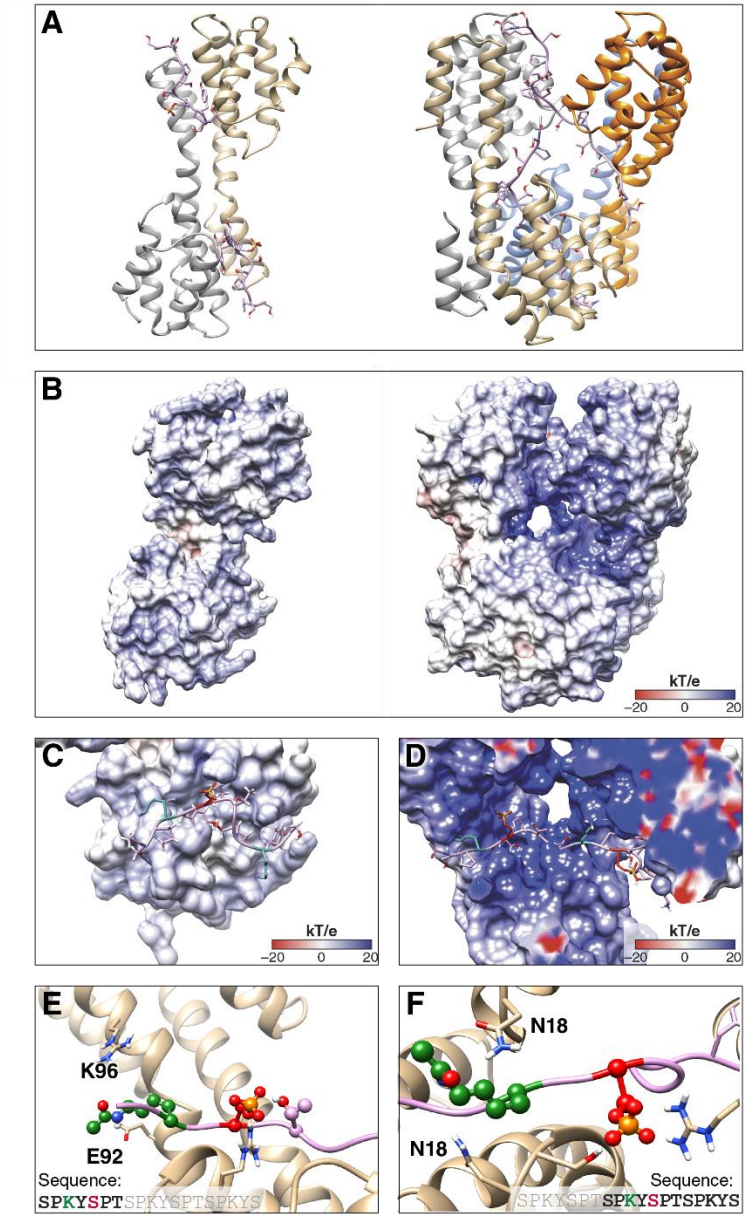


Figure S1. Related to Figure 3. Dimer and Tetramer Models of RPRD1B:CTD Complex Share Similar Features. Comparison of dimeric and tetrameric models of RPRD1B:CTD complex.

(**A**) Dimer (left) and tetramer (right) models from crystal structures.

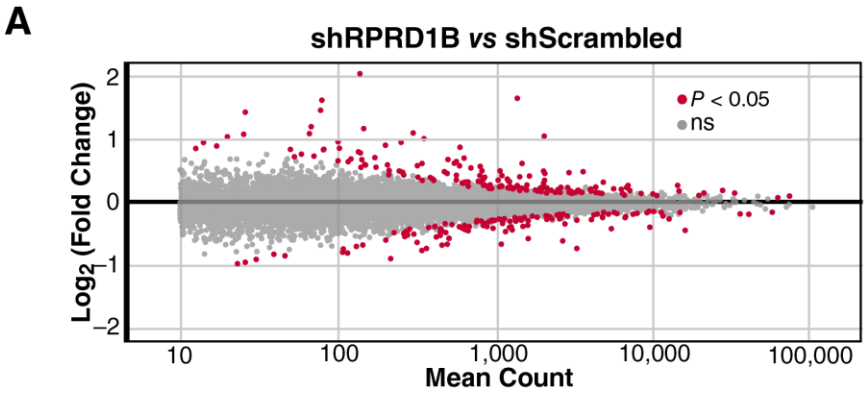
(**B**) Electrostatic potential surface for dimer (left) and tetramer (right) models.

