

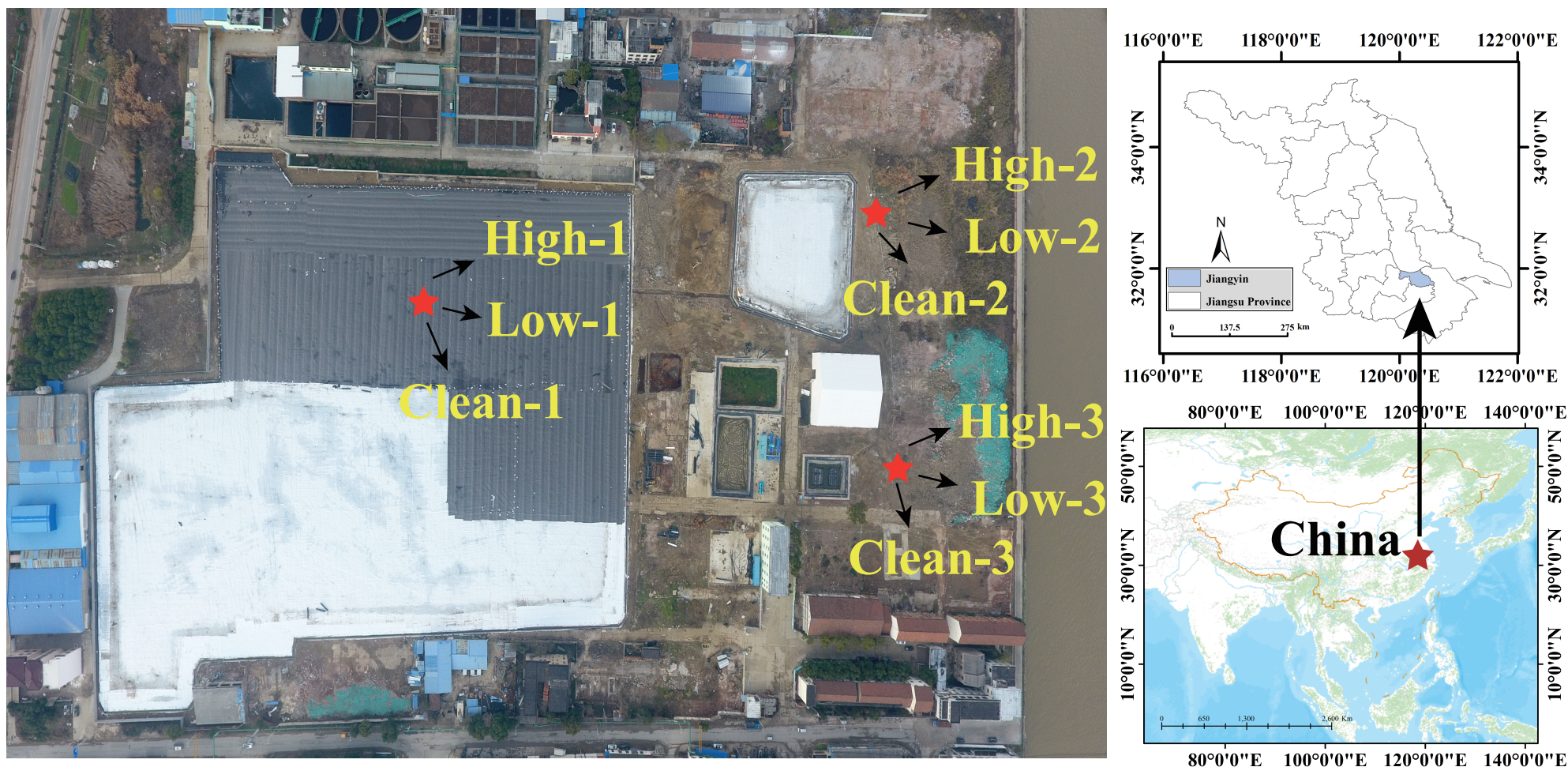


Fig. S1

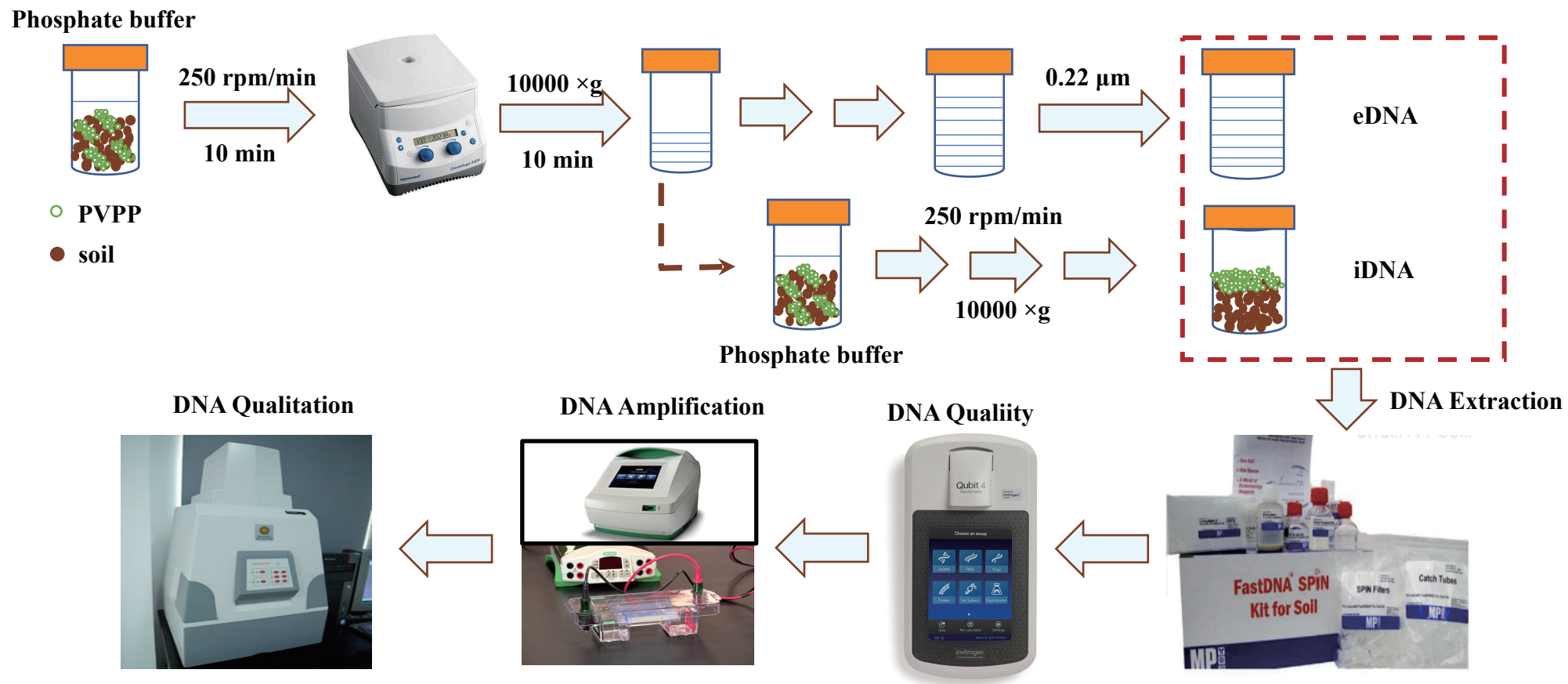


Fig. S2

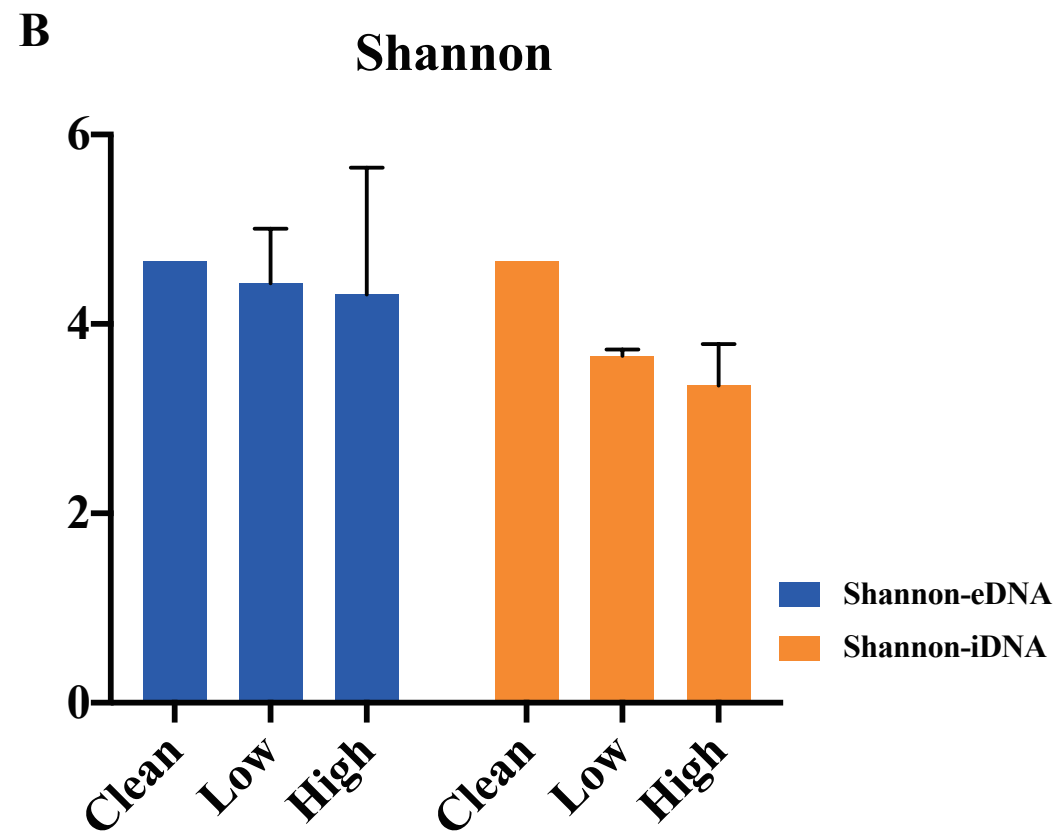
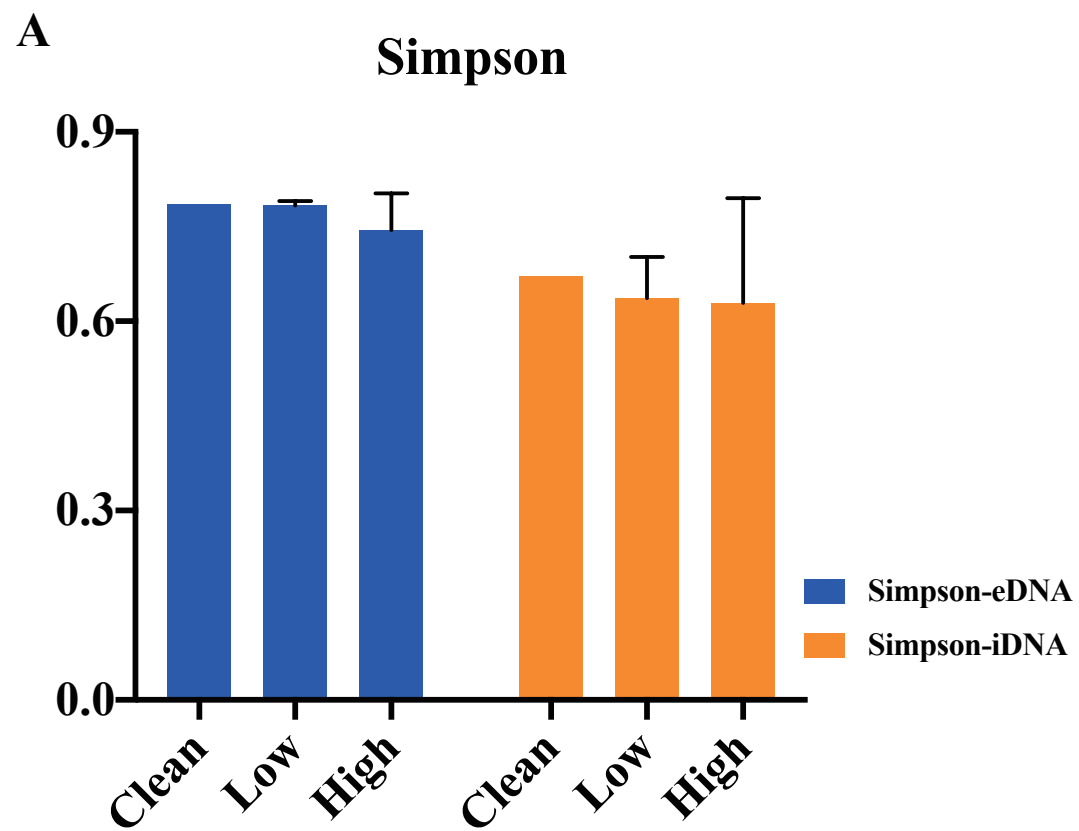


