

Task 1:

Aurora B is a serine/threonine kinase that binds to InCENP C-terminal and autoactivate itself by phosphorylating residue T232 in Aurora B and residues S63 and S64 in InCENP (highlighted below). Run alphafold 3 for both phosphorylated and unphosphorylated protein. Download the results and align in chimeraX. Do you see structural changes?

References: *Elife*. 2023 May 25;12:e85328. doi: 10.7554/eLife.85328.

Aurora B

MAQKENSYPWPYGRQTAPSGLSTLPQRVLRKEPVTPSALVLMRSRNVQPTAAPGQKVMENSS
GTPDILTRHFTIDDFEIGRPLGKGKFGNVYLAREKKSHFIVALKVLFKSQIEKEGVEHQLRREIEIQA
HLHHPNILRLYNYFYDRRIYLILEYAPRGELYKELQKSCTFDEQRTATIMEELADALMYCHGKKVI
HRDIKPENLLLGLKGELKIADFGWSVHAPSLRRKIMCGTLDYLPPEMIEGRMHNEKVLDLWCIG
VLCYELLVGNPPFESASHNETYRRIVKVDLKFASVPMGAQDLISKLLRHNPSERLPLAQVSAHP
WVRANSRRVLPPSALQSV

InCENP

STDDEAHPRKPIPTWARGTPLSQAIHQYYHPPNLELFGTILPLDLEDIFKKSKPRYHKRTSSAV
WNSPPLQGARPSSLAYSLKKH