

# Homenagem ao Glaucius

São Carlos, 31 de Outubro de 2019



1993: Seminário do Prof. Glaucius Oliva no Departamento de Física da UFMG

➤ ingresso no doutorado no IFSC em 1994



1996: 1º Congresso Internacional, 1ª visita a um Laboratório Síncrotron (Advanced Photon Source, Chicago)



1998: Doutorado “*Estudos Estruturais e Cinéticos da Enzima Gliceraldeído-3-Fosfato Desidrogenase de Trypanosoma cruzi e Mutantes D210L, D210L-G213D*”



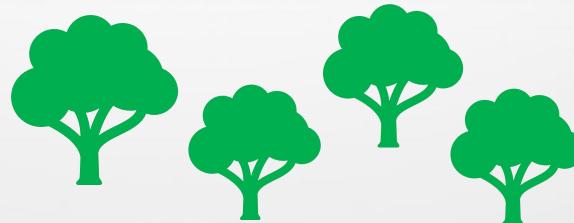
Fiocruz Paraná

— Instituto Carlos Chagas —

## Laboratório de Biologia Estrutural e Engenharia de Proteínas

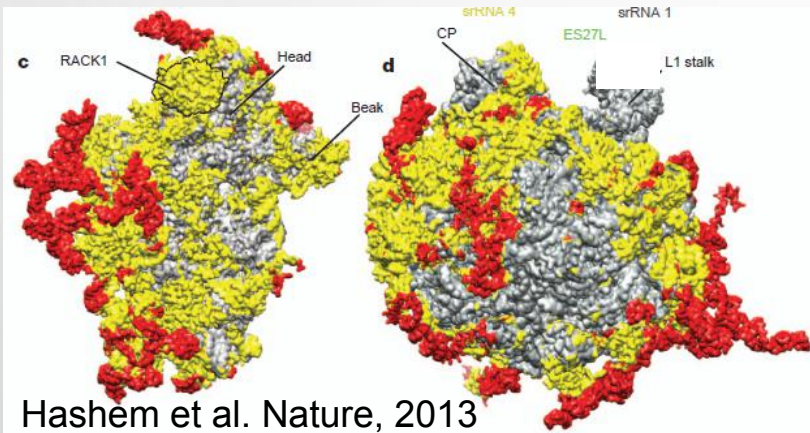
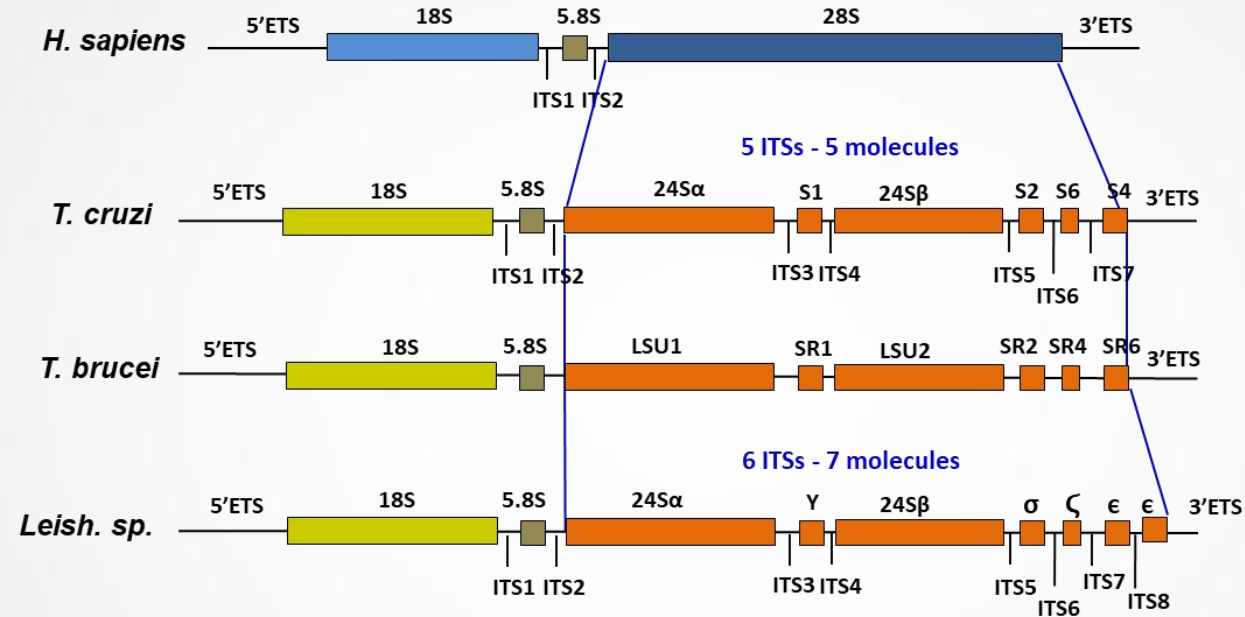
<http://www.icc.fiocruz.br/lpep/>