Fig. S3

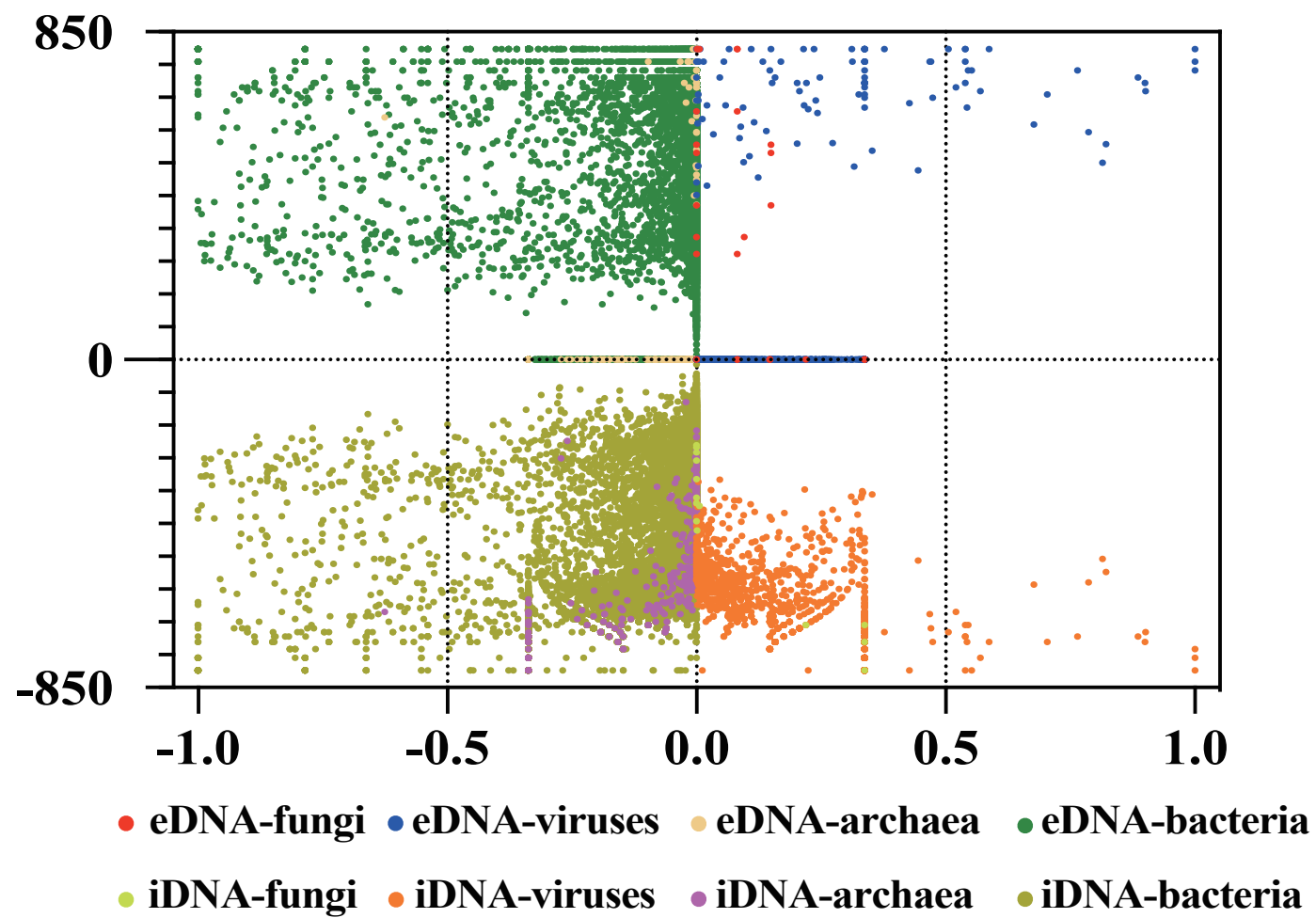


Fig. S4

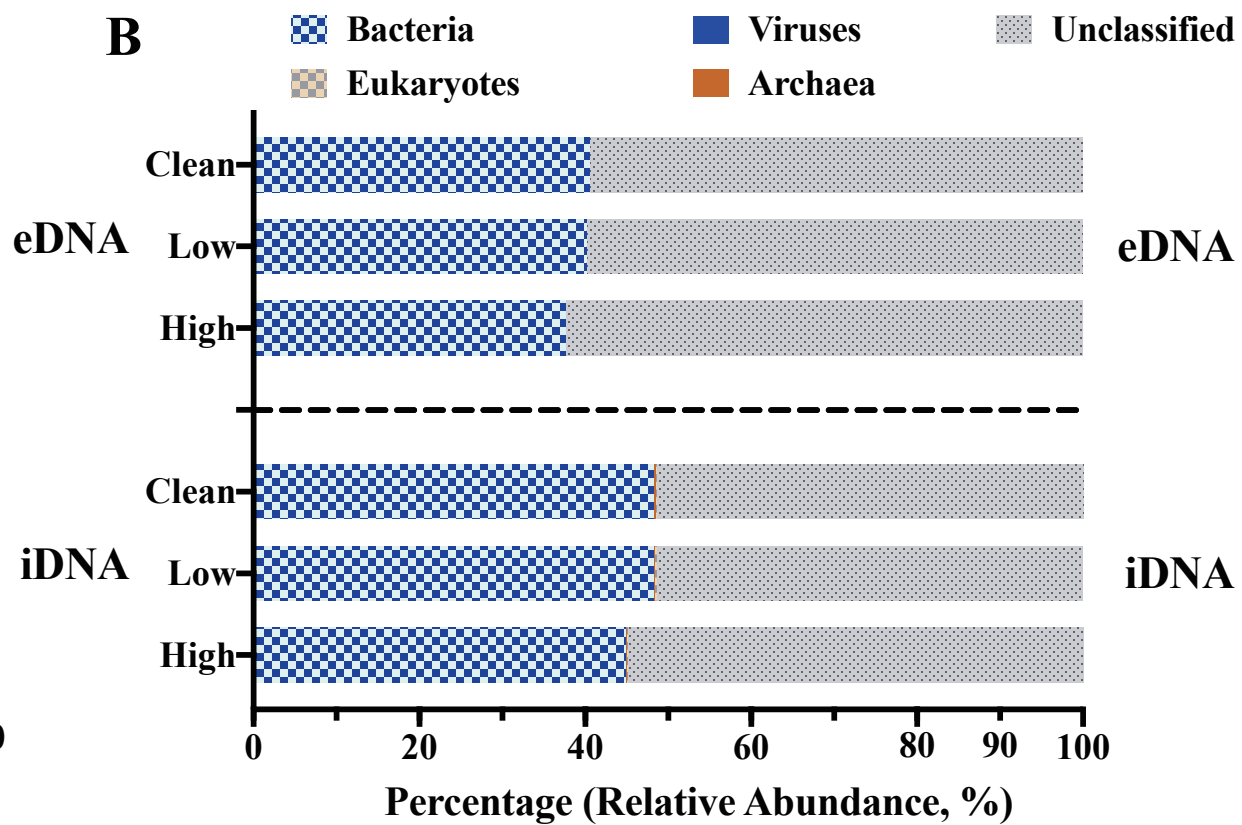
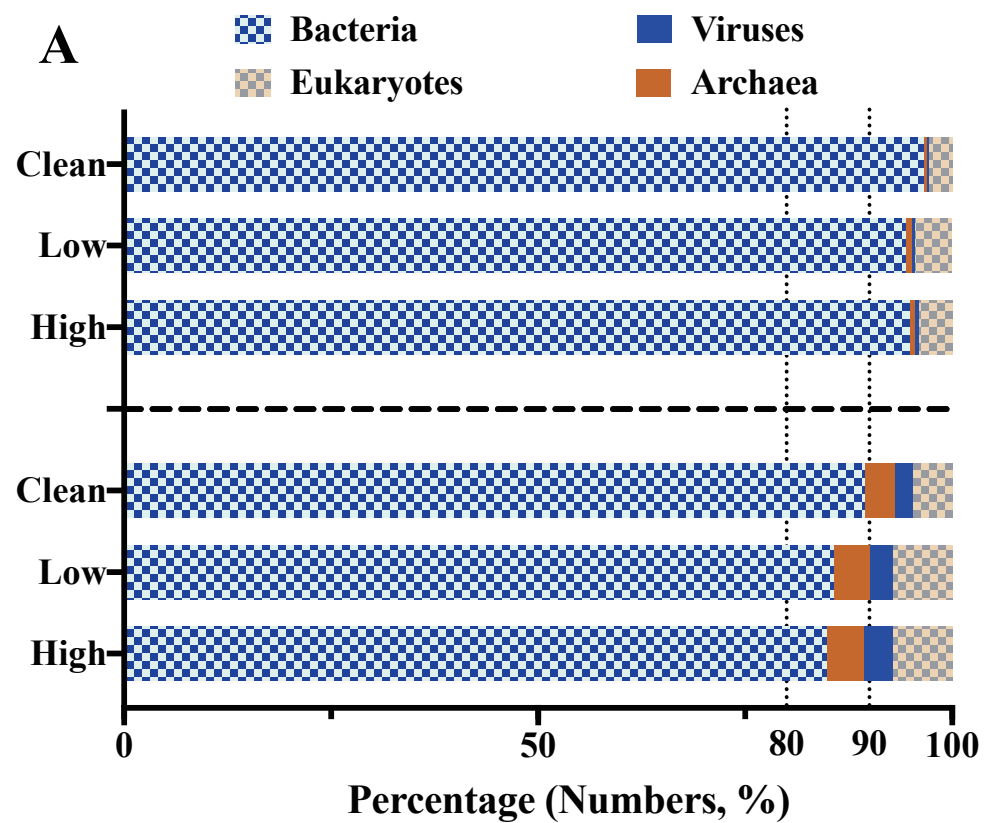


