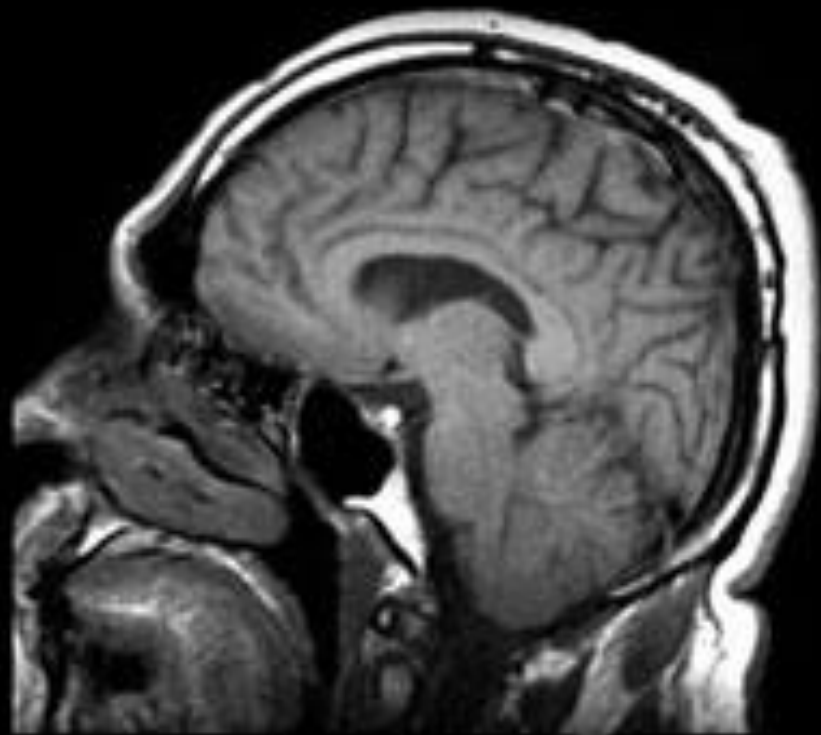


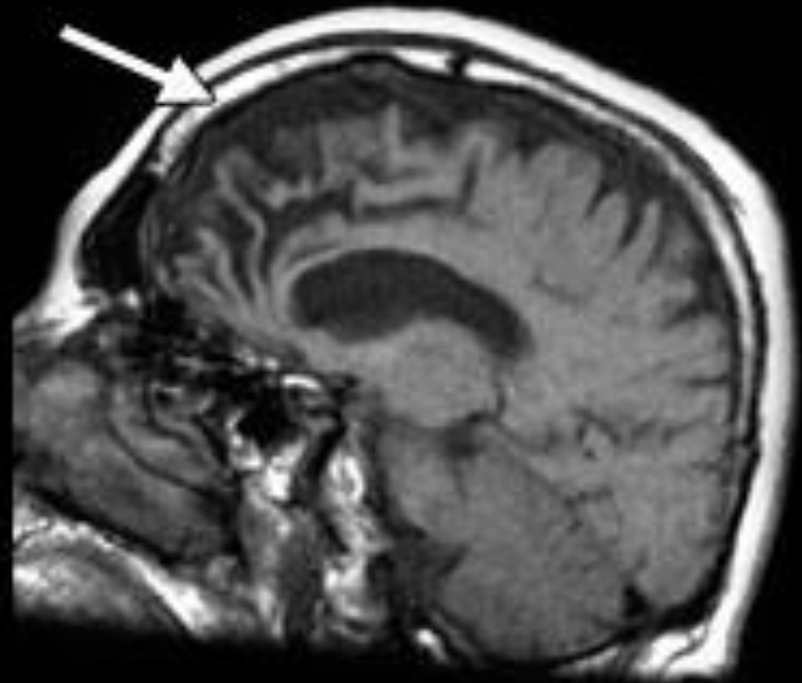


Frontotemporal Dementia

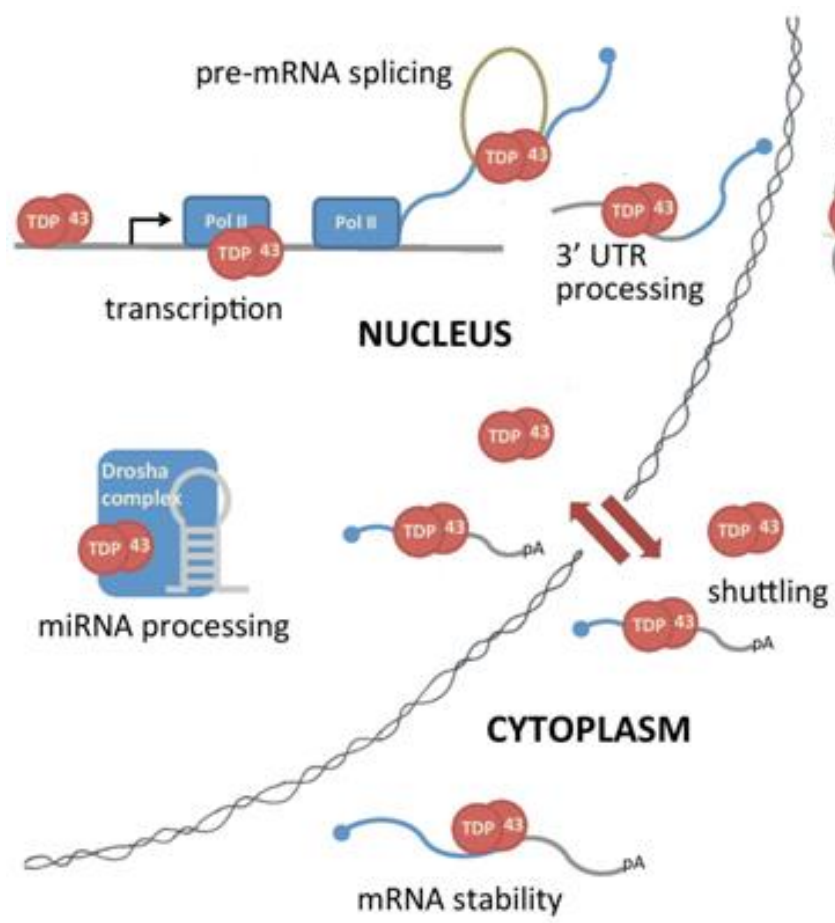
- FTD is distinct from other forms of dementia
 - Earlier onset (50s and 60s)
 - gradual, progressive decline in behavior and/or language (with memory usually relatively preserved).
 - TDP-43 and Tau subtypes
 - Strong comorbidity with ALS (C9orf72)
- Affects an estimated 50,000-60,000 Americans or 10%-20% of all dementia cases.
- Progressive atrophy of the frontal and/or temporal lobes that control "executive functions" such as decision-making, personality, social behavior and language.
- No real treatments only antidepressants (trazadone, zoloft) antipsychotics (olanzapine) for symptoms