- 2012-2014: laboratório para produção e purificação de proteínas e análises por espectroscopia
- 2015-2016: laboratório de cristalografia de proteínas



# Ribosomal RNA maturation in Trypanosomatids

## Segmentation of the large ribosomal subunit RNA



Hashem et al. Nature, 2013

Ribosome Structure

- conserved core elements (prokaryotic and eukaryotic)
- eukaryote-specific conserved elements
- trypanosome-specific elements

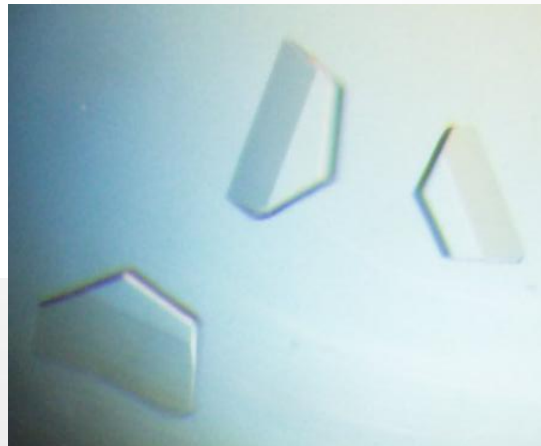
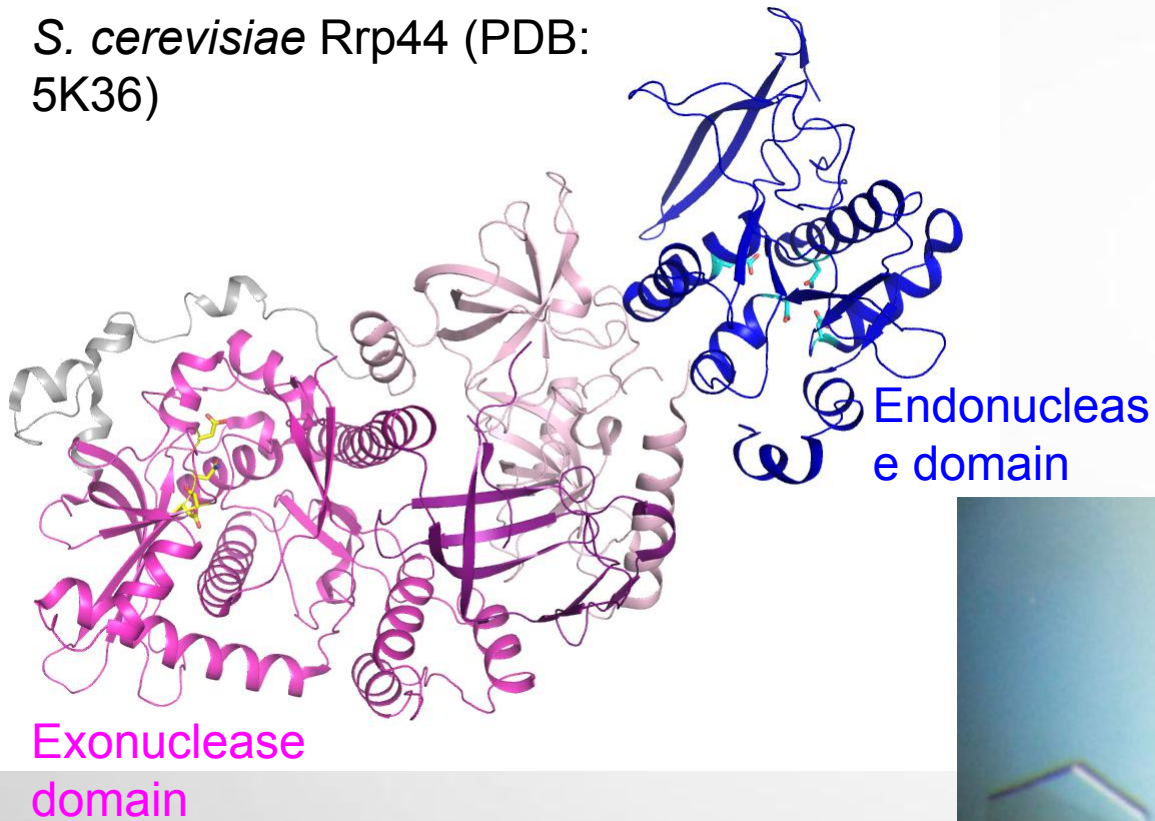