Fig. S5

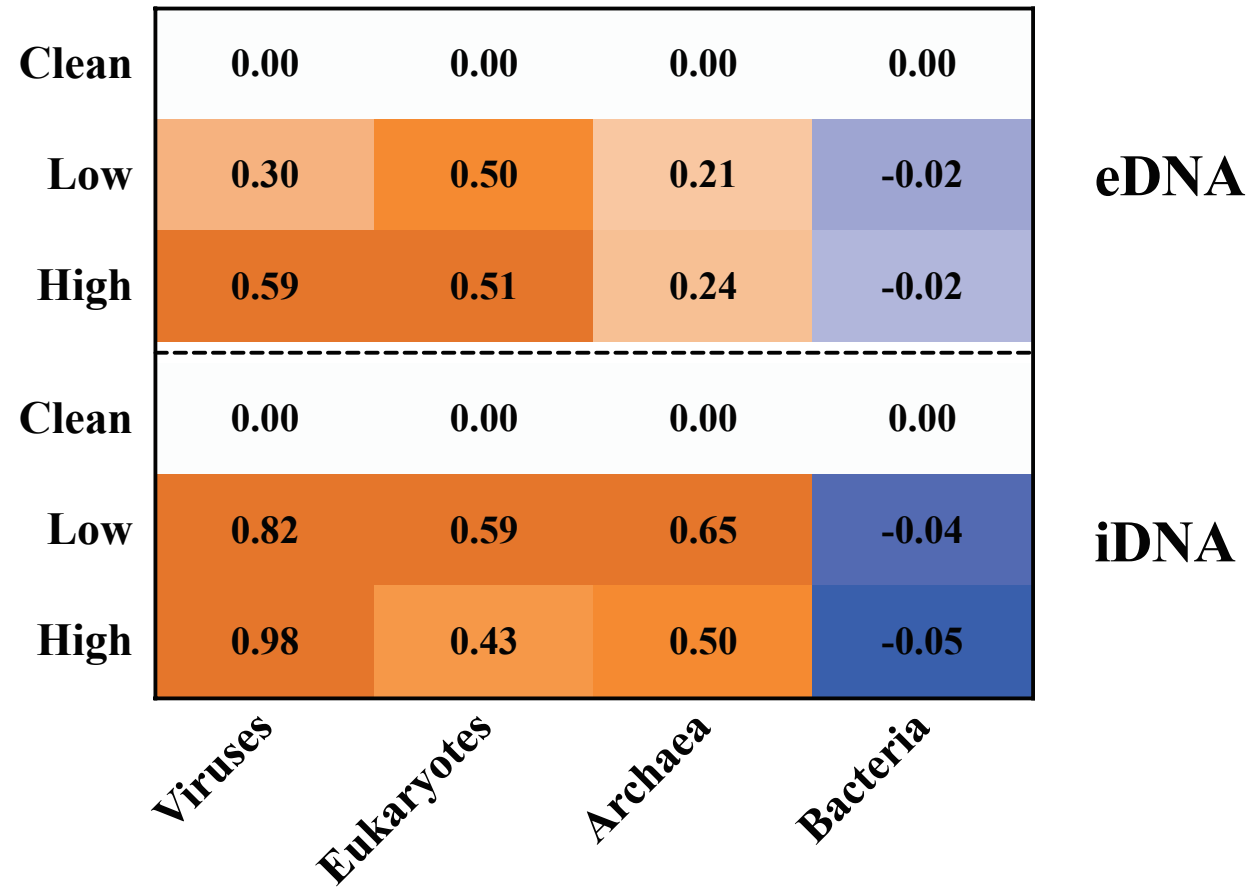


Fig. S6

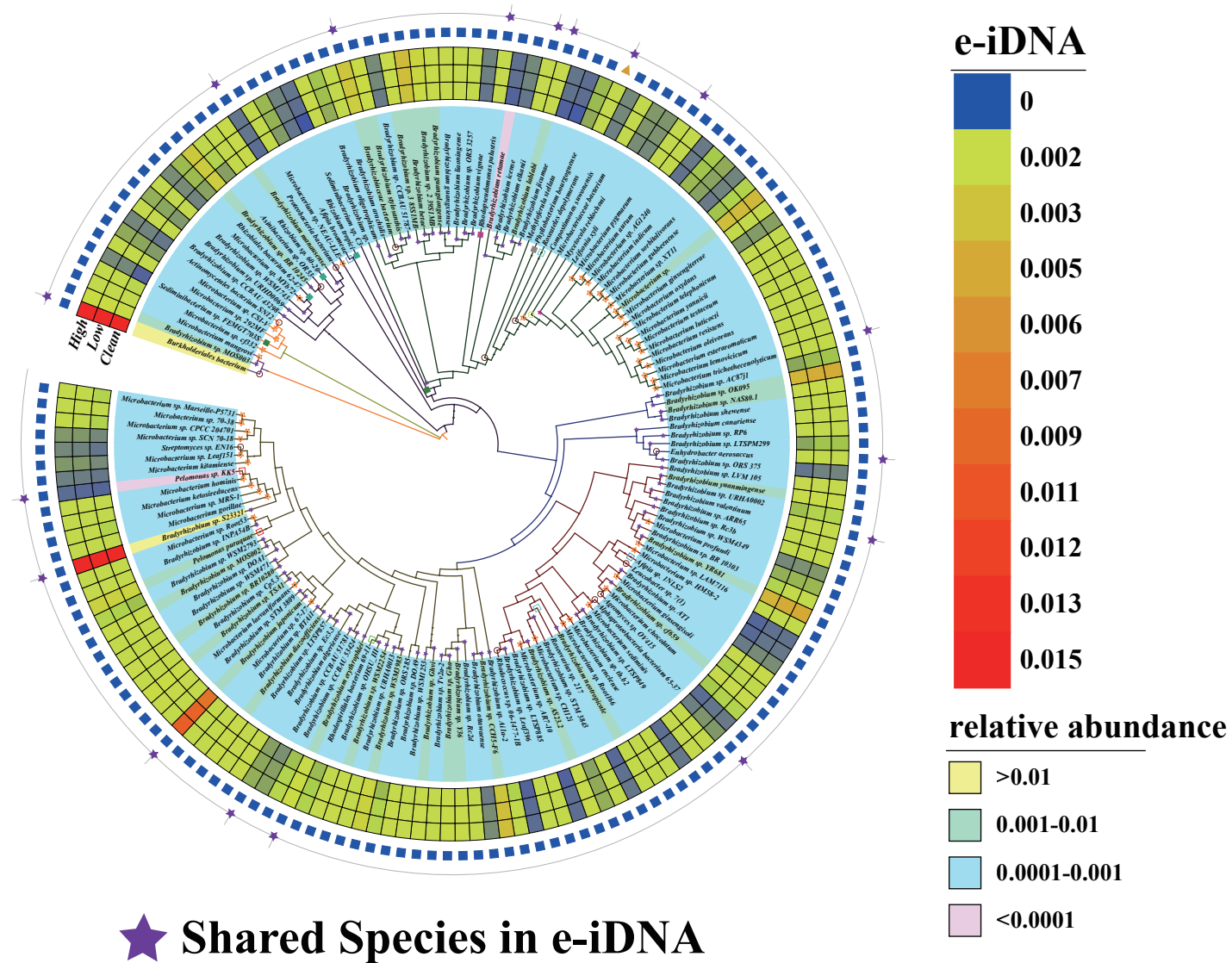


Fig. S8

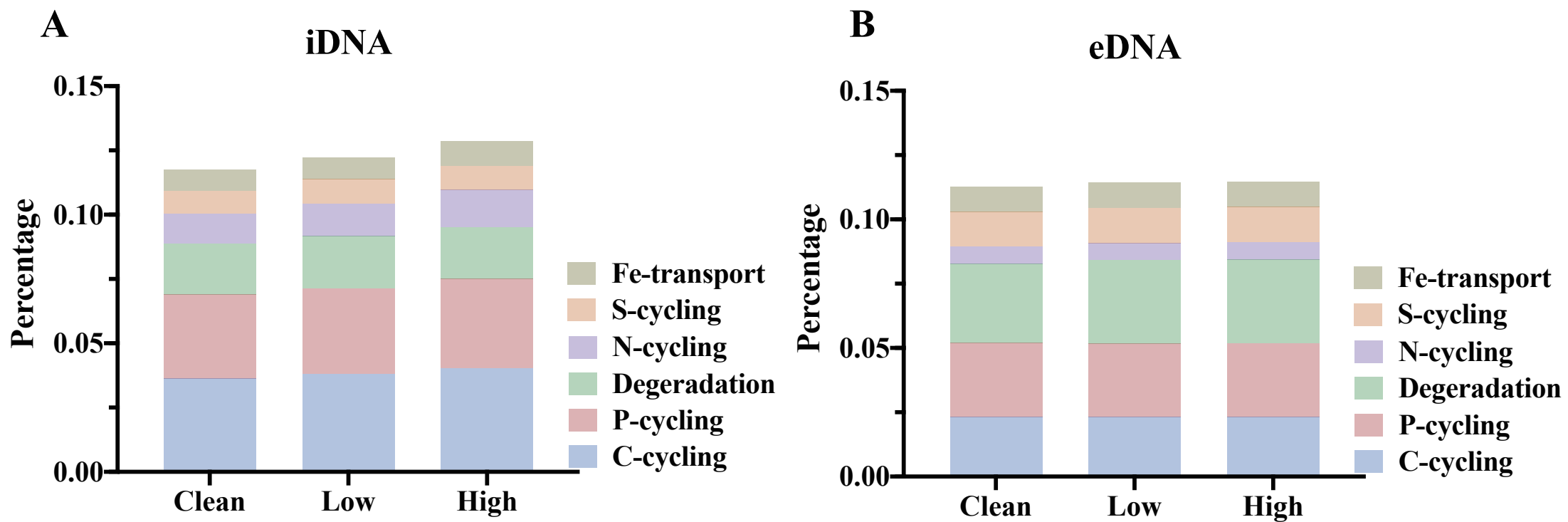
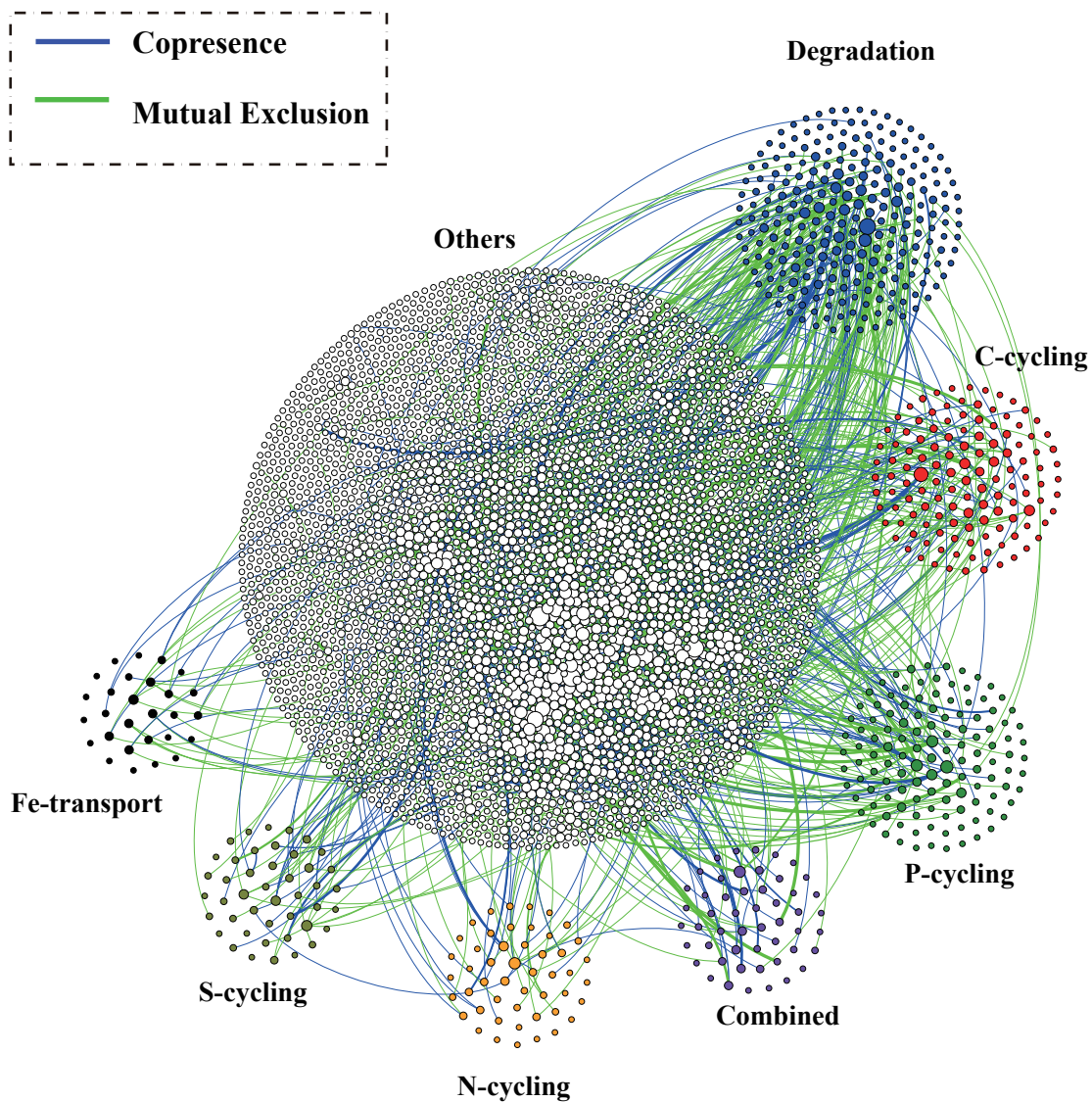


Fig. S9

Clean	0.000	0.000	0.000	0.000	0.000	0.000	eDNA
Low	-0.002	0.054	-0.038	-0.004	0.016	0.007	
High	0.007	0.060	-0.019	-0.011	0.021	0.012	
Clean	0.000	0.000	0.000	0.000	0.000	0.000	iDNA
Low	0.049	0.024	0.094	0.017	0.086	0.037	
High	0.109	0.010	0.255	0.066	0.054	0.166	
	C-cycling	Degradation	N-cycling	P-cycling	S-cycling	Fe-transport	