Normal



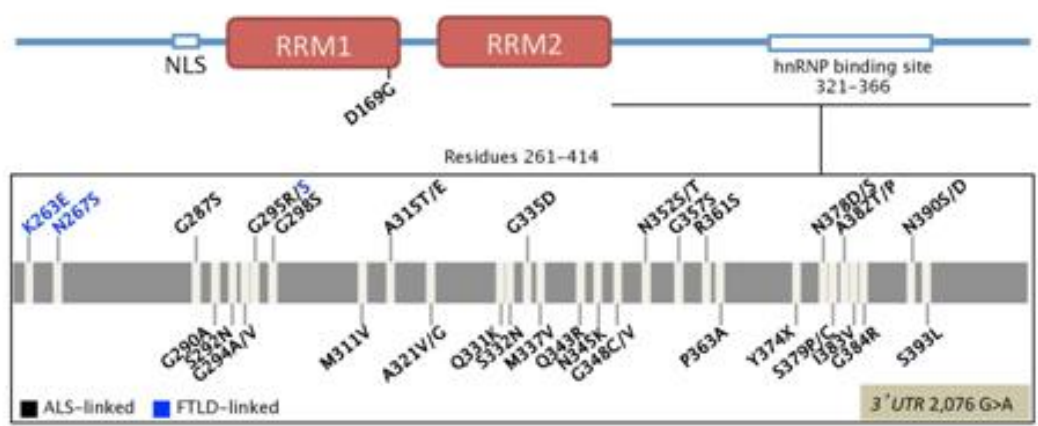
Frontotemporal dementia

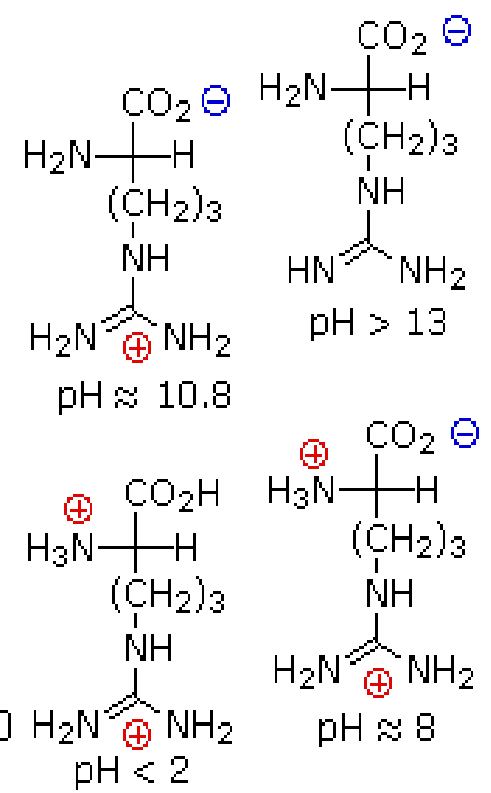
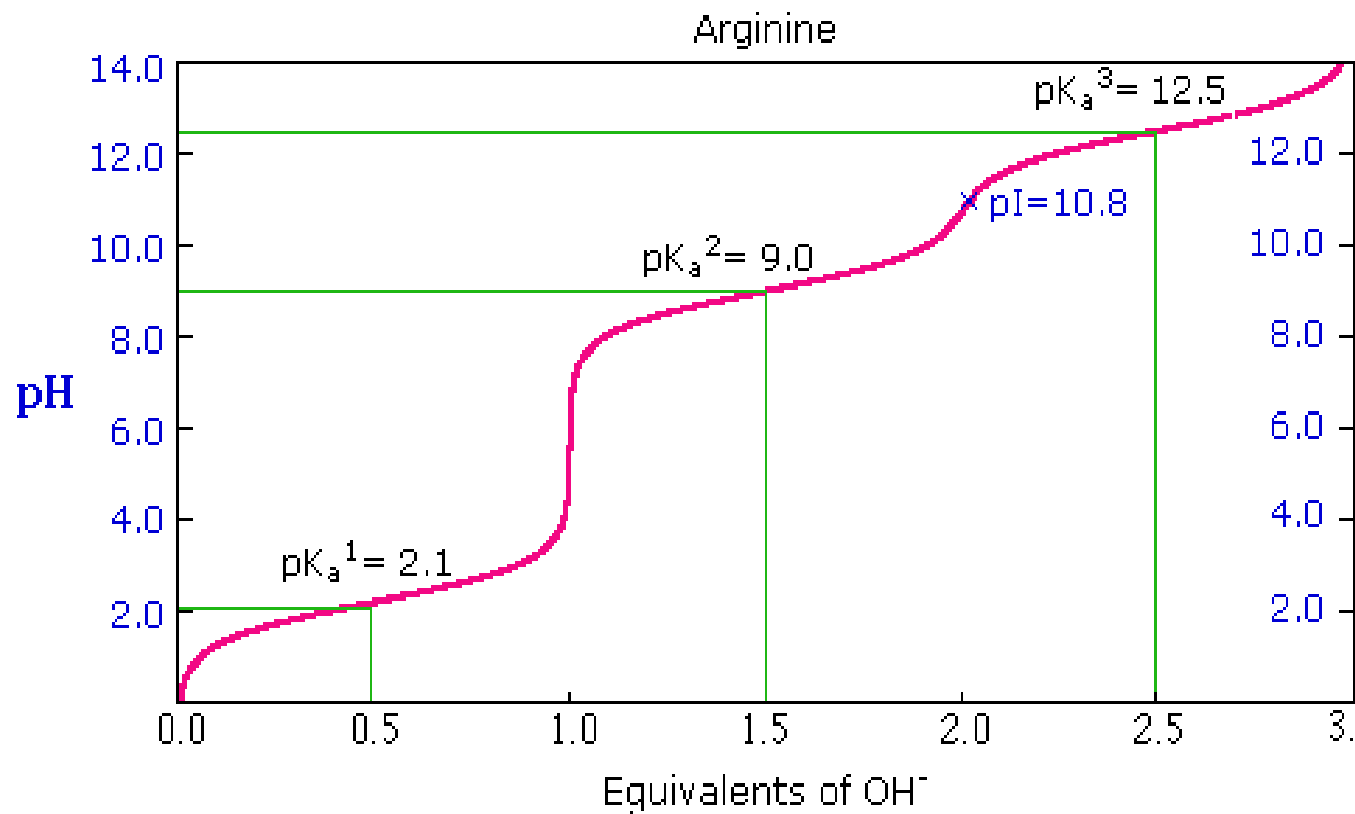