# Ribosomal RNA maturation in Trypanosomatids

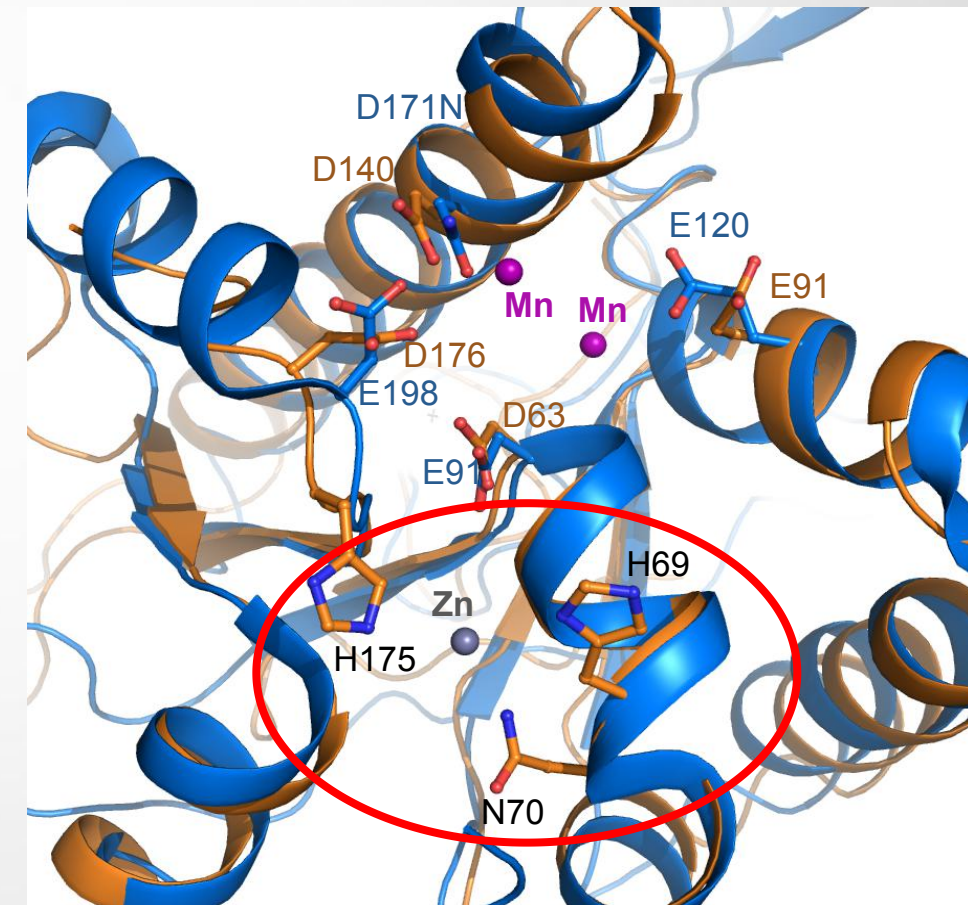
- **Rrp44 nuclease**

- Multidomain eukaryotic protein showing endo- and exoribonuclease activity that plays essential functions in RNA maturation and degradation

