Auto-regulation of PfSR1in *plasmodium falciparum*

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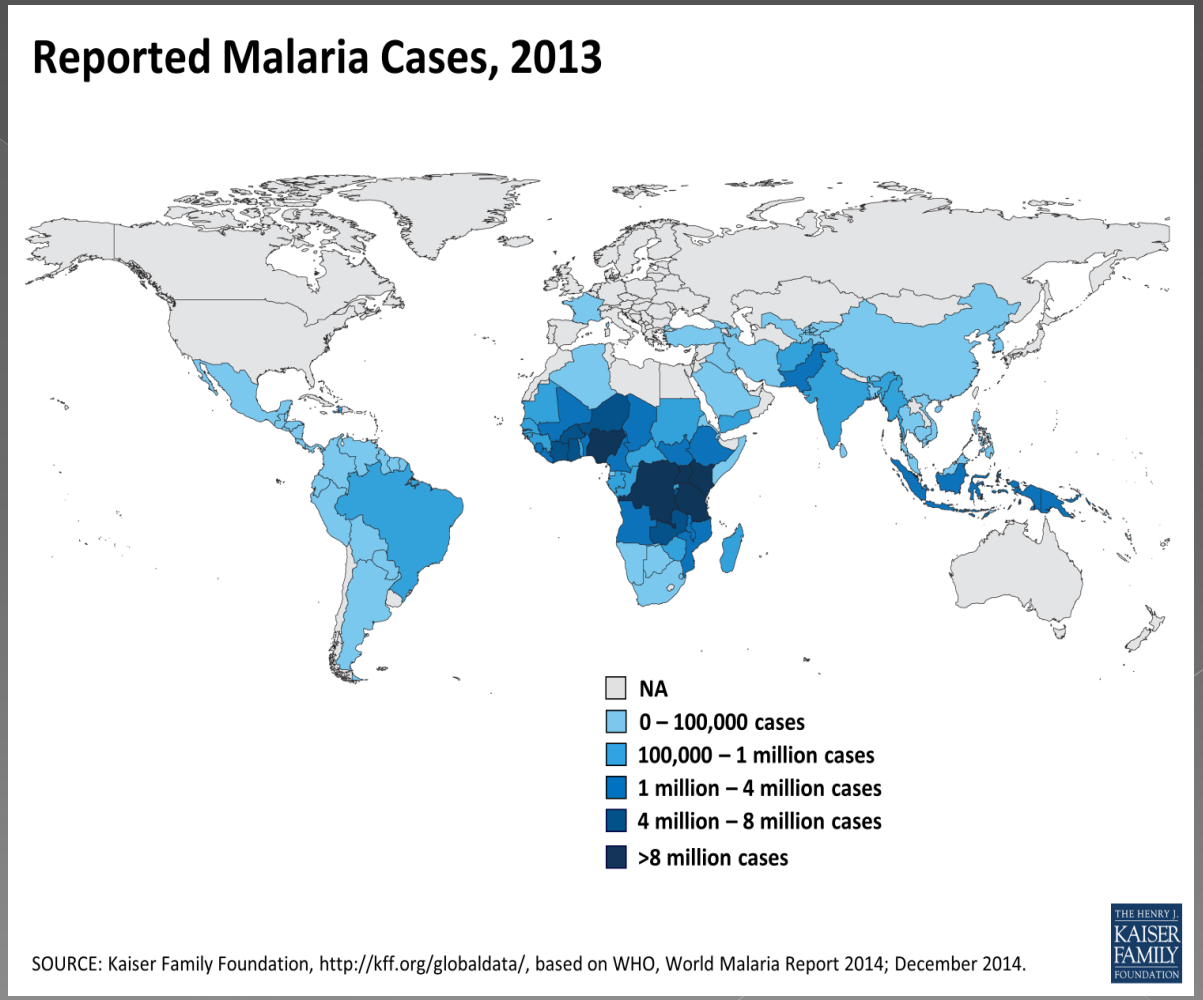
Plasmodium falciparum

- protozoan parasite responsible for deadliest form of human malaria
- Transmitted exclusively through the bites of *Anopheles* mosquitoes



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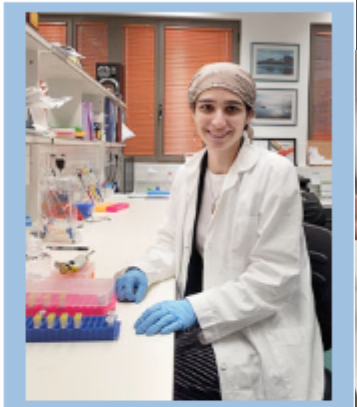

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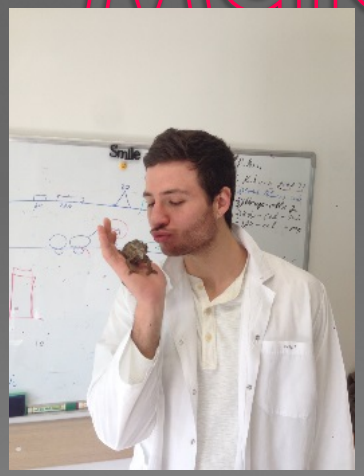
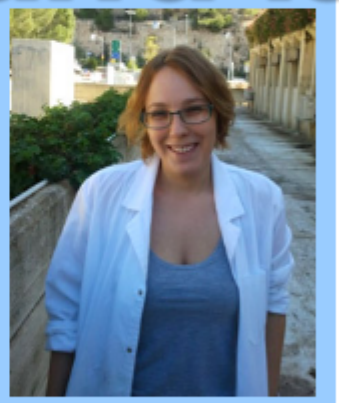
Malaria is in my blood





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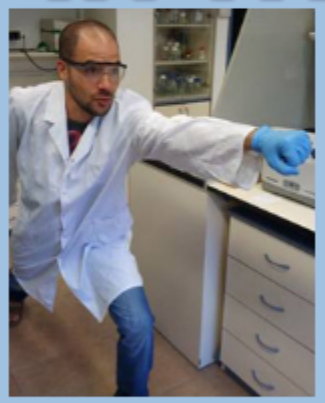