TDP-43 AGGREGATION



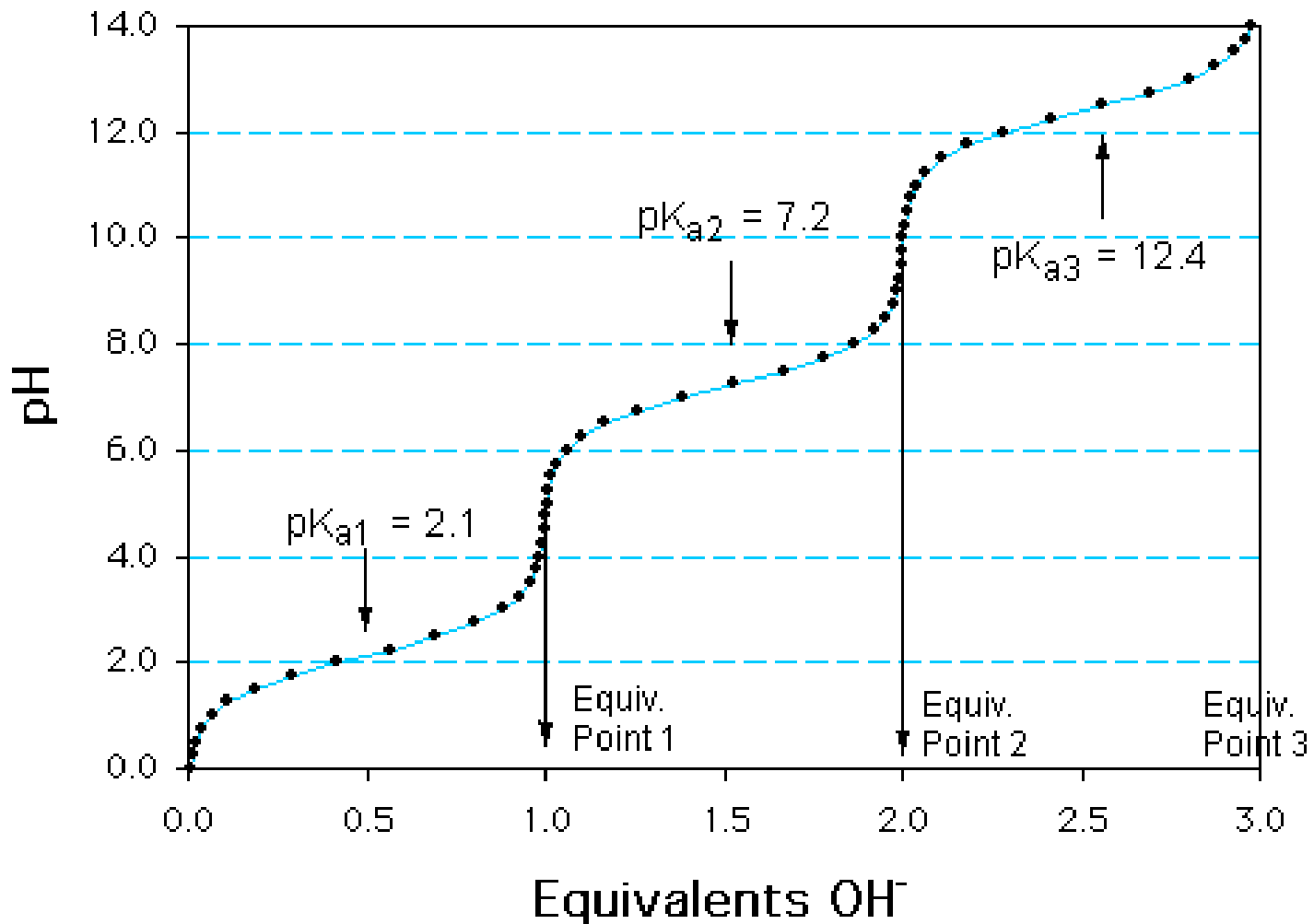
DISEASE ASSOCIATED MUTATIONS



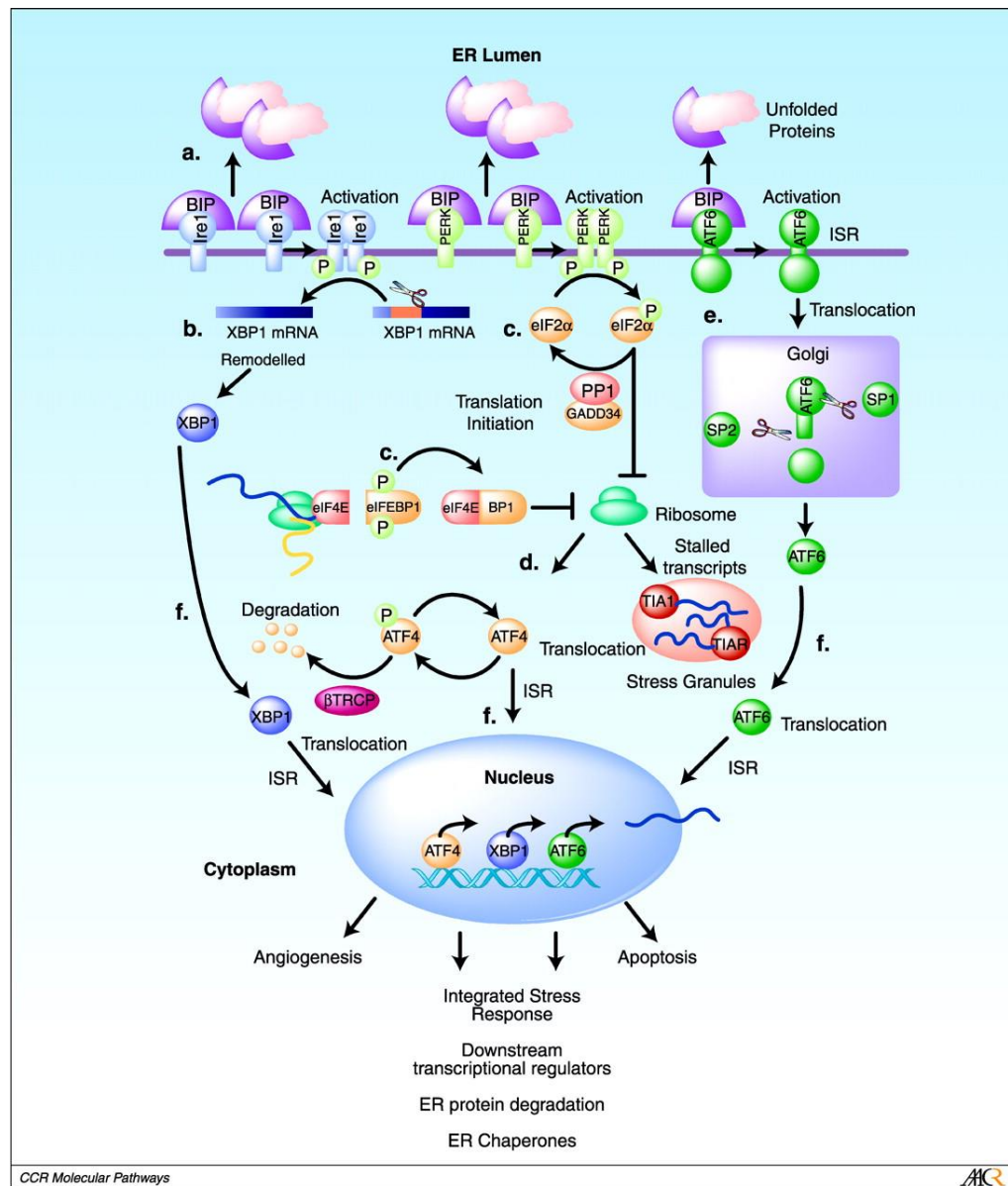


Team Workshop 1: FTD is linked to both hyperphosphorylated TAU and hyperphosphorylated TDP-43. Explore the EXPASY website and find a tool to calculate the isoelectric point of these proteins.