(**C**) Dimer model CTD peptide fragment superimposed with the electrostatic potential surface around the corresponding binding site**.**

(D) Tetramer model CTD peptide fragment superimposed with the electrostatic potential surface around the corresponding binding site.

(**E**) Recognition elements around first K7ac and first S2p in the CTD peptide fragment in the tetramer model.

(**F**) Recognition elements around second K7ac and second S2p in the CTD peptide fragment in the tetramer model.



B

RPRD1B Dysregulated Genes (GO)	Number of Genes	Fold Enrichment	FDR q-value
Developmental Process	127	1.76	4.95E-9
Regulation of Multicellular Organismal Process	89	2.11	4.30E-9
Regulation of Developmental Process	81	2.07	1.46E-7
Regulation of Cellular Component Movement	42	2.87	1.56E-6
Regulation of Multicellular Organismal Development	64	2.13	4.40E-6
Cell Adhesion	34	3.07	7.59E-6
Anatomical Structure Development	87	1.79	8.59E-6

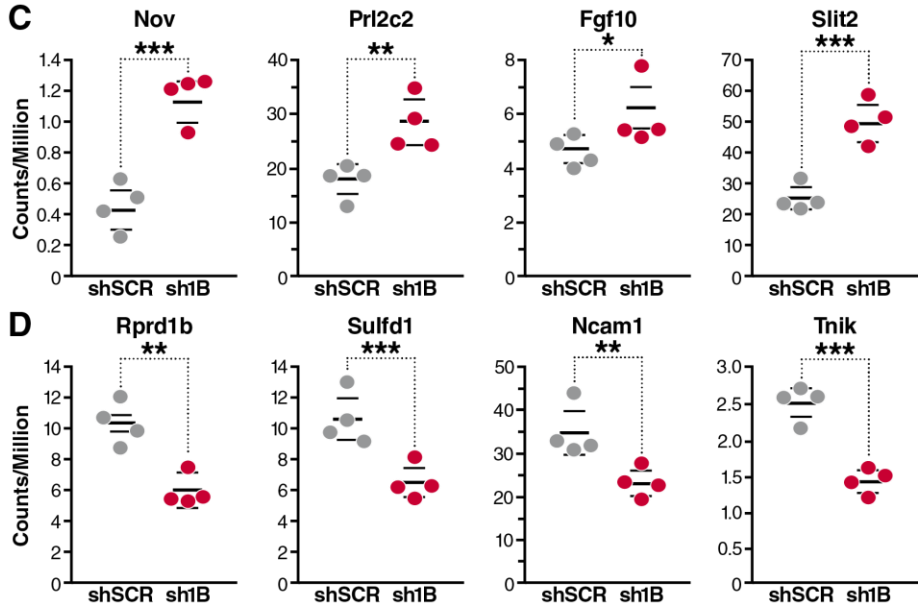


Figure S2. Related to Figure 5. RPRD1B Knockdown Dysregulates Genes Relating to Development and Multicellularity. NIH3T3 cells were treated with shRNAs against RPRD1B (sh1B) or a scrambled sequence (shScr) and selected with puromycin for 1 week.
(**A)** RNA-seq highlighting 271 significantly dysregulated genes in red.
(**B)** Gene ontology analysis of genes significantly dysregulated in response to RPRD1B knockdown.
(**C)** DESeq counts per million for selected upregulated genes associated with regulation of multicellular organismal process.
(**D)** DESeq counts per million for selected downregulated genes in response to RPRD1B knockdown.
Data is shown as mean ± SEM. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.005$ using a one-tailed T test.