Fig. S10

A Clean-iDNA



B Clean-eDNA

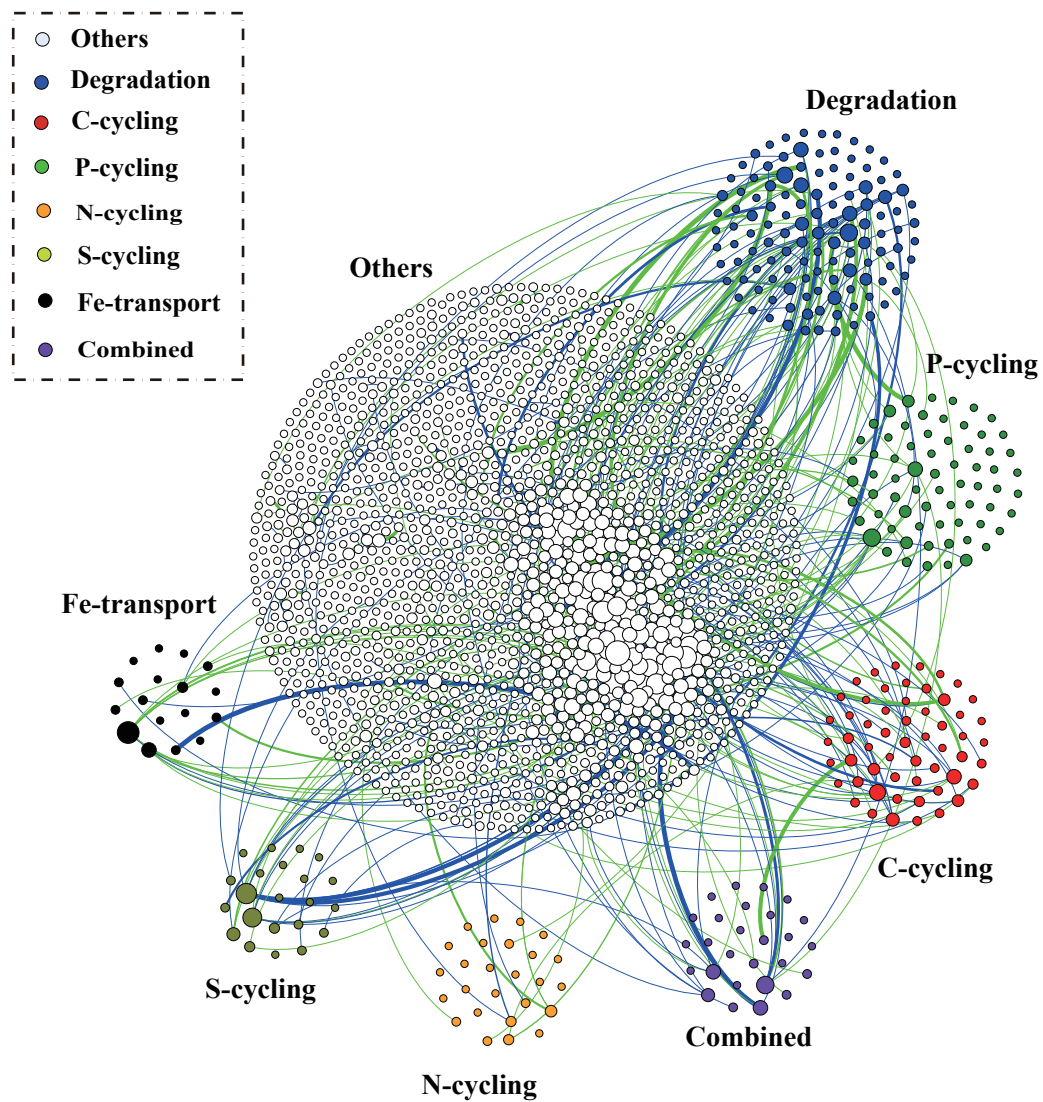


Fig. S11

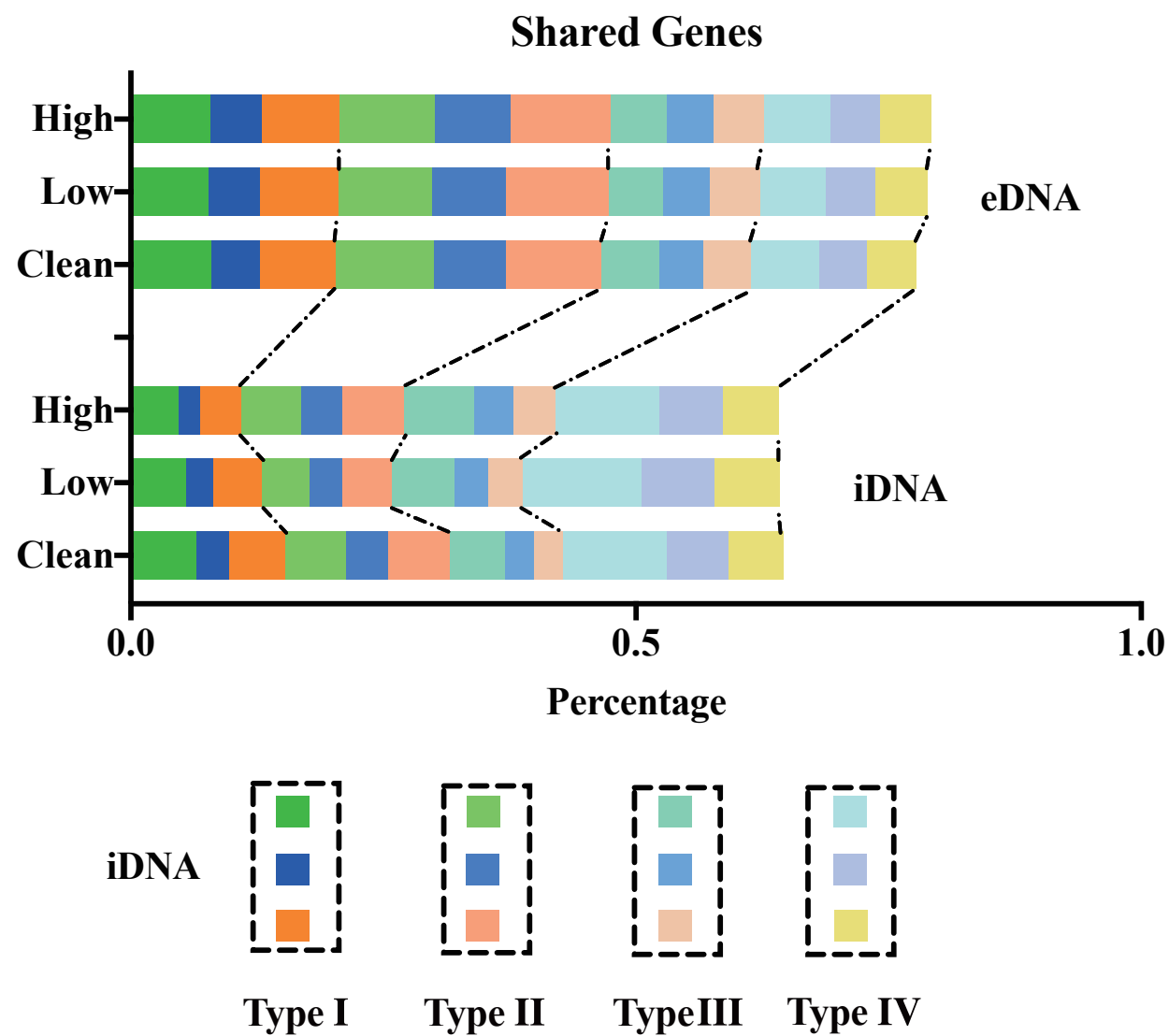


Fig. S12

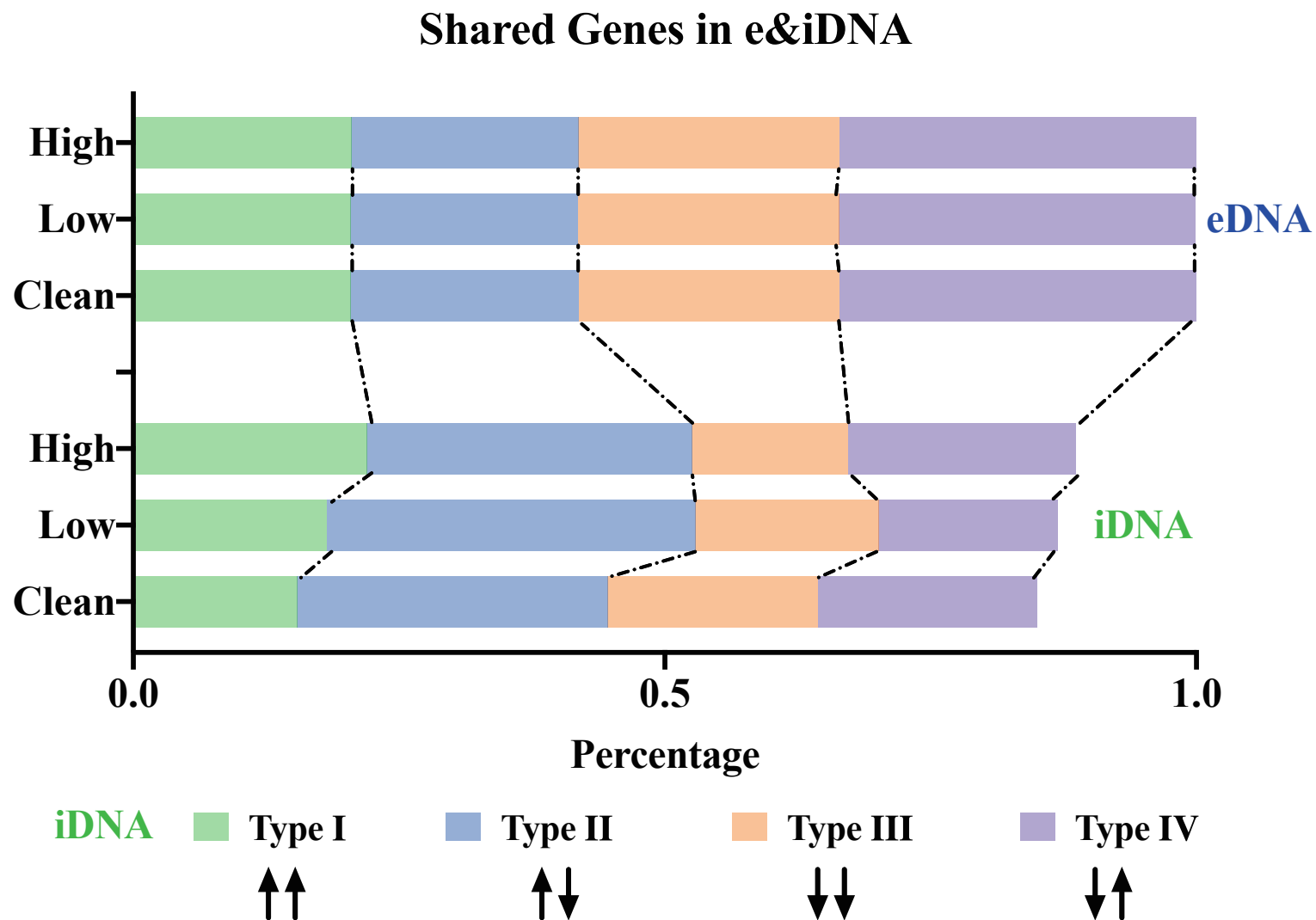


Fig. S13

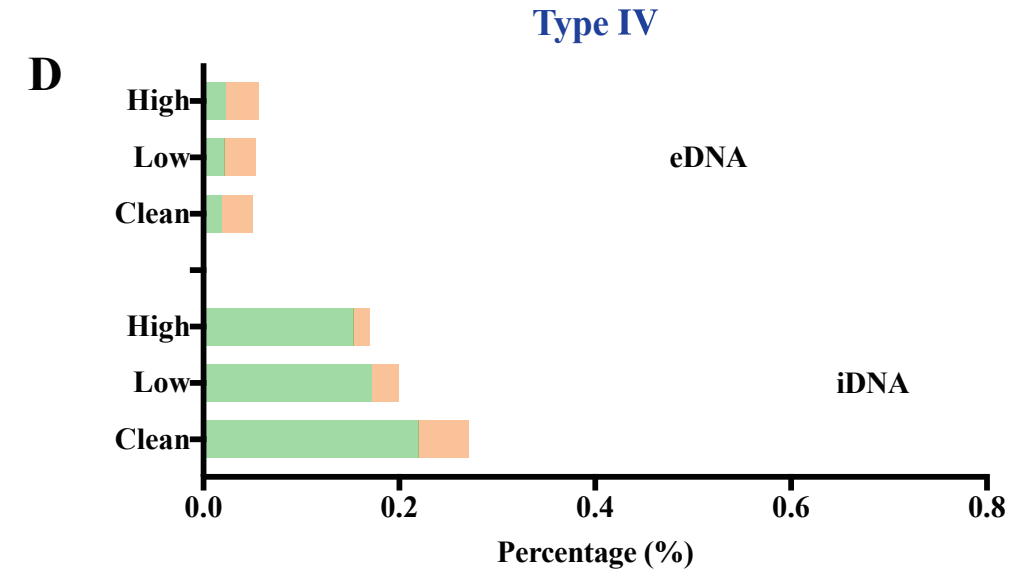
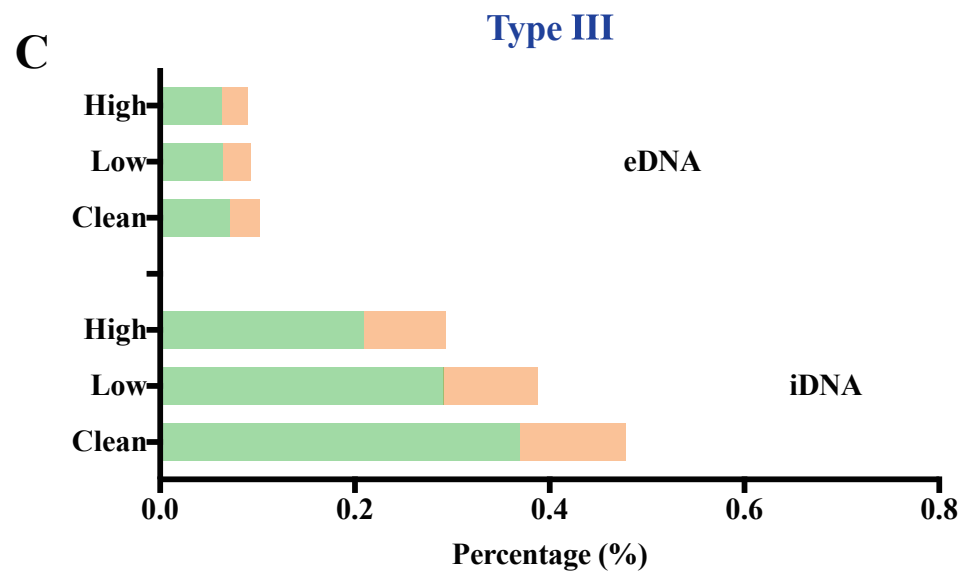
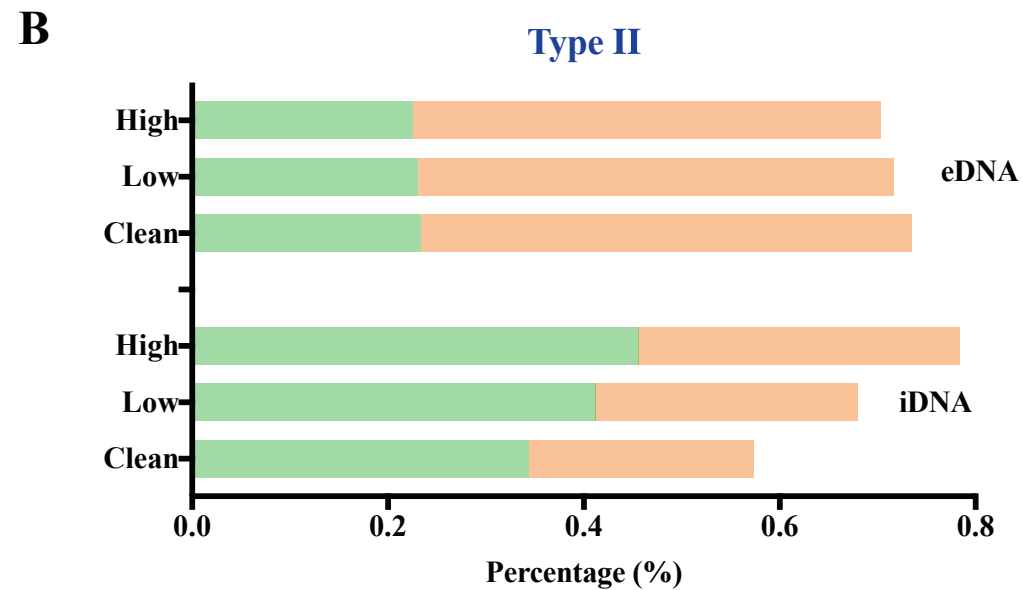
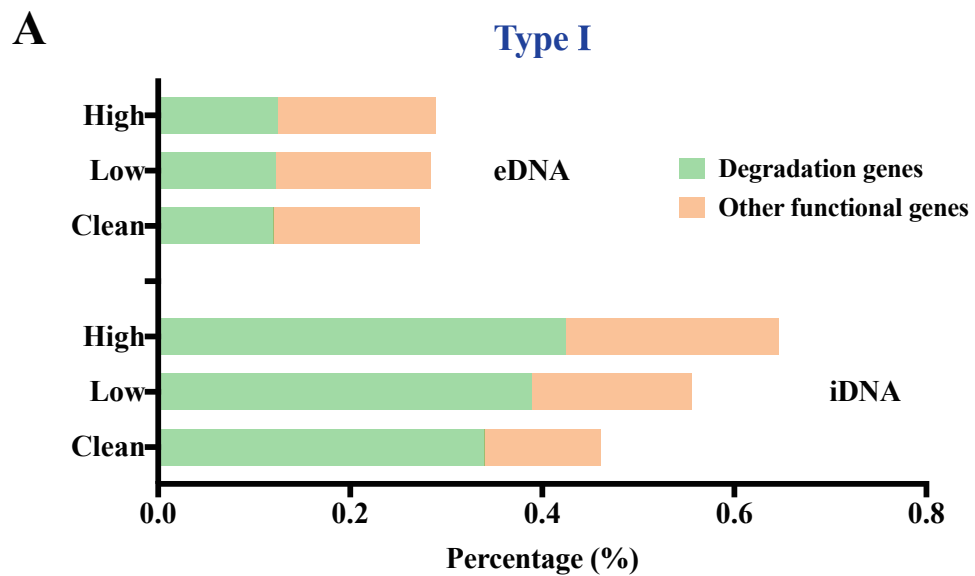