Phosphate Titration



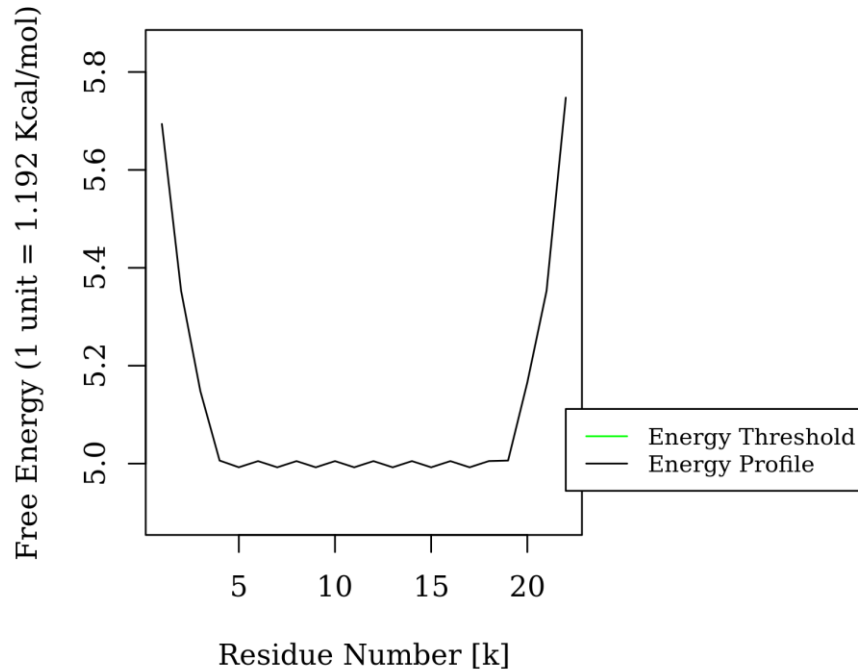
Team Workshop 2: Draw the approximate titration curve for hyperphosphorylated TAU and TDP-43. Assume there is a single titration point for the native protein.



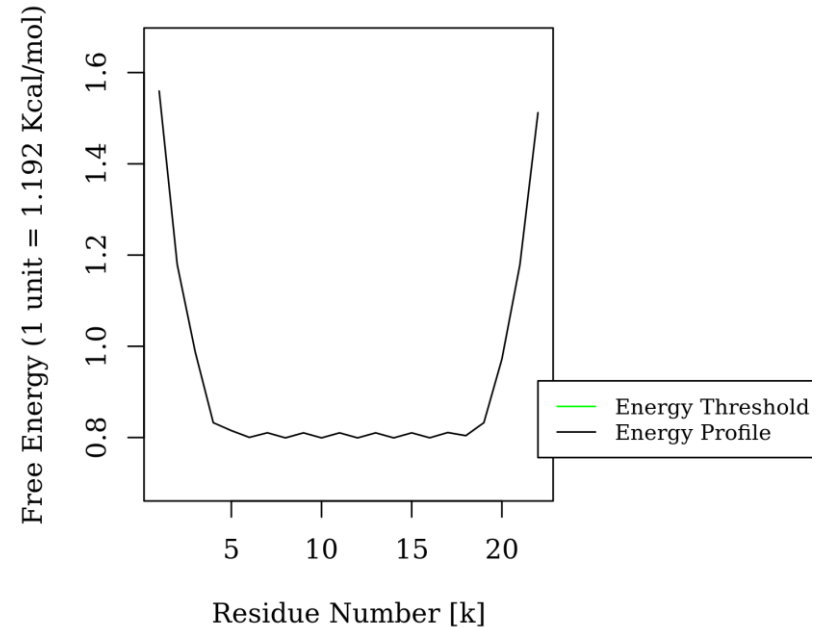
Team Workshop 3: What biological processes could link TAU and TDP-43 phosphorylation to disease?



**Aggregation free energy profile
(request)**



**Aggregation free energy profile
(request)**



Team Workshop 4: Use PASTA to predict the aggregation free energy of the possible *C9orf72* expansion repeat peptides. How many repeats are needed for aggregation to dominate?



Remember

- Before 12 PM of the next class day:
 - go to b.socrative.com/student/login and complete the quiz