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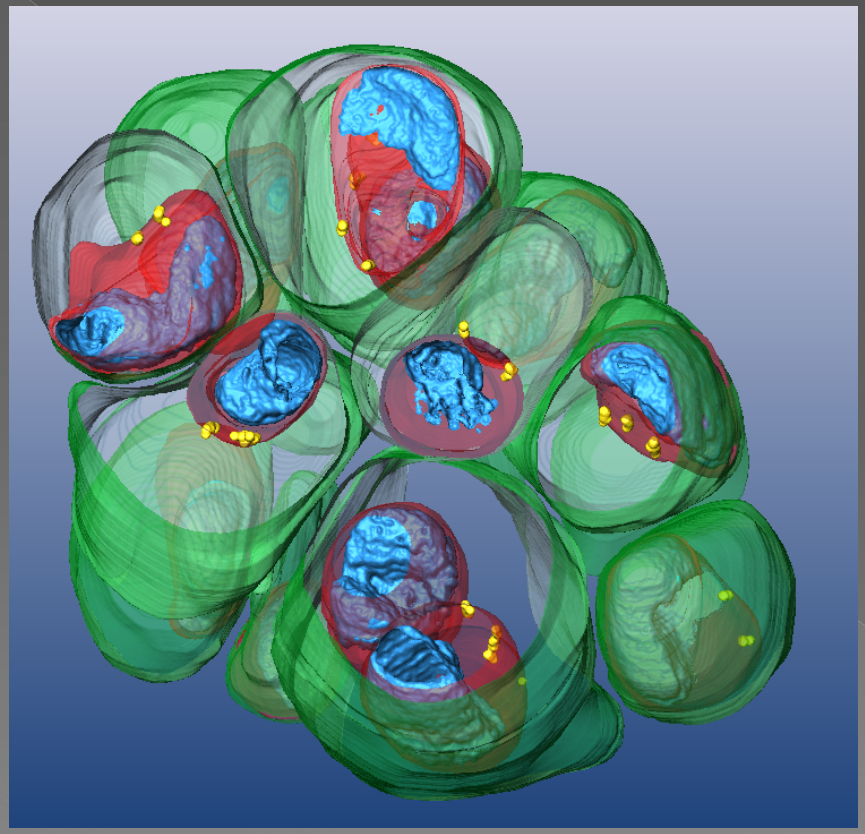
M.A (and PHD)

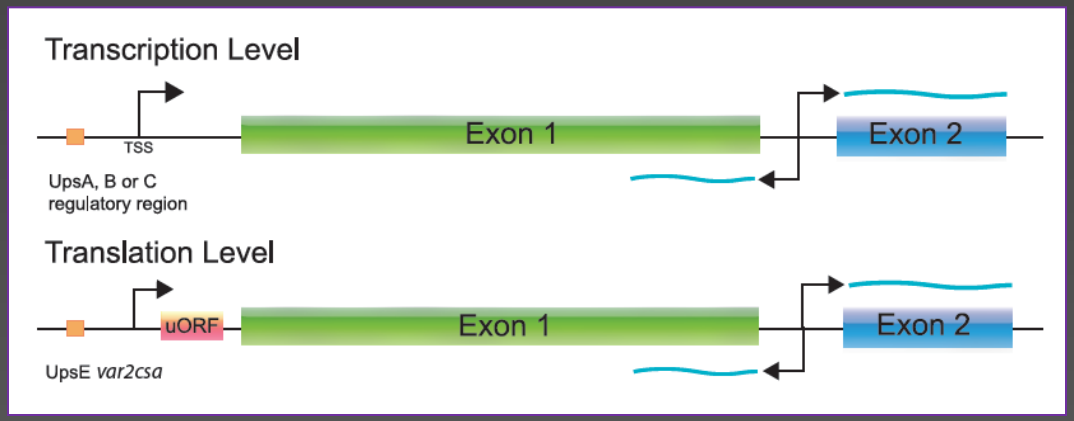
The main research questions in my lab

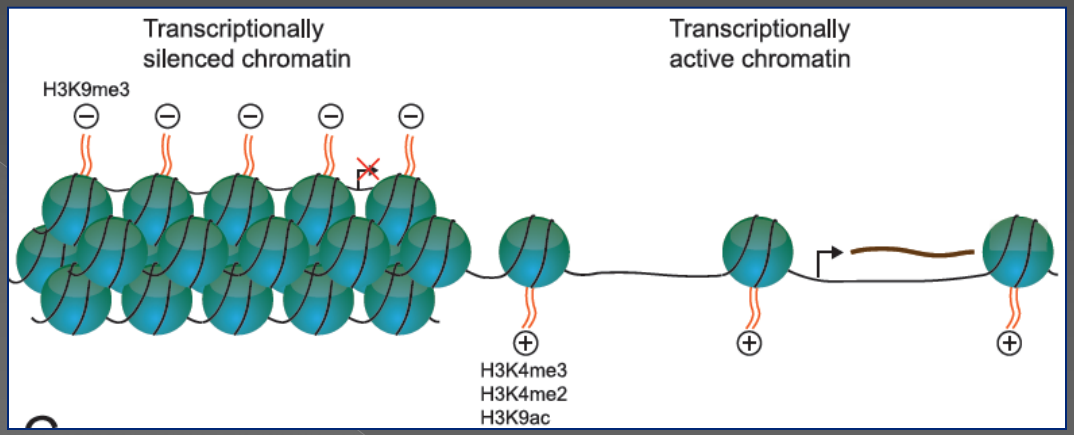
Gene regulation in *Plasmodium* parasites

