Knockdown of the *Plasmodium falciparum* SURFIN4.1 antigen leads to an increase of its cognate transcript
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The genome of *Plasmodium falciparum* contains a number of variant antigen encoding gene families such as the var, rif, stevor and PfTM-2 genes. Another smaller family, the surf genes, encode large transmembrane proteins of yet unknown function. While some members seem to be expressed in sexual stages, others appear in asexual blood stage forms and may be associated also to virulence- associated processes. We accessed the transcription of the members of the surf gene family along multiple invasions by real time PCR. Based on the observation of constitutive expression of one surf gene, surf4.1, we created a parasite line which expresses a GFP-tagged, conditionally destabilized SURFIN4.1 protein. Upon destabilization of the protein to a residual 5-10% of the normally observed quantity, no interference of parasite growth or morphological changes were detected. However, when we monitored the transcription of SURFIN4.1 knocked-down parasites compared to their stabilized counterparts, we observed a strong increase in the transcript quantities of surf4.1 and also three other surf genes, pointing to a feedback of the SURFIN protein quantity to either the stability of surf transcripts or the transcription activity of surf loci. This type of potential regulation is yet ineditied in *Plasmodium* biology. After 20 reinvasions with SURINF4.1 knocked down the quantity of the surf4.1 transcript was decreased. Concomitantly, surf genes 1.3 and 13.1 were slightly but reproducibly increased, indicating a transcriptional switch away from surf4.1 perhaps to compensate for the loss of SURFIN4.1.