Fig. S14

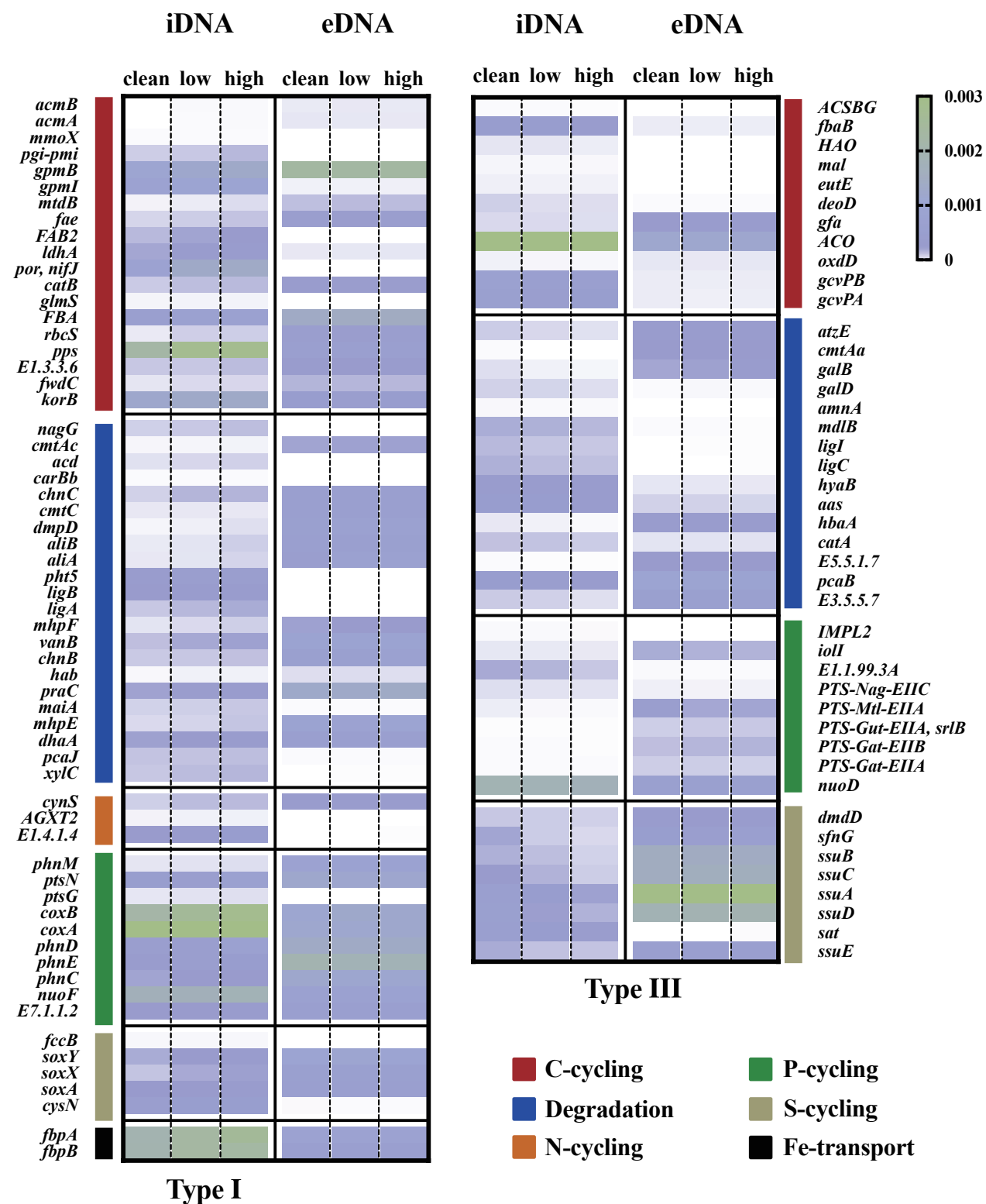
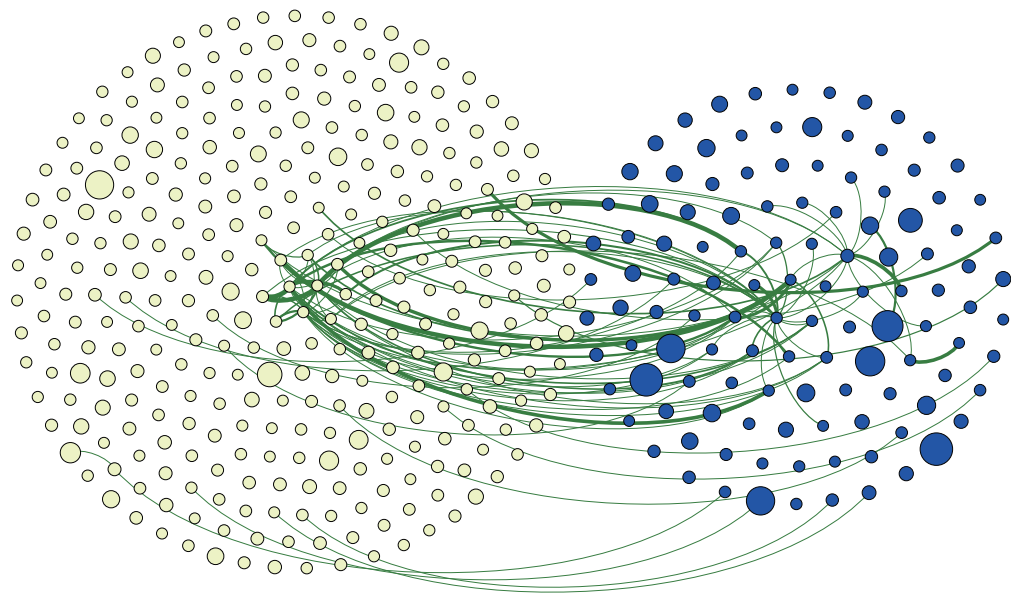
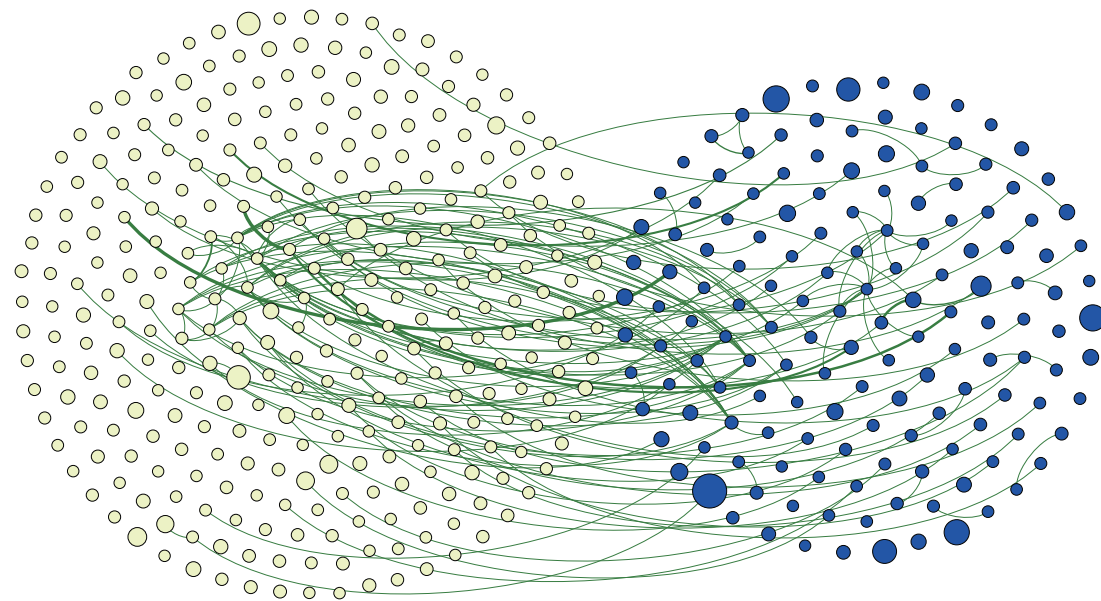


Fig. S15

A Clean



B Low



C High

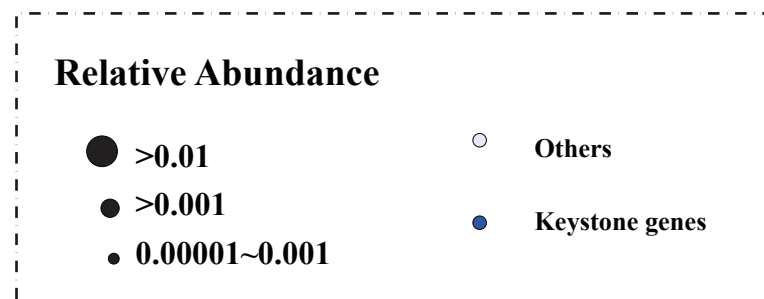
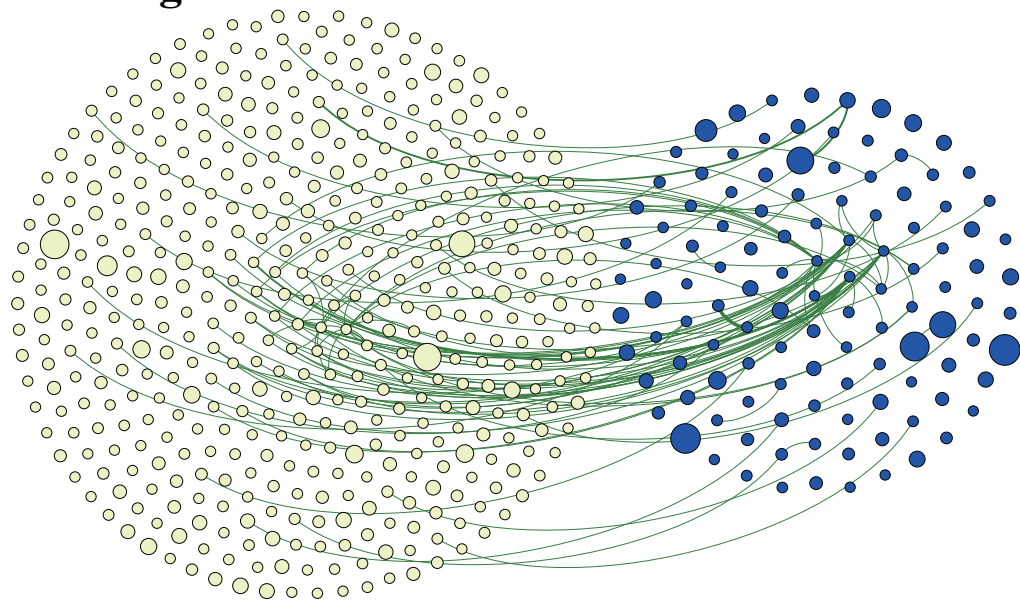