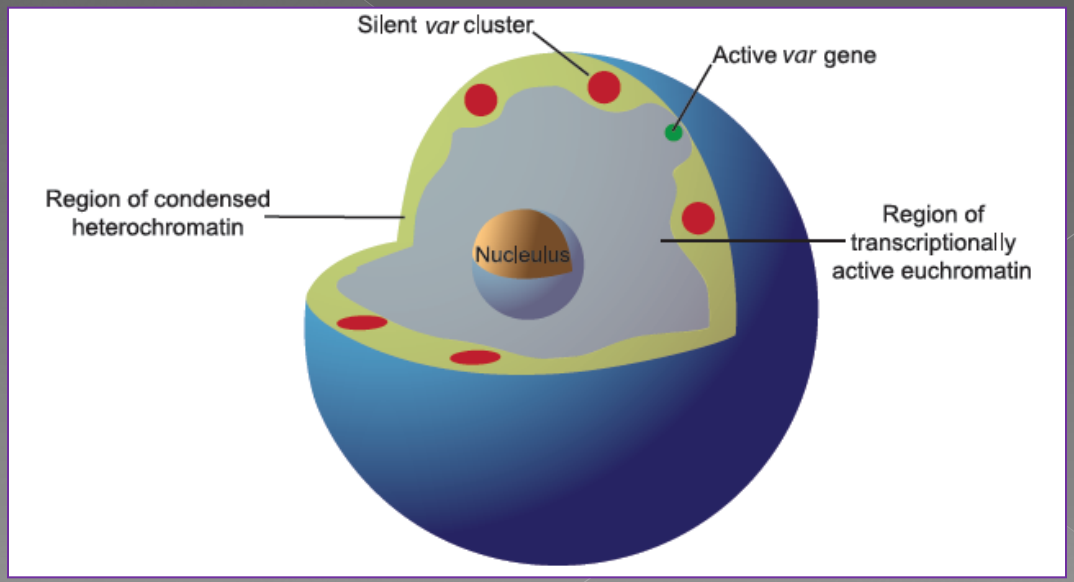


Institute for Medical Research Israel-Canada
INNOVATIONS TOUCHING LIVES

Mechanisms involved in the regulation of *var* gene transcription: Repression and activation

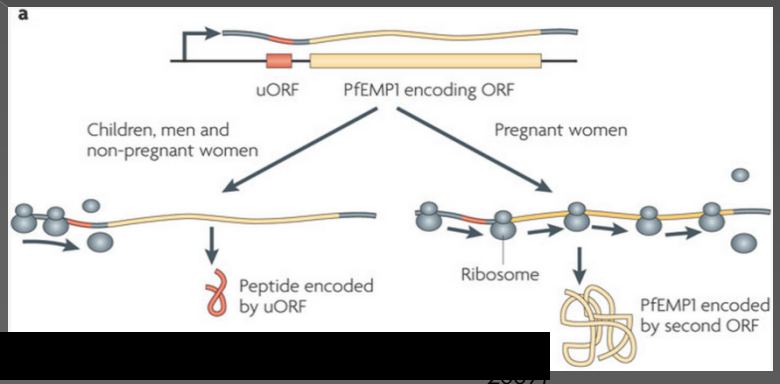


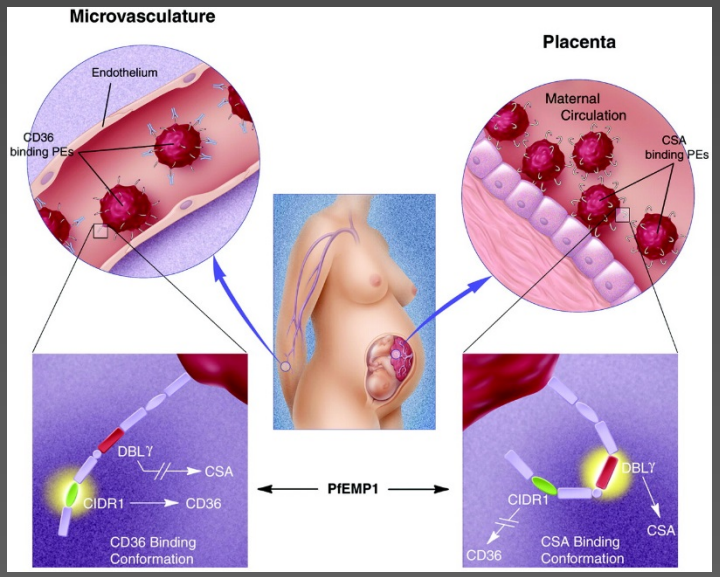


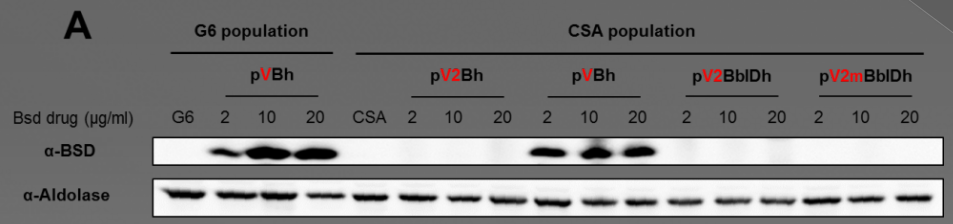


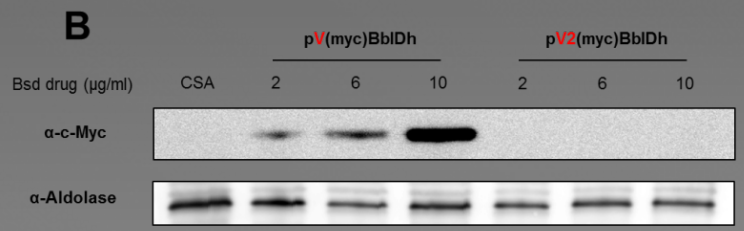
Dzikowski & Deitsch, (2009)

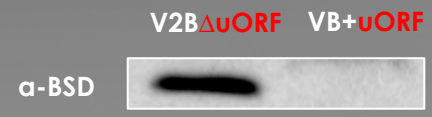
Regulation of *var2csa,* the gene responsible for pregnancy associated malaria