*S. cerevisiae* Rrp44 (PDB: 5K36)



*T. brucei* x **ScRrp44**: endonucleolytic site



# Trypanosomatids protein synthesis machinery

- Trypanosomatids' specificities:

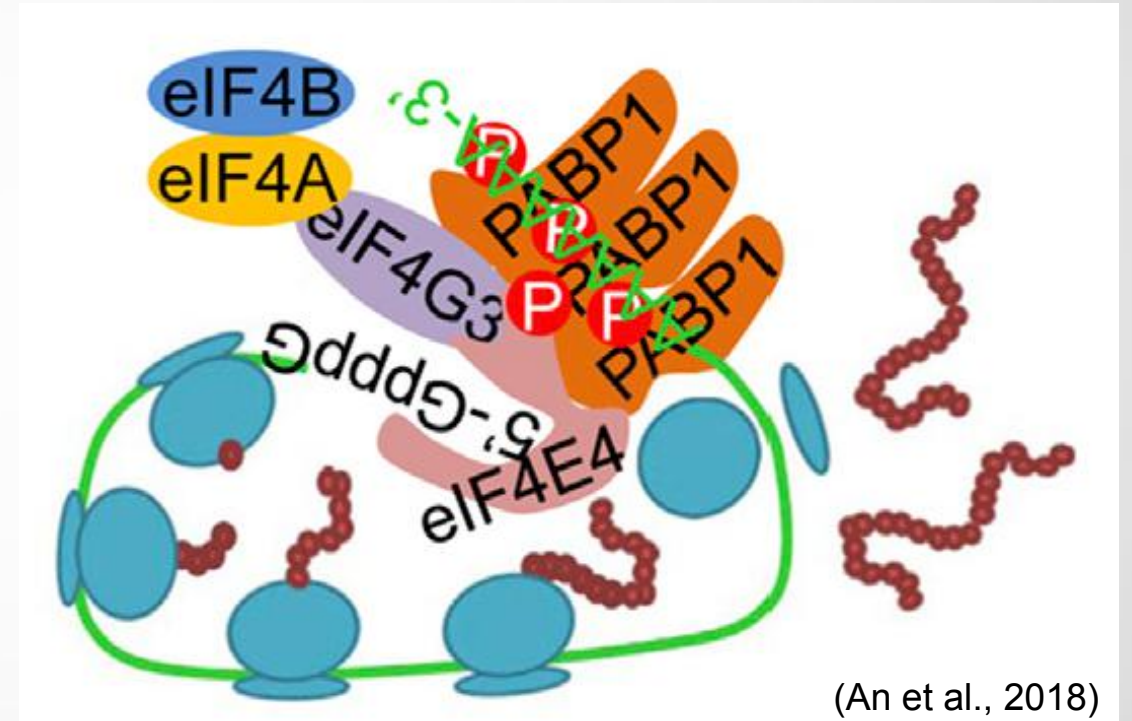
- Multiple homologs of the initiation factors:

- six** EIF4Es

- five** EIF4Gs

- two or three** PABPs

- 5'-end of the mRNA (cap-4): unique set of methylations compared with other eukaryotes: specific interaction mode for the eIF4E-cap complex