Fig. S16

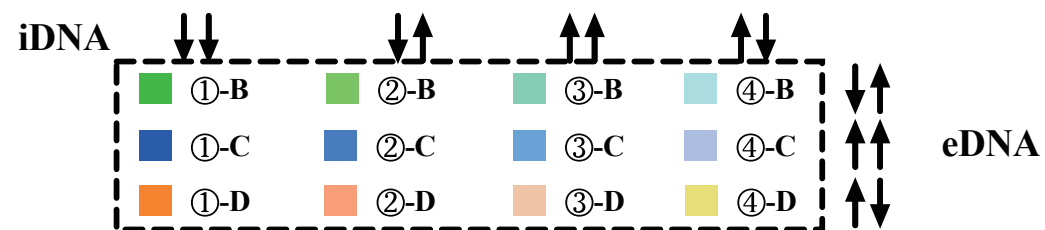
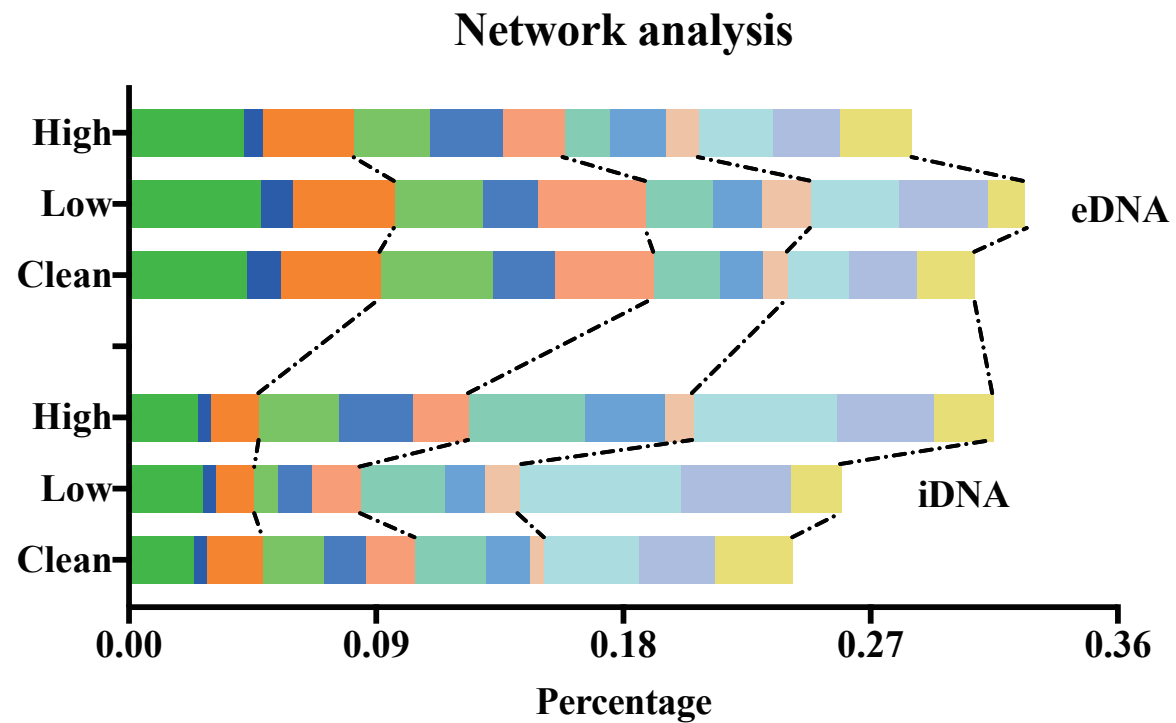