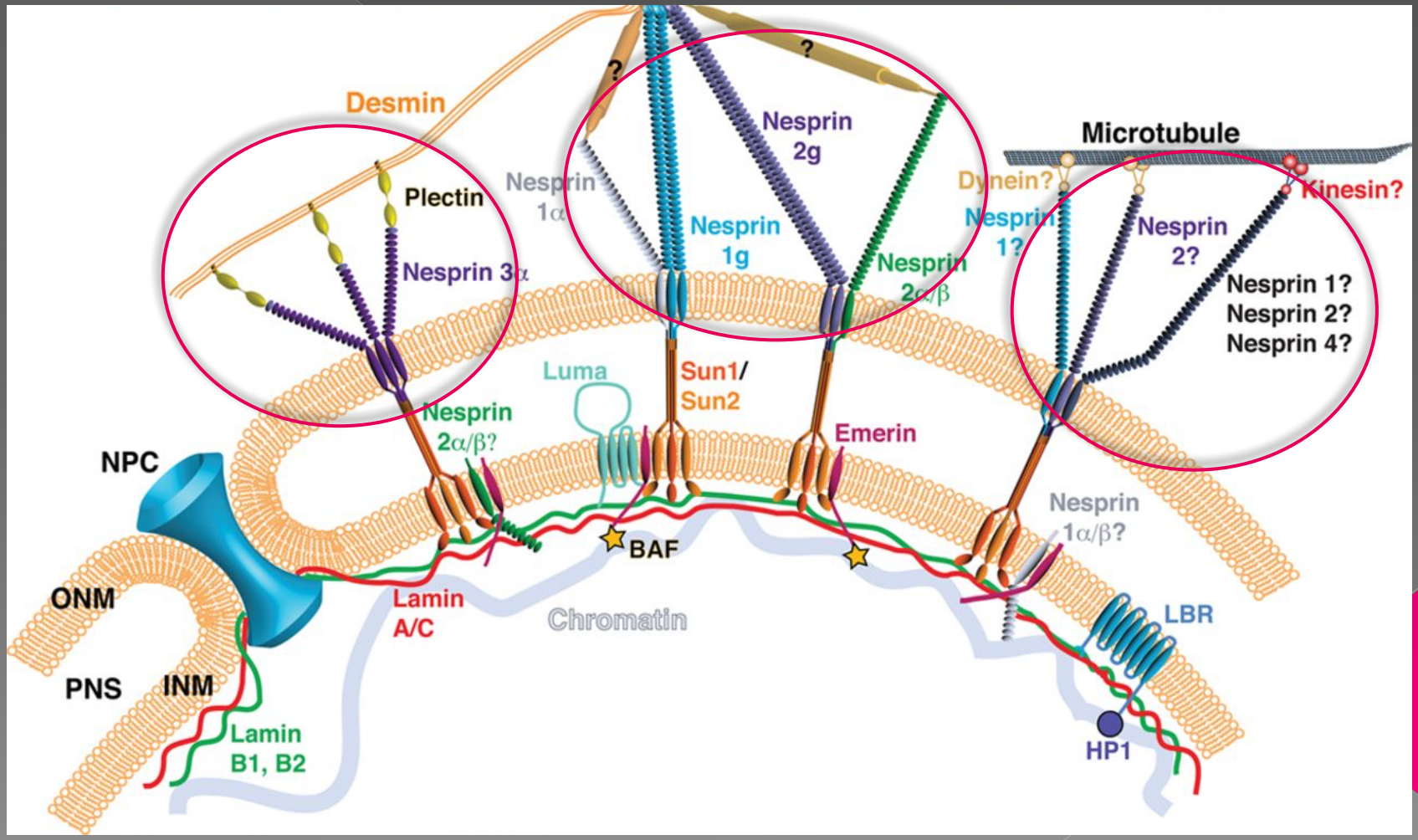




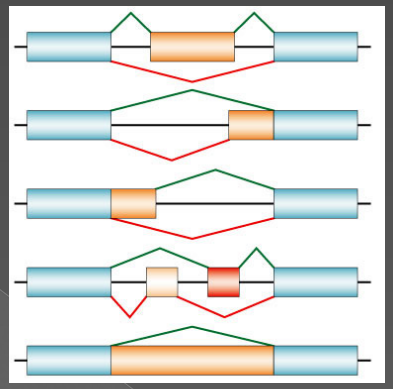


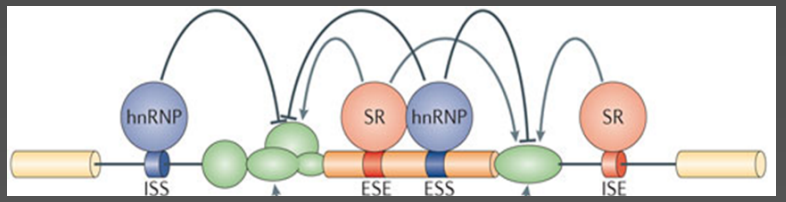


Role of KASH-domain proteins in regulating nuclear dynamics

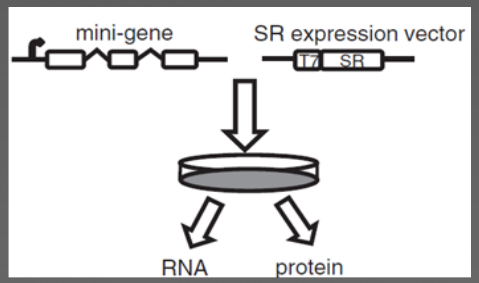


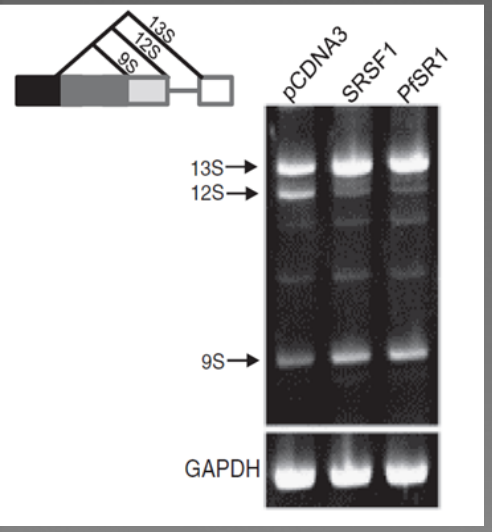
The role of alternative splicing in Plasmodium biology





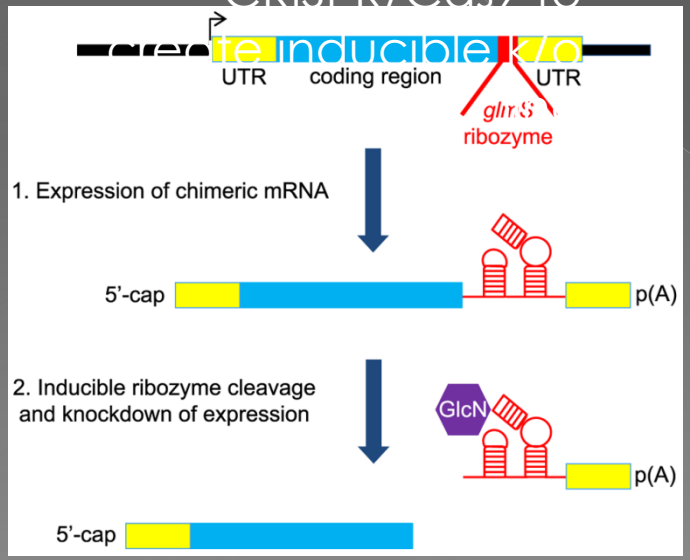
SR proteins are regulators of alternative splicing





