

Exercises with Answers:

1. What kind of disorder annotations are there for this protein?

Curated, derived, predictions

2. The different annotations don't give exactly the same results. Which annotation gives the longest IDRs (Intrinsically Disordered Regions)?

Curated

3. How many different Experimental techniques (indicated as "Evidence") were used to identify the presence of disorder?

3 (X-ray crystallography, NMR, cleavage assay evidence)

4. Go on PECAN at <https://pecan.stjude.cloud/variants/proteinpaint> and search for beta-catenin (CTNNB1). Where in the sequence (residue number) are most of the mutations located in pediatric cancers?

33

5. In what type of cancer are the mutations common?

Brain tumor

6. Turn on COSMIC (Catalogue Of Somatic Mutations In Cancer) mutations. In what location are mutations most common?

41

7. Go on DIBS (Database of Disordered Binding Sites) at <http://dibs.enzim.ttk.mta.hu/search.php> and search for beta-catenin (P35222). Which entry contains the mutated region?

1p22

8. Highlight the most mutated positions in the structure. Are they structured? What evidence is there for their status (ordered/disordered)?

Inferred from homology

9. Click in Evidence in the left menu. Can you identify which is the binding partner? (If you visualize the PDB structure on the top right, you will see that only one of the partners actually interact with beta-catenin – "orange ribbon")?

S-phase kinase-associated protein 1