Fig. S17

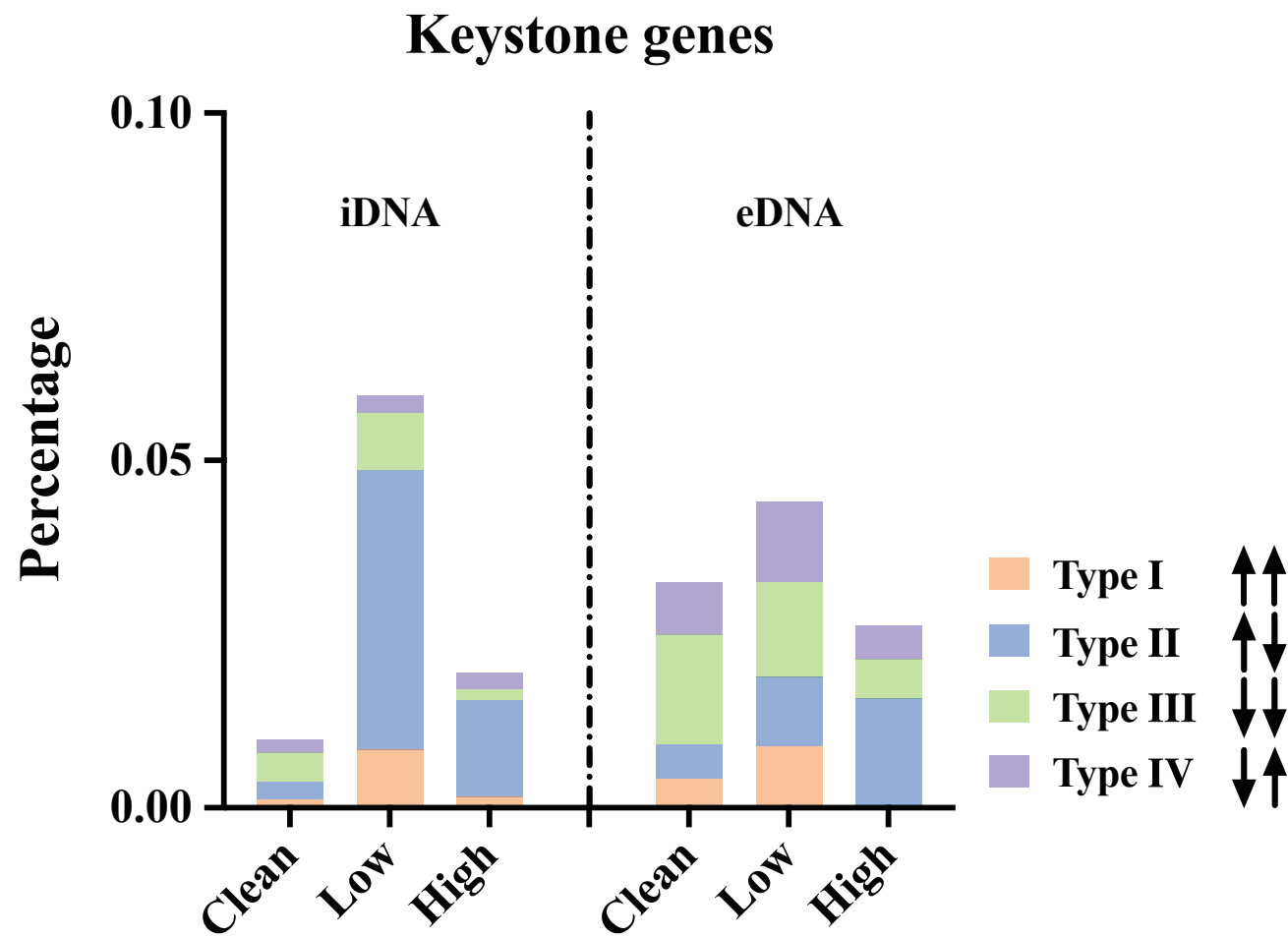


Fig. S18

Functional Keystone Genes

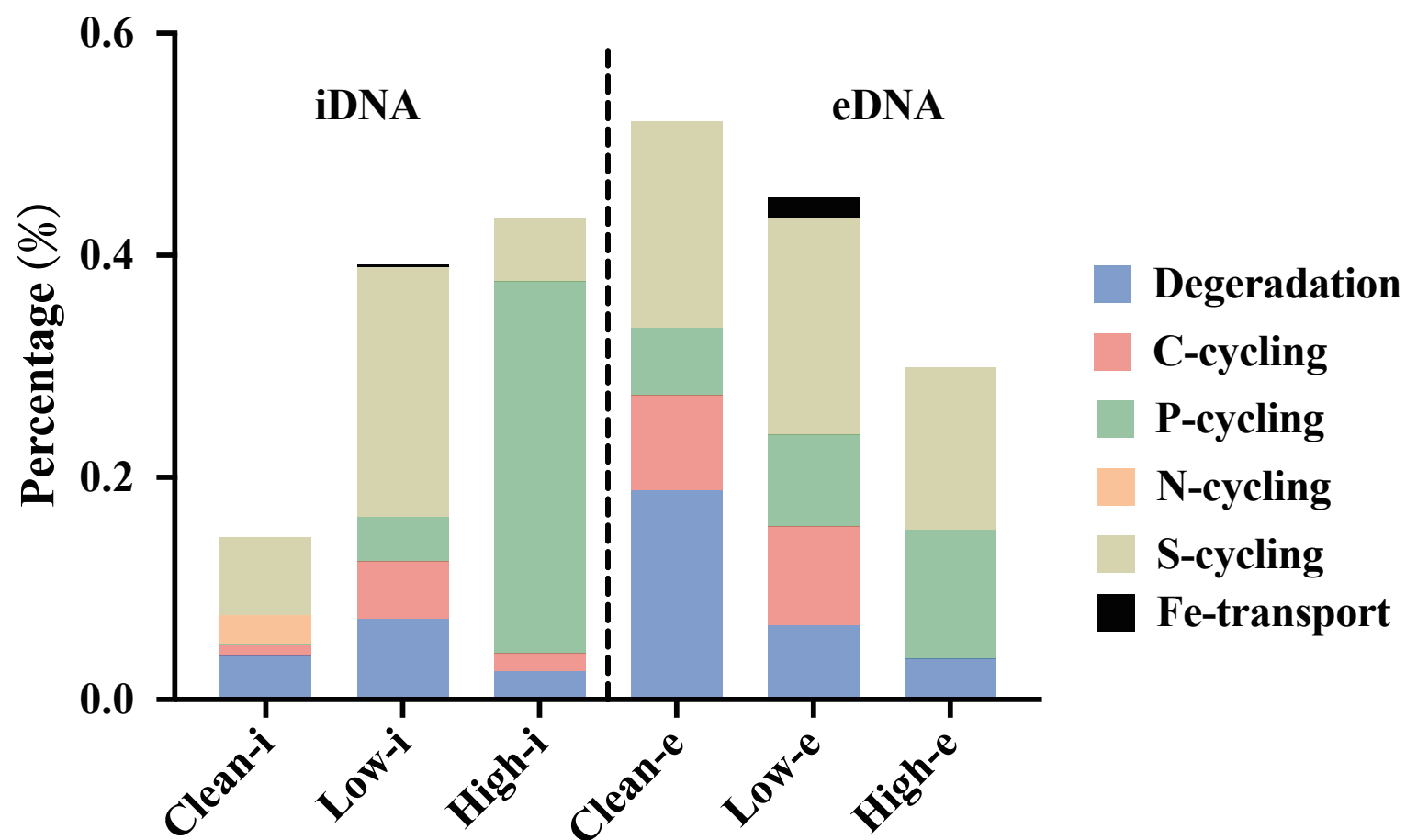


Fig. S19

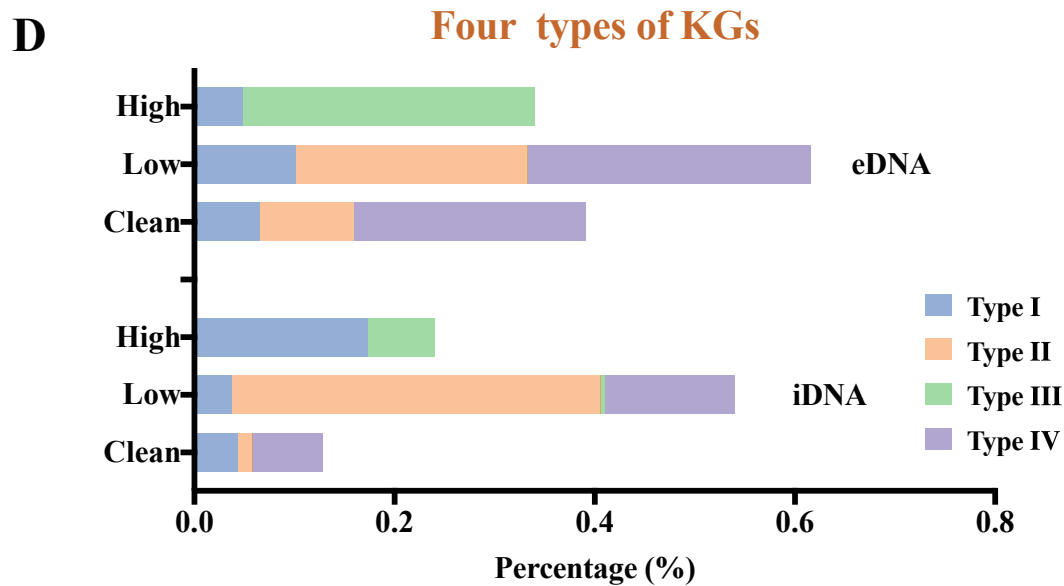
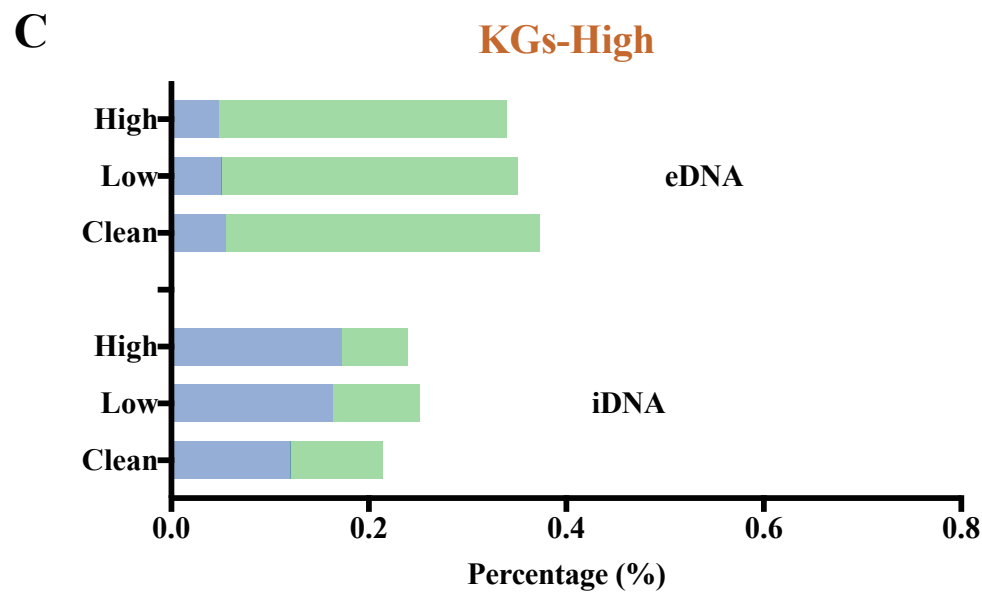
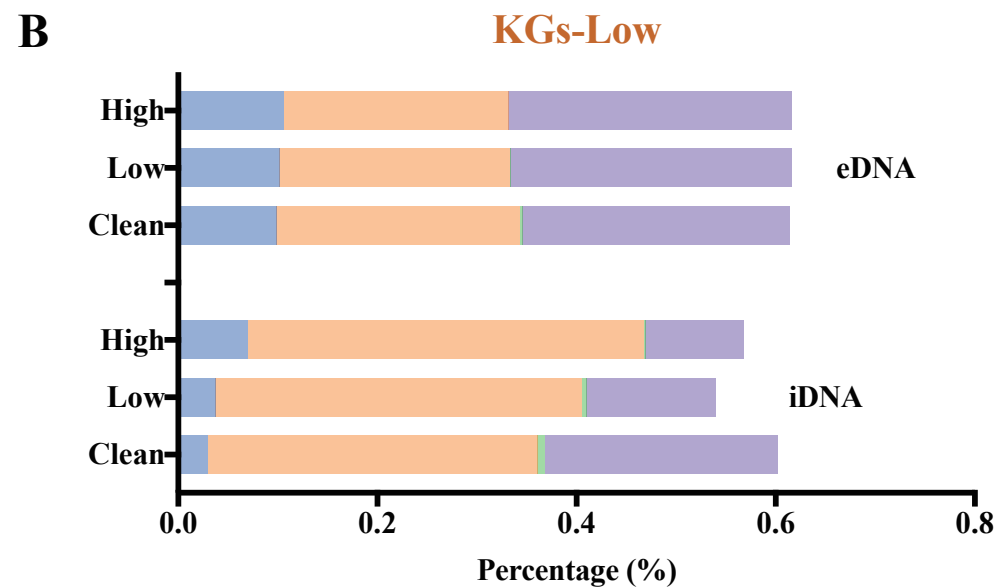
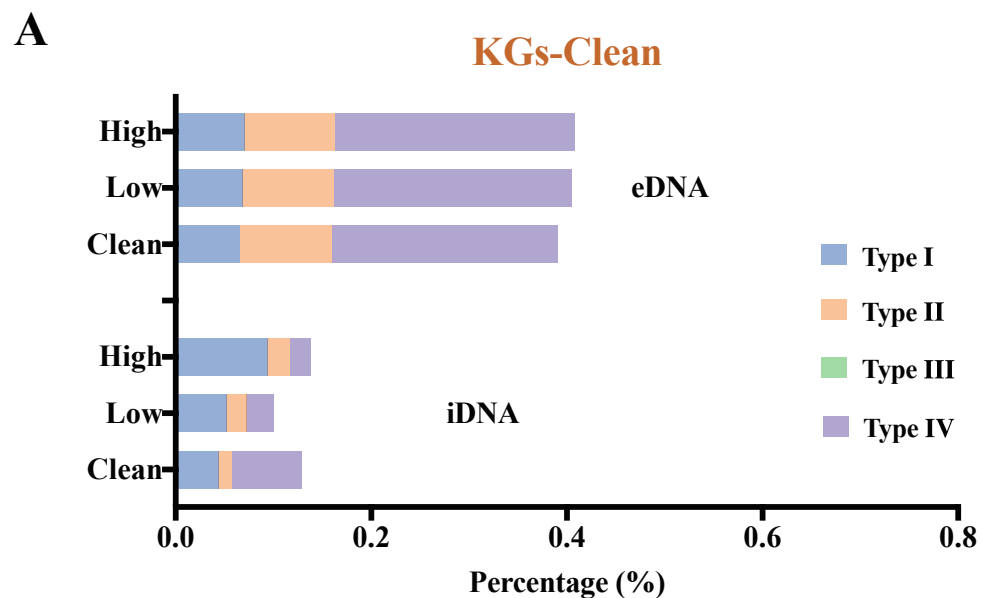