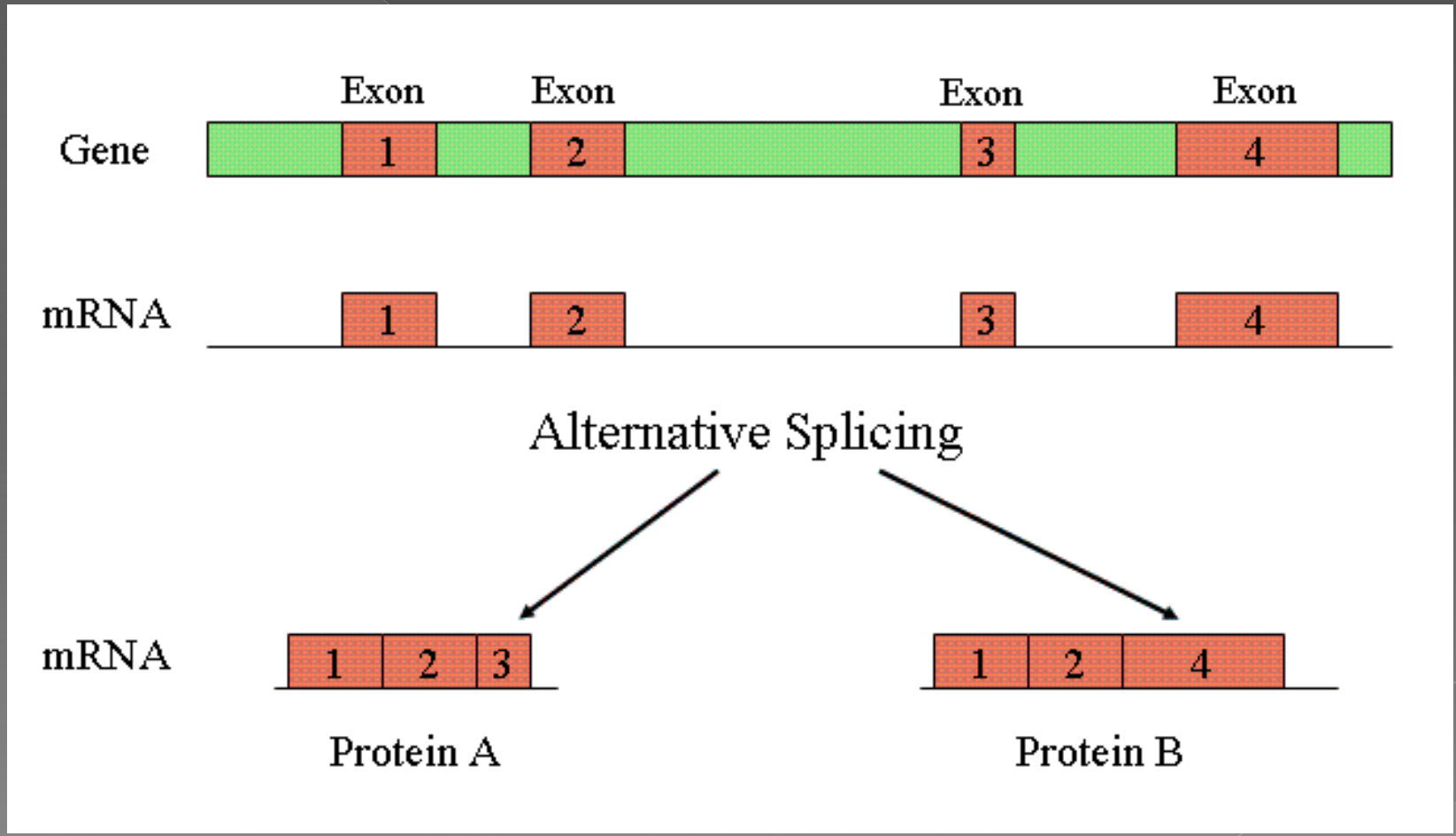
Eshar et al, *NAR* 2012

Used the CRISPR/Cas9 to

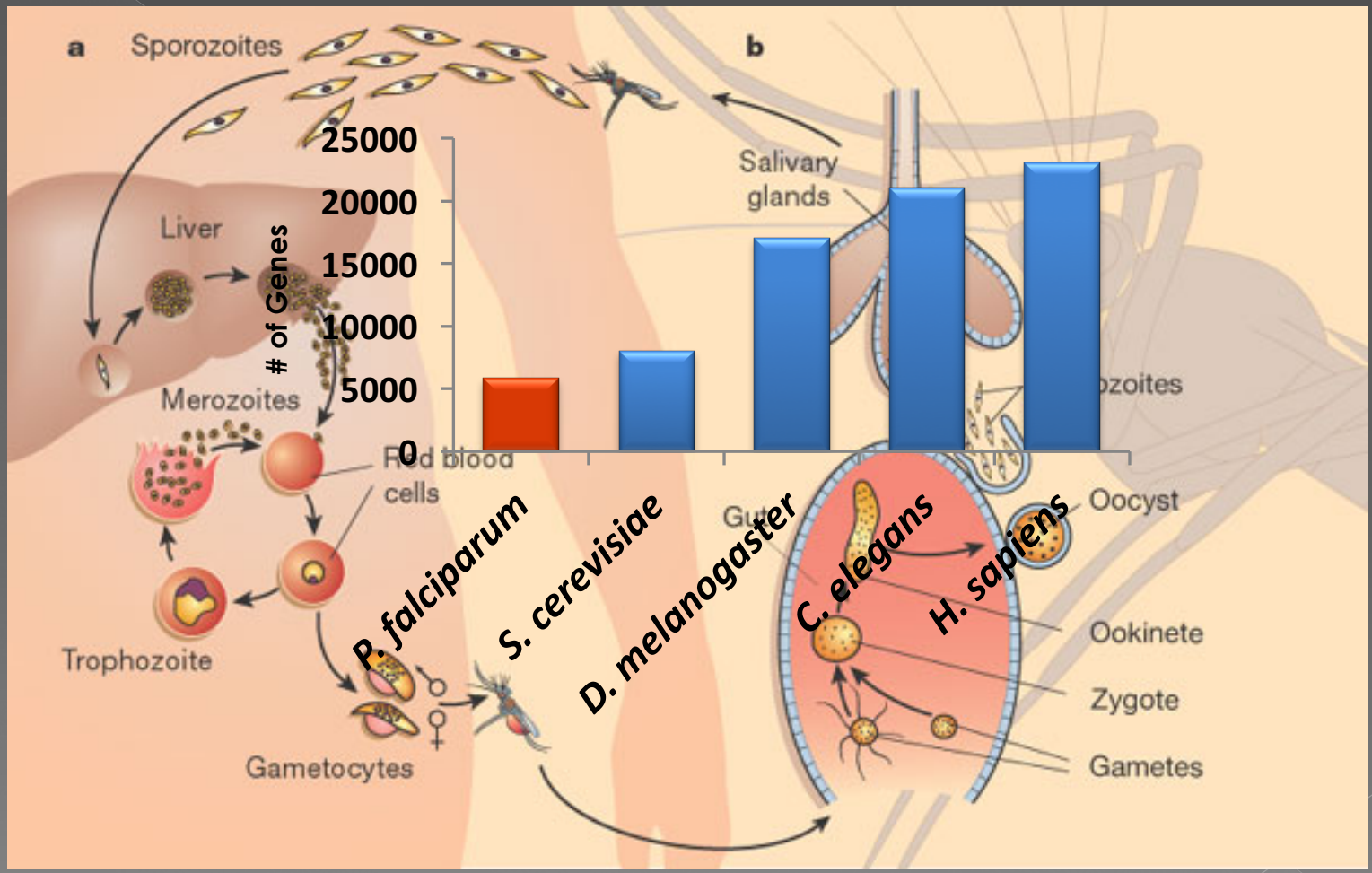


Use transgenic lines to:
Proteomics – (1 interacting proteins
RNA-seq – changes in (2 AS and transcription
CLIP-seq – RNAs that (3 are bound by PfSR1