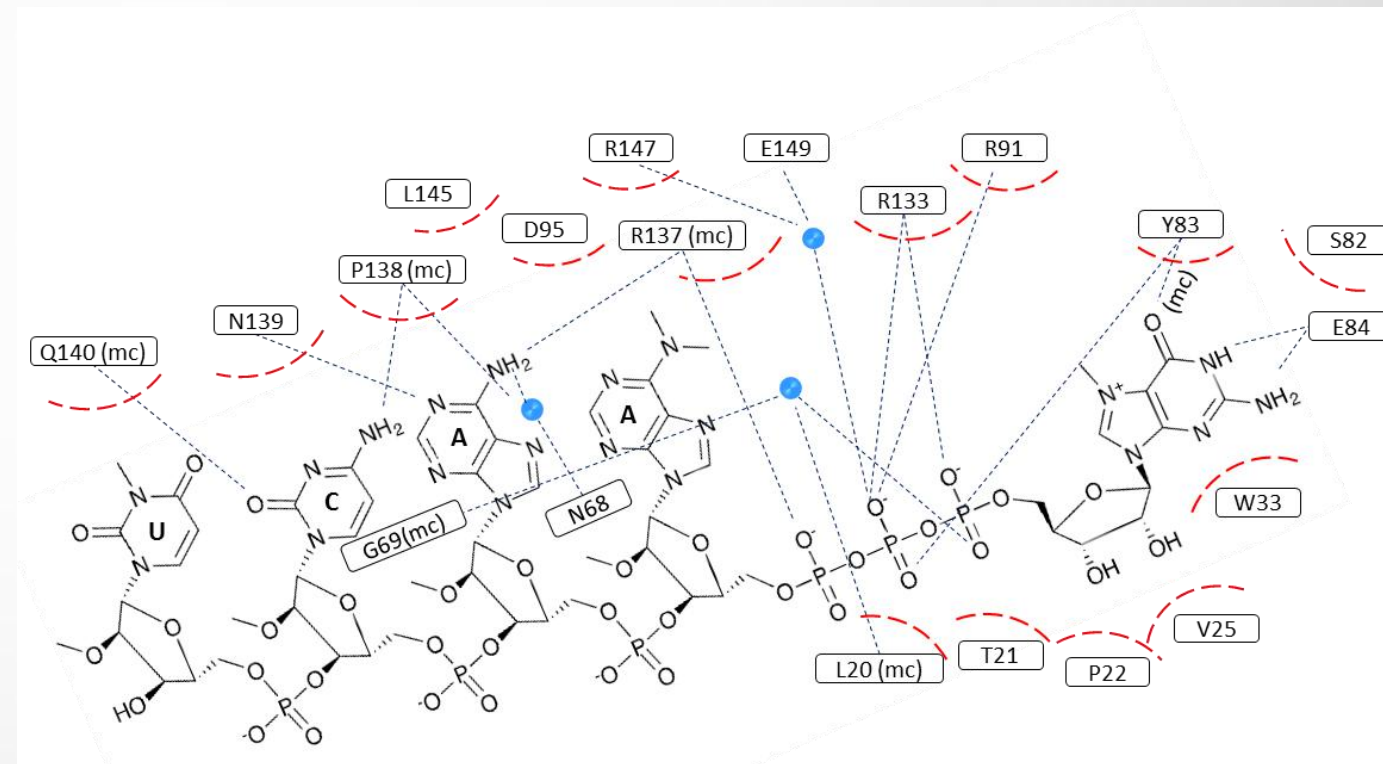
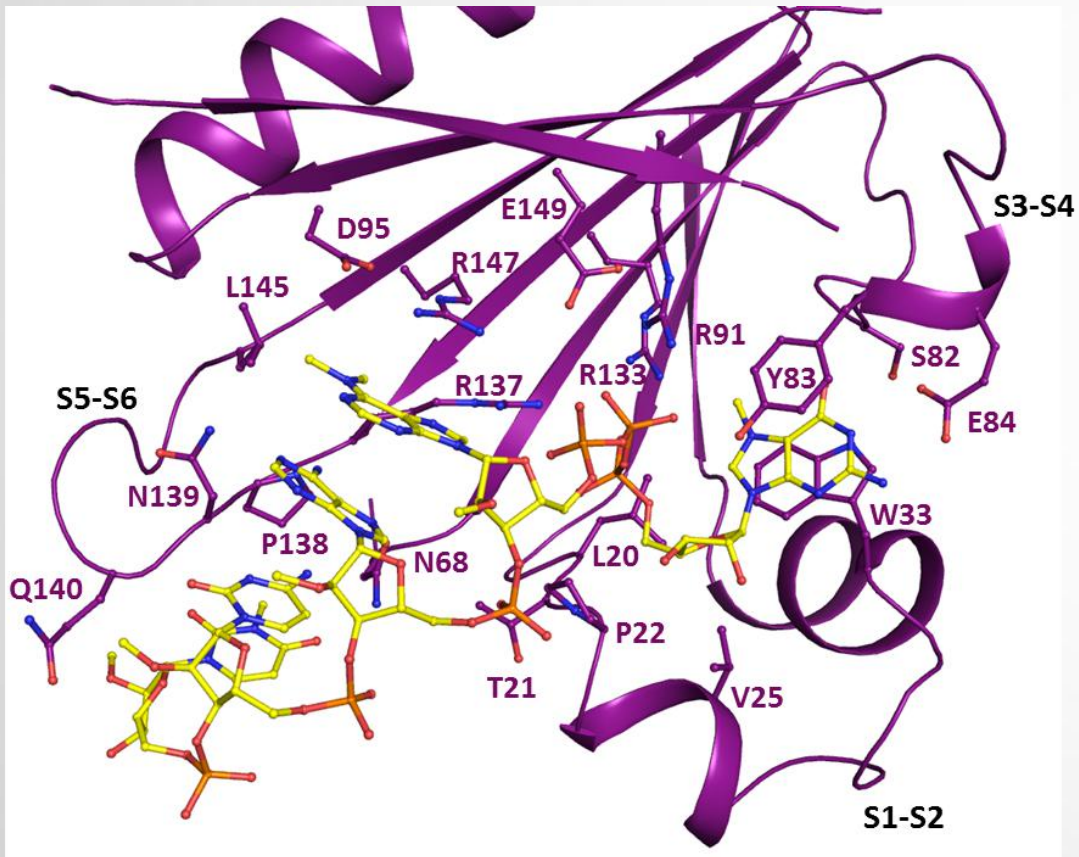
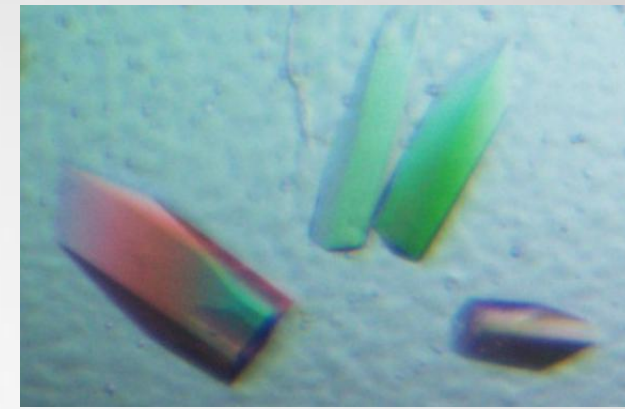


