Exploration of chaperone like activity of TPR domain containing co-chaperone protein phosphatase 5 (PP5)

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Protein phosphatase 5 (PP5) recruited to its substrates by molecular chaperone HSP70 and HSP90 interaction. This interaction requires HSP70/HSP90 c- terminal EEVD motif and PP5' TPR domain. Since, PP5 has a broad array of substrates however how PP5 shows selectivity toward its substrate is still a lacunae. To know its molecular determinants, we screened a large, pentapeptide library which contain 640,000 possible EEVD-like sequences. Affinity and melting temperature analysis of PP5 with pentapeptide library shows the preference for bulky amino acid at certain position. This analysis led to the exploration of EEVD like motif in human proteome, analysis led to the identification of 4 proteins ELP1, DDCP, U520 and AGO1 have EEVD-like motif in its C-termini. Affinity analysis of these protein c-terminal motif shows only ELP1 as an interacting partner to PP5. This led us to know the chaperone involvement in PP5:ELP1 interaction. Co-IP reveal absence of HSP90/HSP70 in this PP5:ELP1 interaction, suggest the chaperone independent interaction with ELP1. This finding reveals PP5 ability to work chaperone independently.