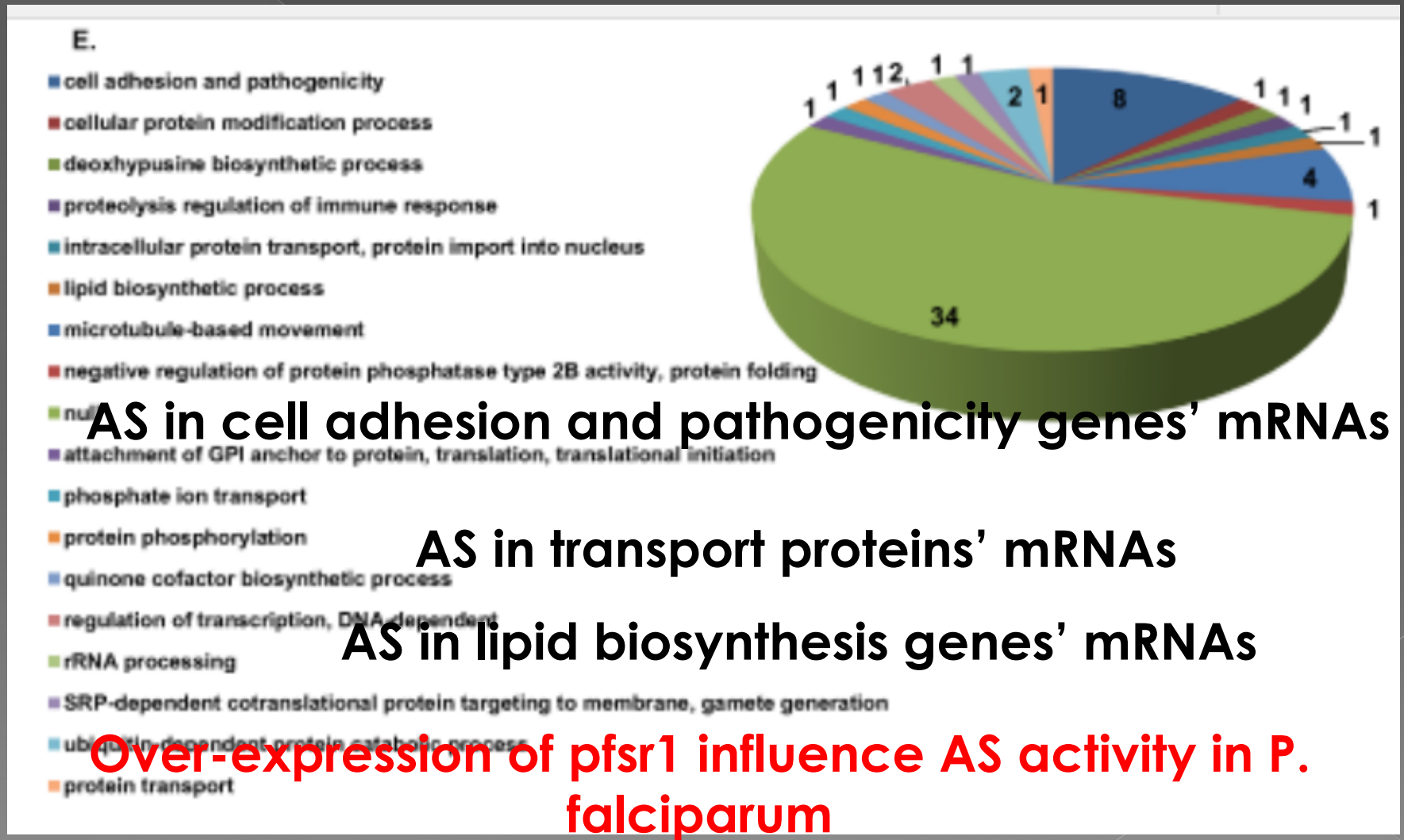
Alternative splicing



Alternative splicing



pfSR1



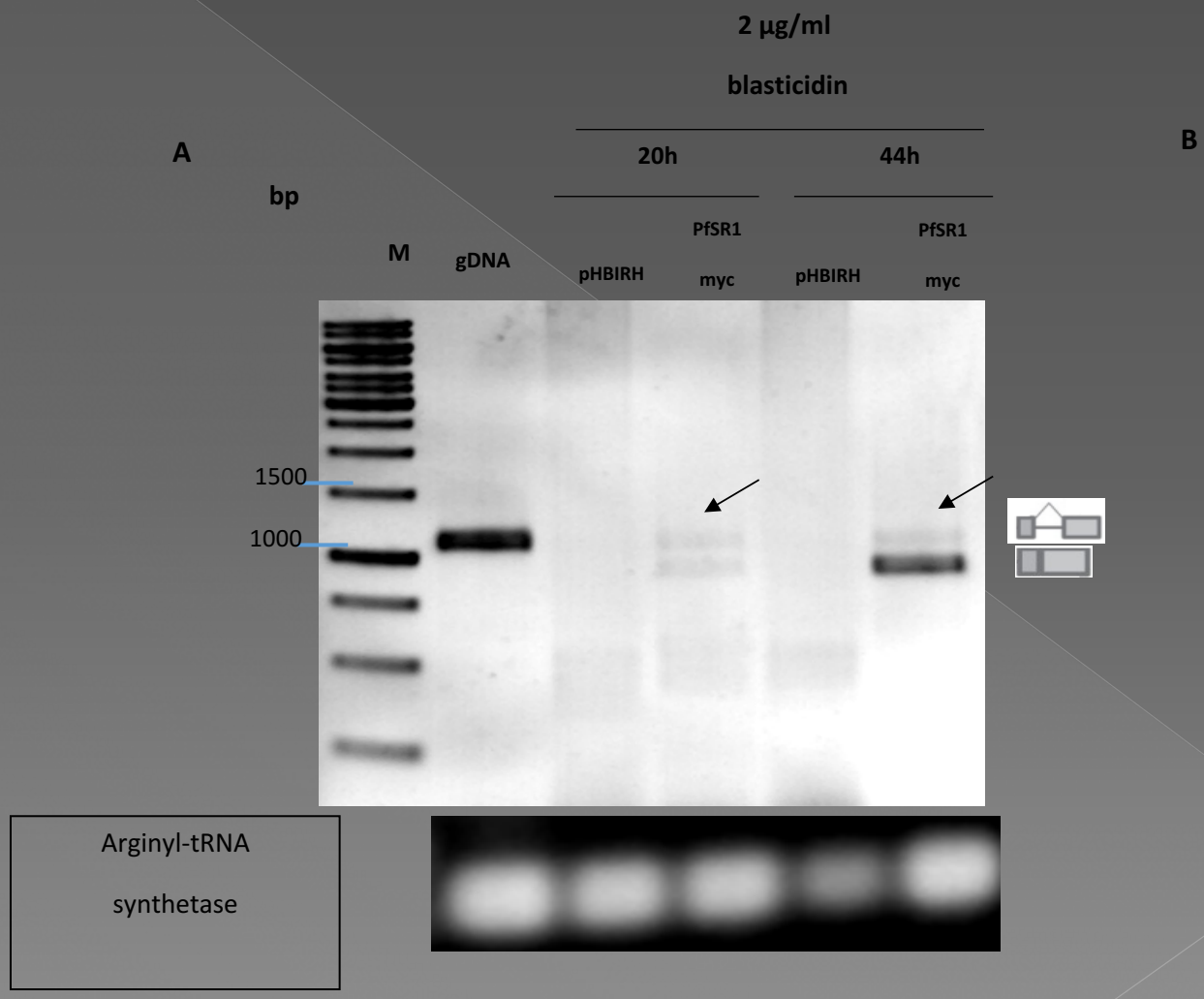
AS in cell adhesion and pathogenicity genes' mRNAs

