment of understudied erythrocytic 2 stages of human Plasmodium parasites



PUBLICATION DATE

Oct 3, 2019

TAGS

Zika

The results are new

True False Unsure N/A

The conclusions are supported by the data and analyses

True False Unsure N/A

The writing is appropriate and readable

True False Unsure N/A

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The results are likely to lead to future research.

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Technical comment on methods, data, limitations

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