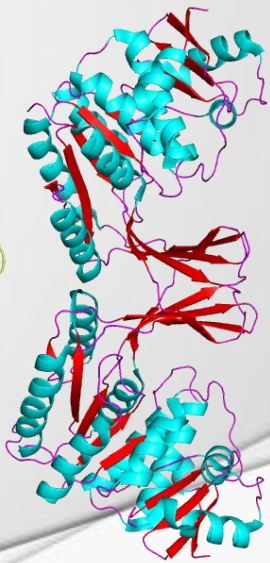
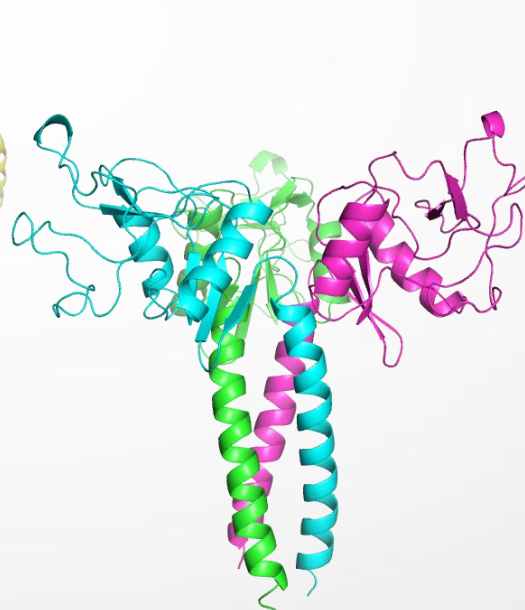
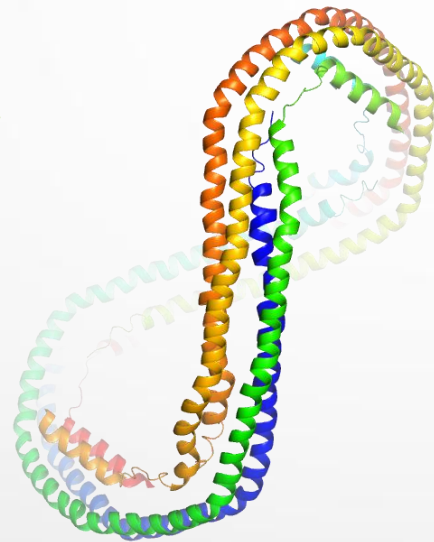
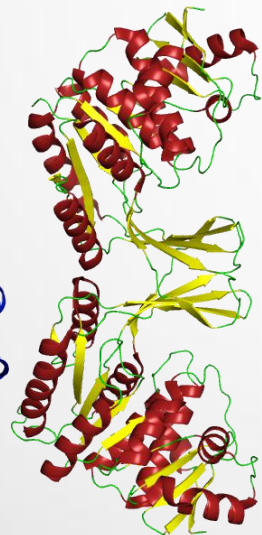
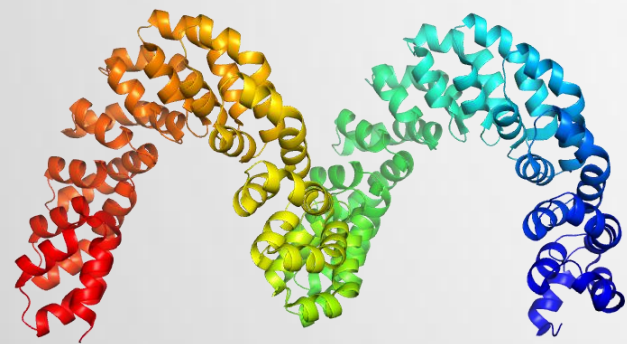
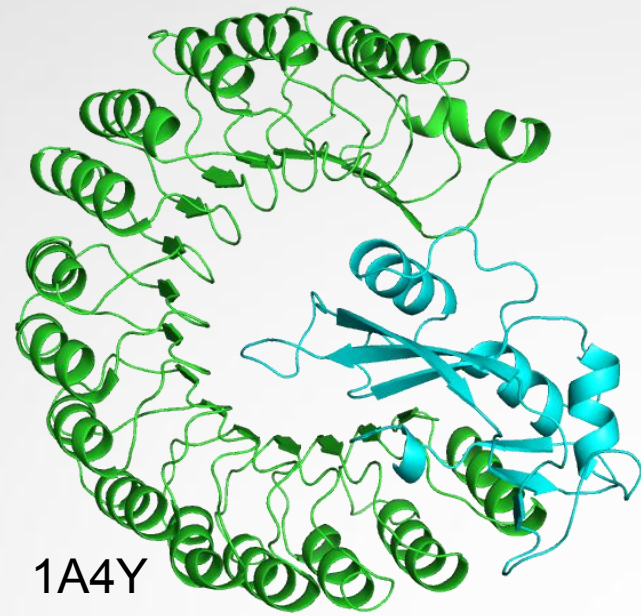
(An et al., 2018)



# Trypanosomatids protein synthesis machinery

- Translation initiation factor TcEIF4E5: binding mechanism to the 5'-end of the mRNA (cap-4)









Joinville, Maio 2018

Parabéns Glaucius!



Basel, Fevereiro 2017

Muito obrigada Glaucius!

???, ??? 199?

Curitiba, Outubro 2019



SOLEIL, Junho 2019

