During its complex life-cycle, the malaria parasite experiences several atypical mitosis events where nuclear and cellular division are uncoupled. In the mosquito vector a single parasite undergoes 10-11 rounds of mitosis to generate thousands of sporozoites that are essential to establish infection in the mammalian host. Currently, the signalling pathways mediating sporozoite development remain poorly understood. Here we investigated the role of the regulatory subunit of Protein Kinase A (PKAr), the chief effector of cAMP. Using the DiCre-loxP conditional excision system we deleted PKAr exclusively in mosquito stages revealing its essential role for sporogony. We found that during sporogony, parasites lacking PKAr can correctly complete parts of the cell-cycle including DNA replication and nuclear division. However nuclear migration to the centre of the budding sporozoite cell is completely blocked. Consequently, parasites fail to egress from the mosquito midgut resulting in a complete block of transmission to the mammalian host. Currently, we are performing high-resolution microscopy studies to investigate whether fine-tuning of PKA signalling is essential for microtubule and kinetochore dynamics which could underpin correct placement of nuclei. Our study demonstrates that cAMP signalling plays a vital role in *Plasmodium* mitosis, and illuminates molecular mechanisms that regulate this critical step for parasite transmission.