



S1 Fig. Distinguished residue pairs within an array of length $L = 12,090$, ordered by DC scores for Ran GTPase (pdb: 1k5g), as computed by CCMpred using the R⁴ MSA (see Table 4). Distinguished pairs are represented by black and red blocks, the latter indicating pairs common to panels A and B; the remaining pairs are represented by dots. The region up to each cut point X is highlighted in yellow. **A.** Distinguished elements are those pairs separated by $\leq 5 \text{ \AA}$ in chain A of 1k5g. ICA results: $S = 230$; $D = 346$; $X = 291$; $d = 186$; 54% of the distinguished pairs (d/D) occur in the initial 2.4% of the array (X/L). **B.** Distinguished elements are pairs of the 25 residues found by the BPPS program to be most distinctive of R⁴ GTPases. ICA results: $S = 6.2$; $D = 281$; $X = 772$; $d = 46$; 16% of the distinguished pairs occur in the initial 6.4% of the array. Note that because no ranking is available for the distinguished pairs in panel B we calculate S for both panels without the ball-in-urn component P_b and using only P_a [14].