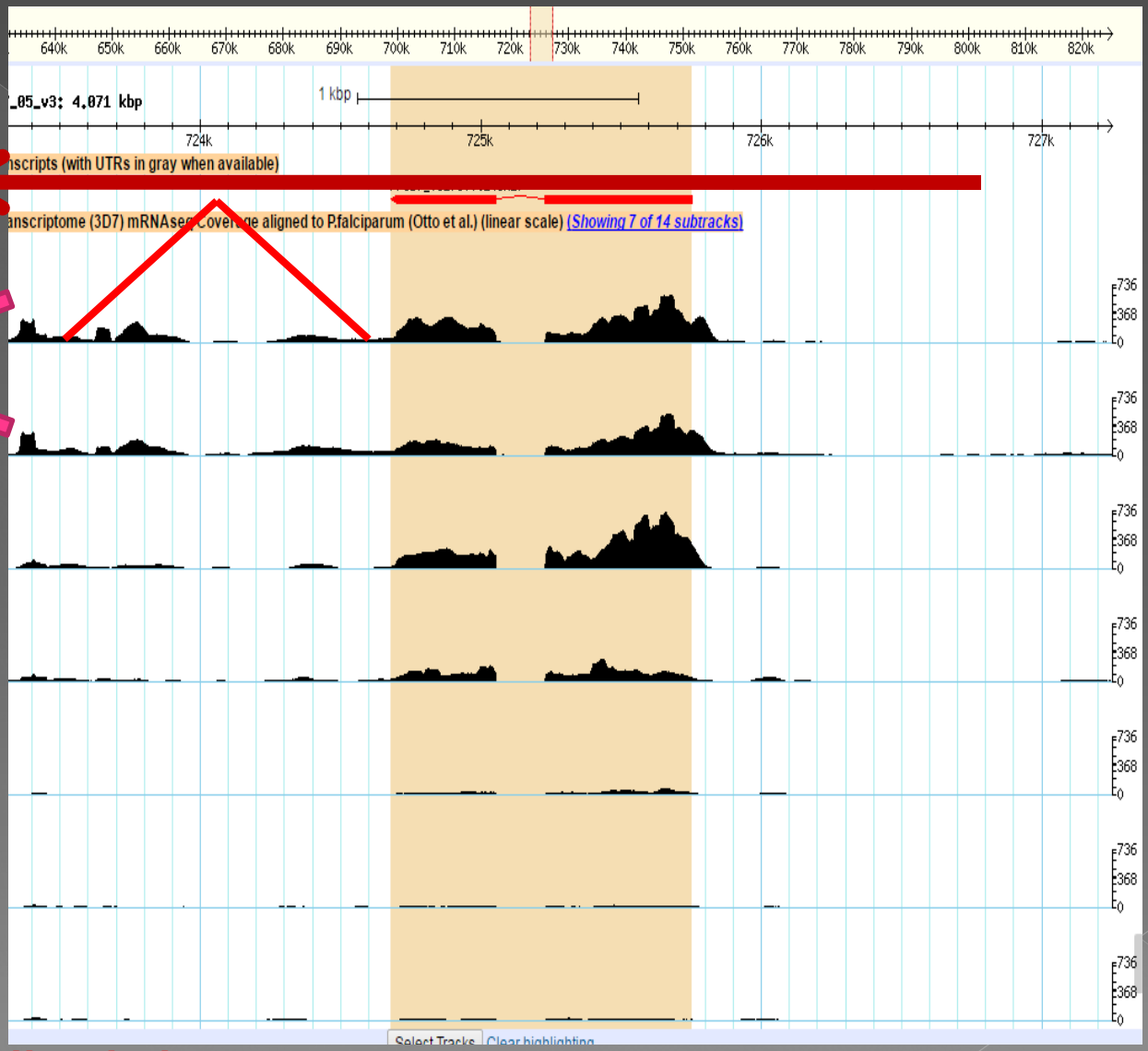
AS in transport proteins' mRNAs

AS in lipid biosynthesis genes' mRNAs

Over-expression of pfsr1 influence AS activity in P. falciparum

Pfsr1 autoregulation

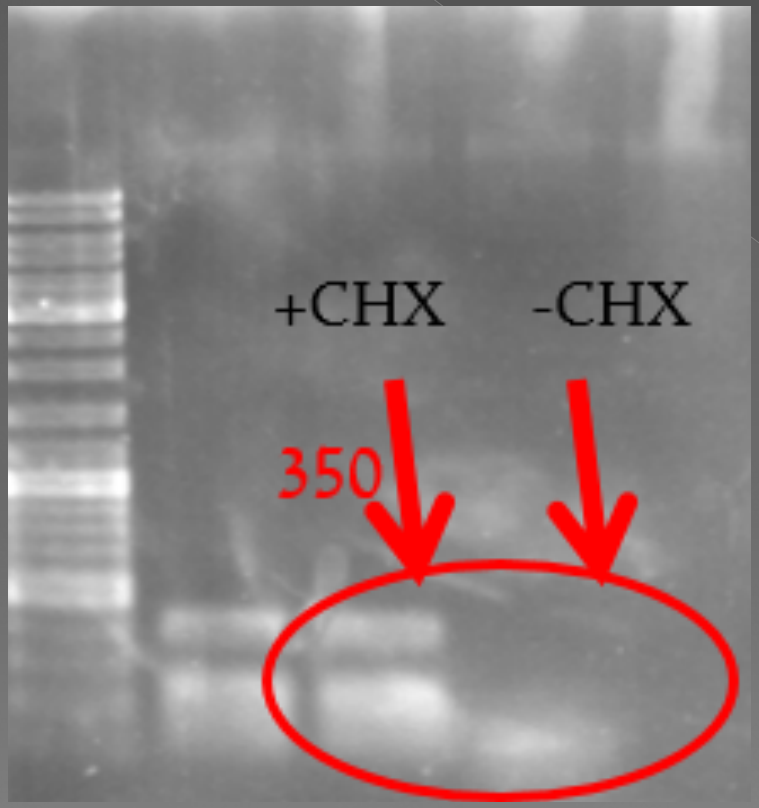


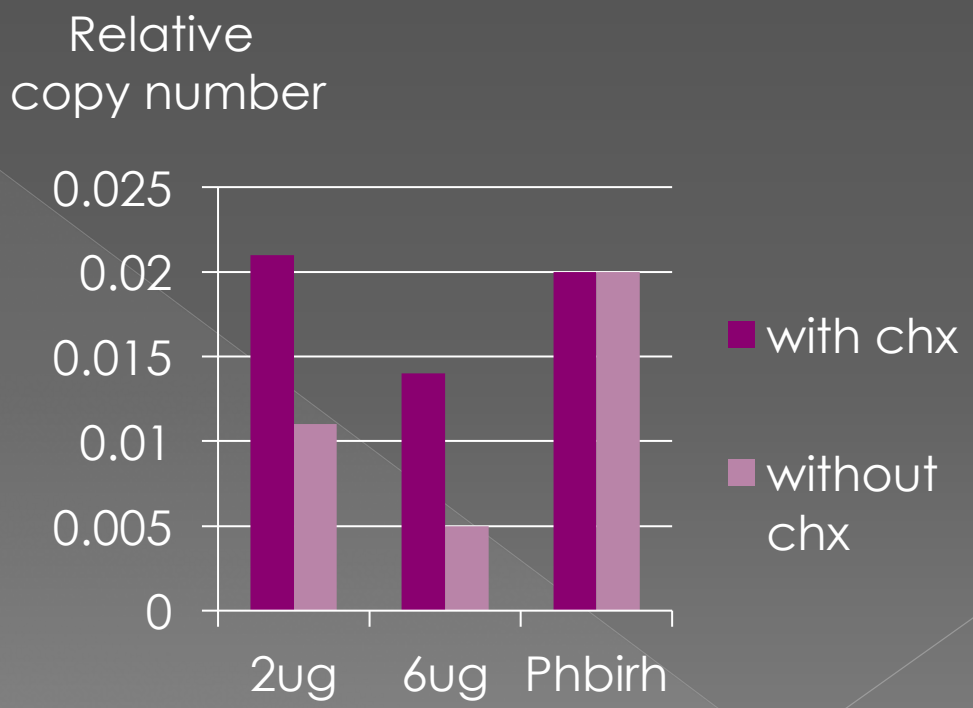


Early stages

RNA seq. by Otto et al.

CHX experiment





My project right now

- CHX
- WB- protein level
- qRTpcr- for showing that

increasing of exogenous pfsr1
leads to a decrease in
The endogenous pfsr1

- Upf1 knockdown->

waiting for WR selection

Difficulties and strengths

- In order to follow up changes in AS during KD, we need to analyze RNAseq of the full genome. In our lab there is a difficulty doing so.
- Improving my Bioinformatics skills, and analyzing data.
- Experienced in molecular biology methods.


Thank you for
your listening