Fig. S20

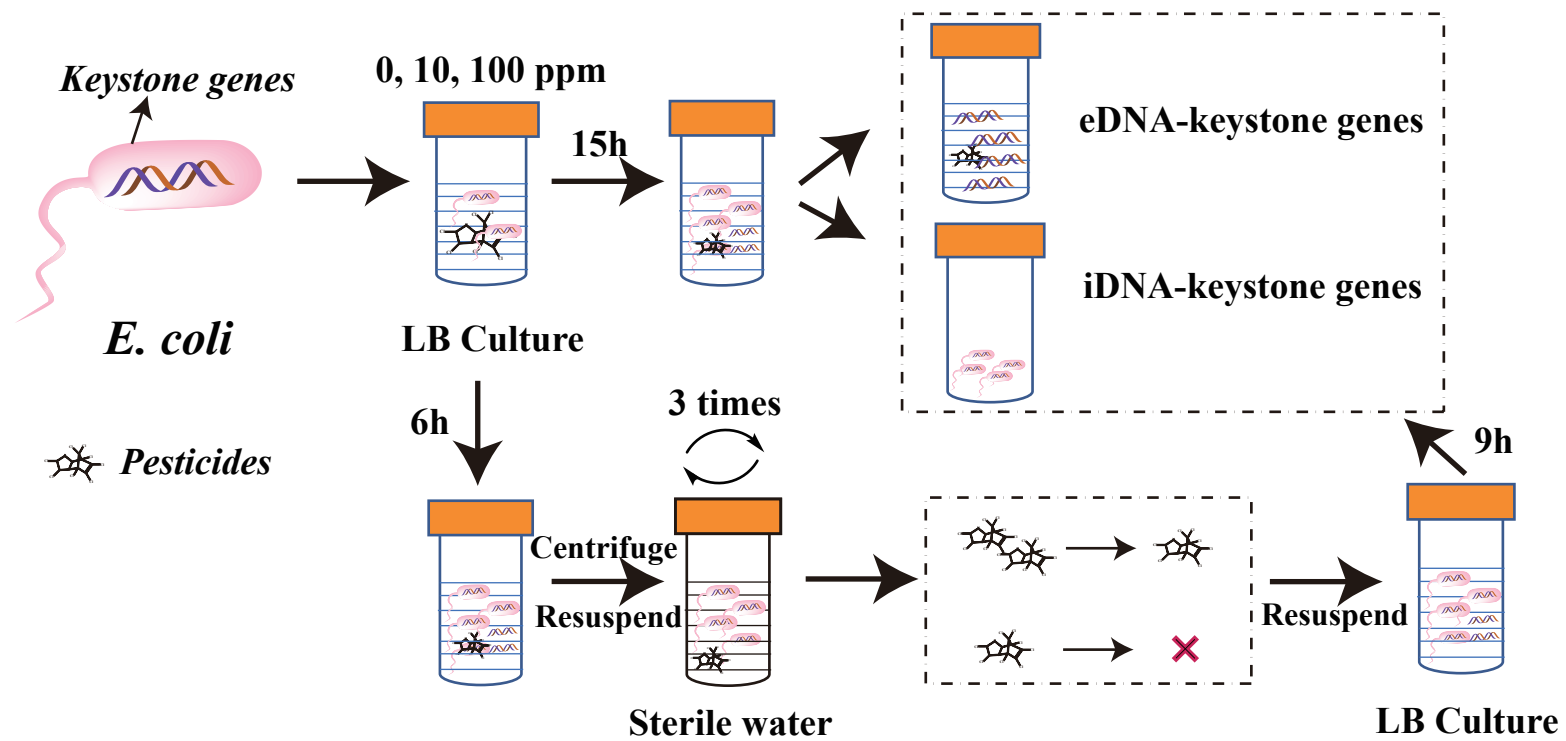


Fig. S21

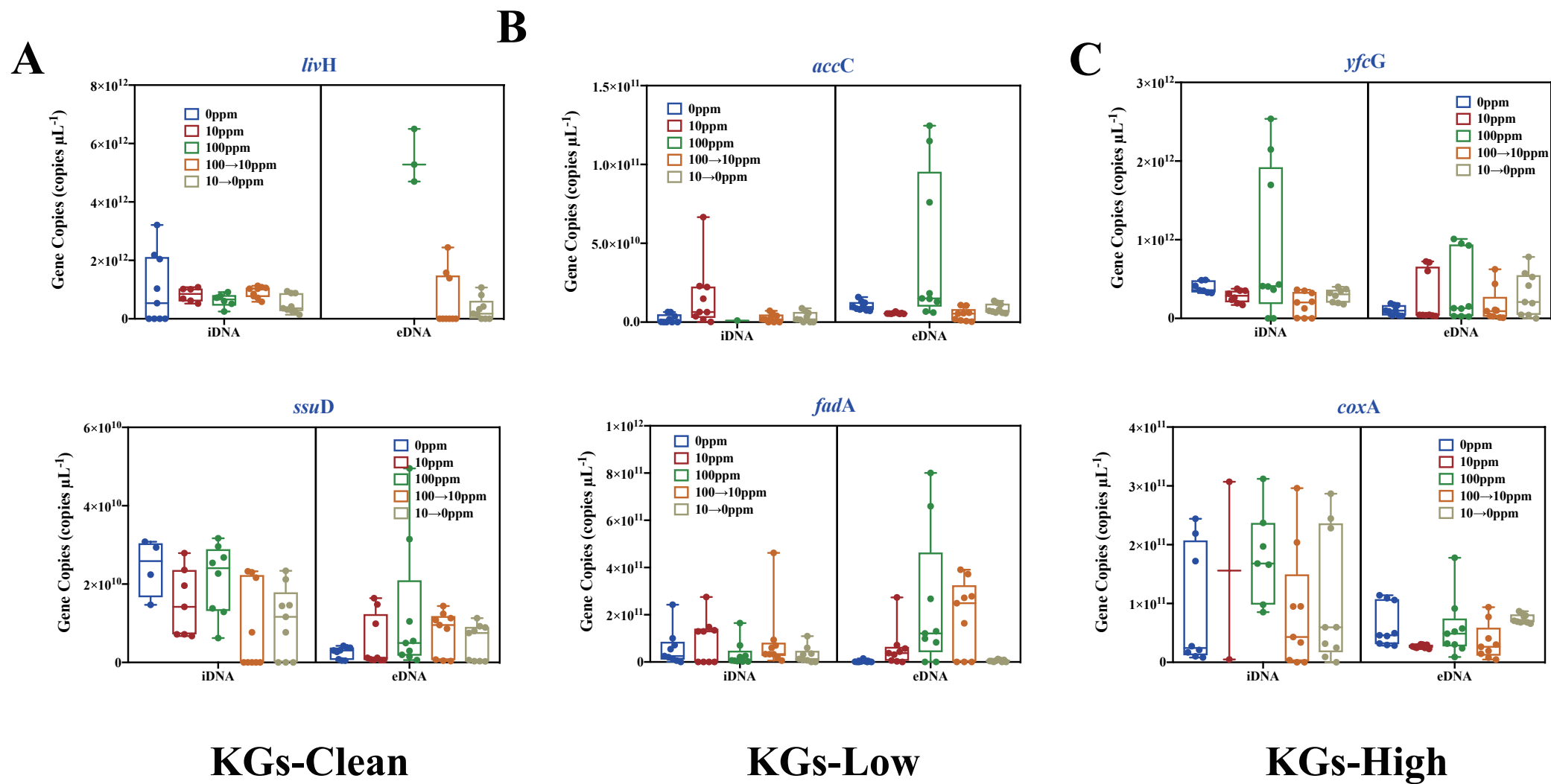


Fig. S22

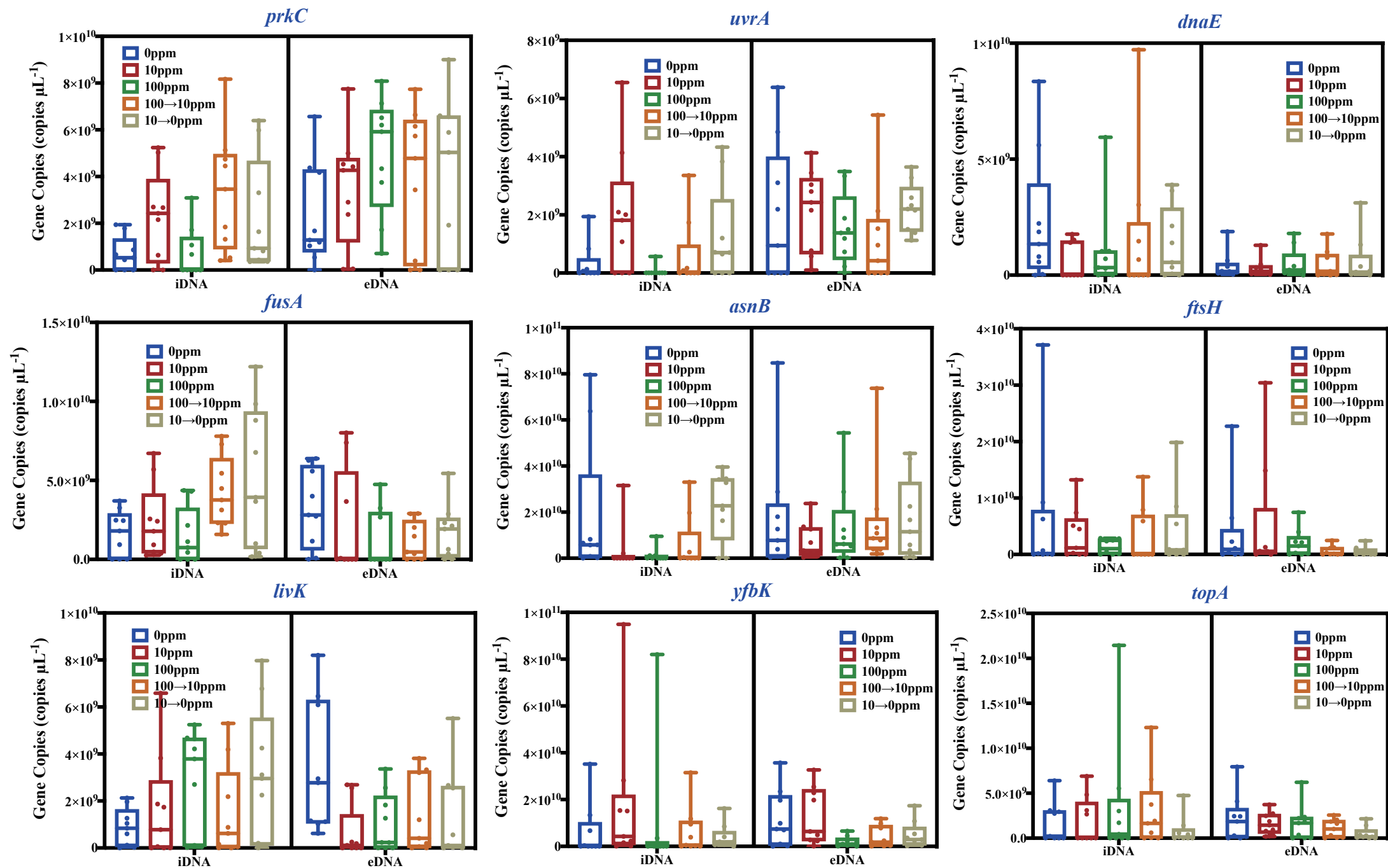
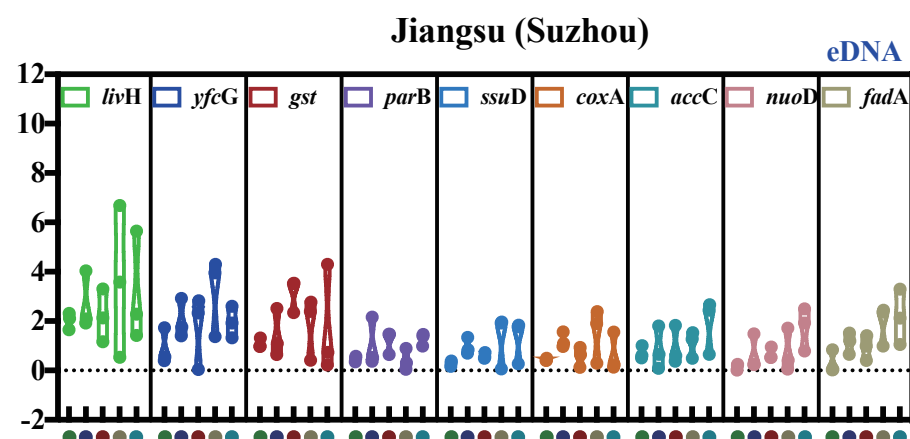
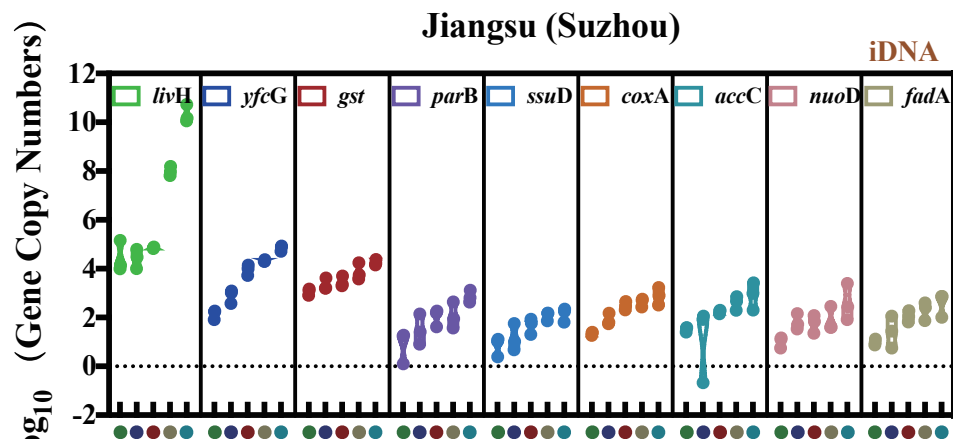
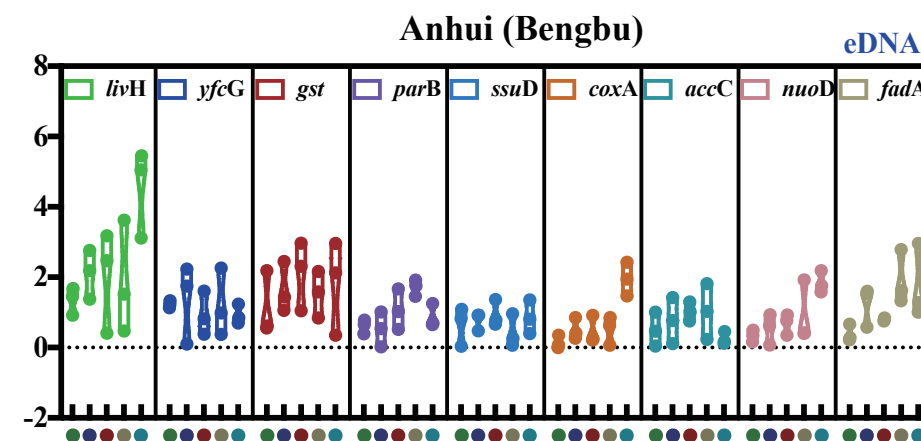
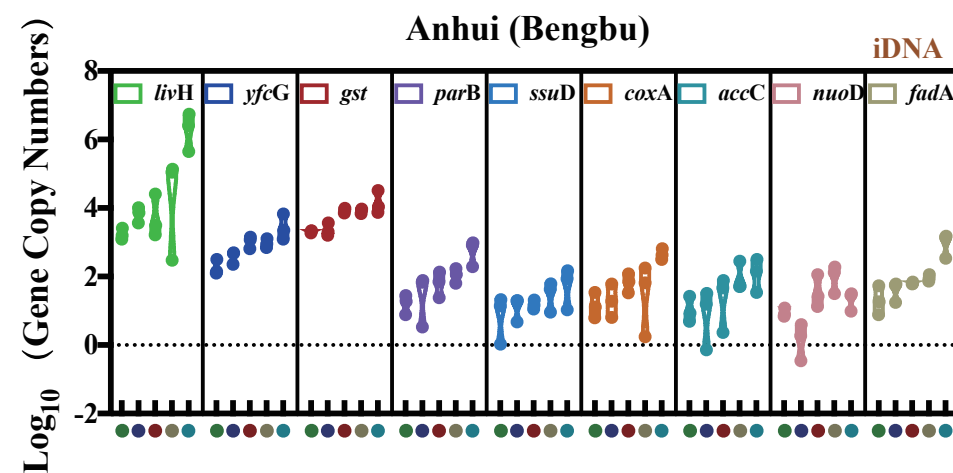


Fig. S23

A



B



C

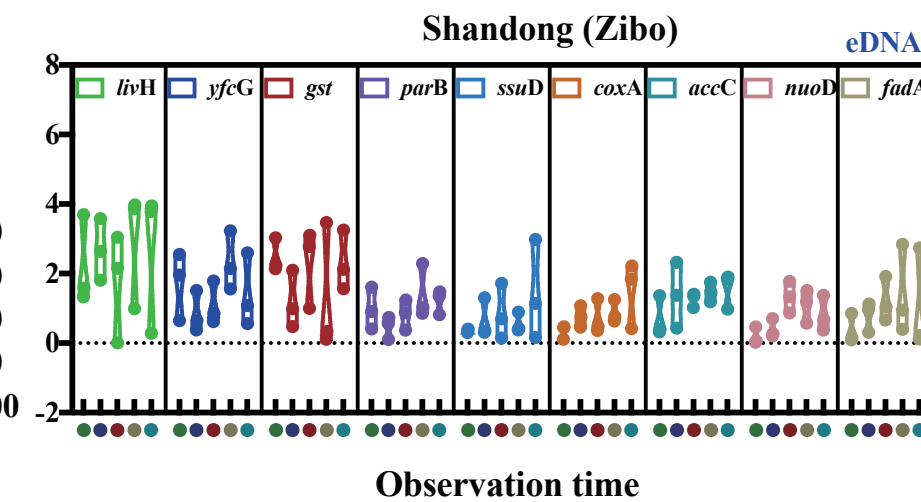
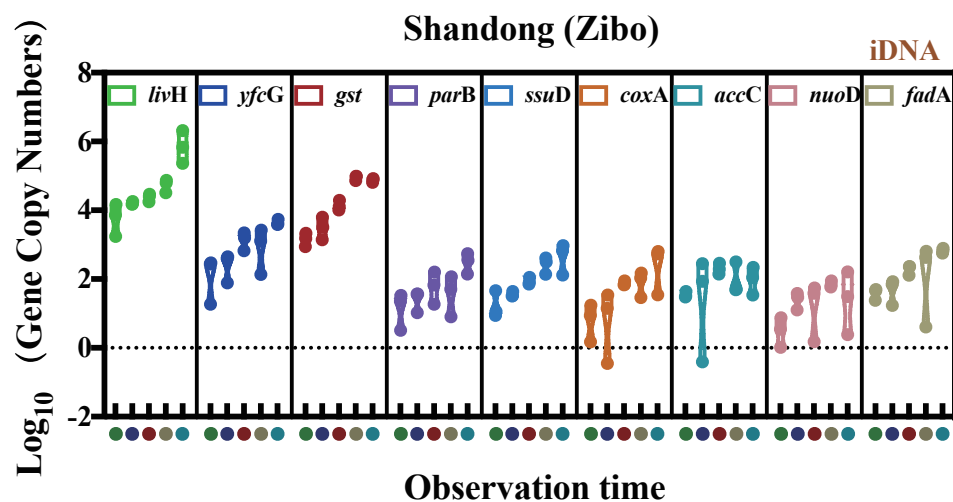


Fig. S24

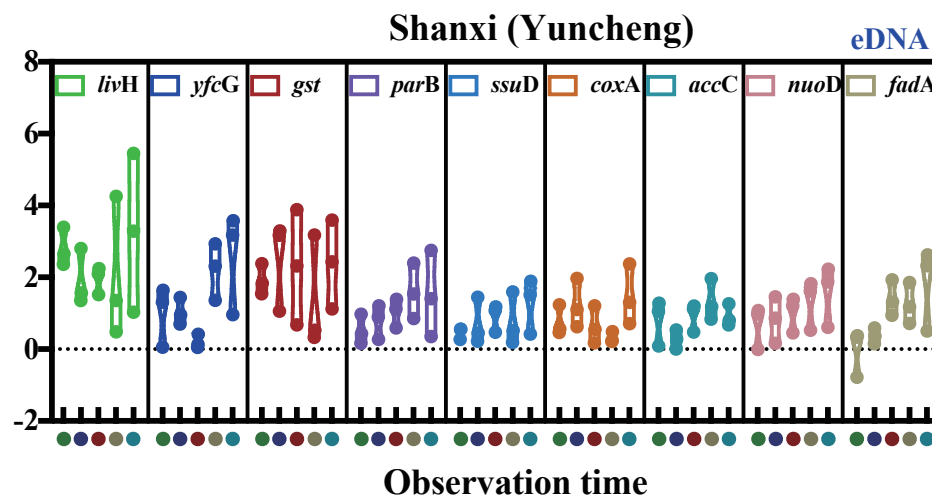
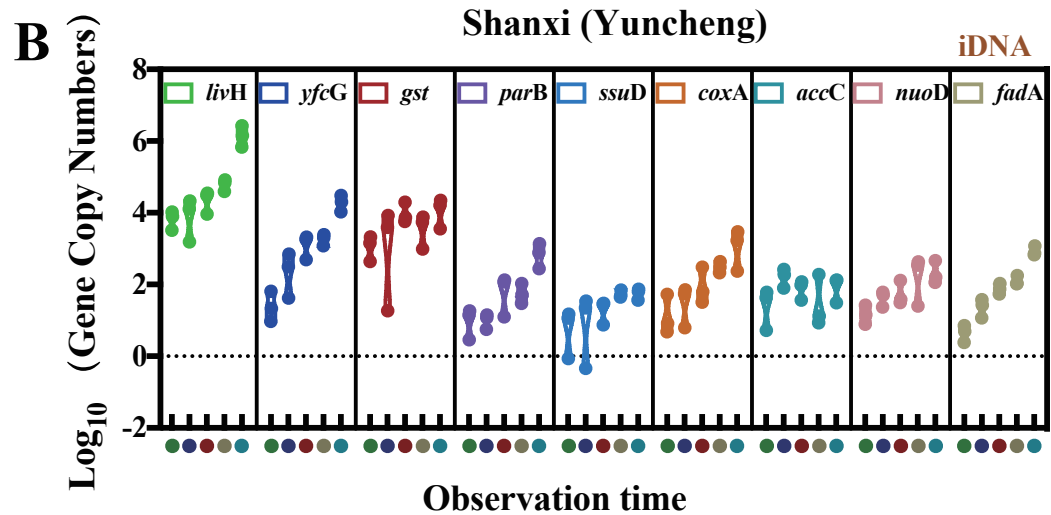
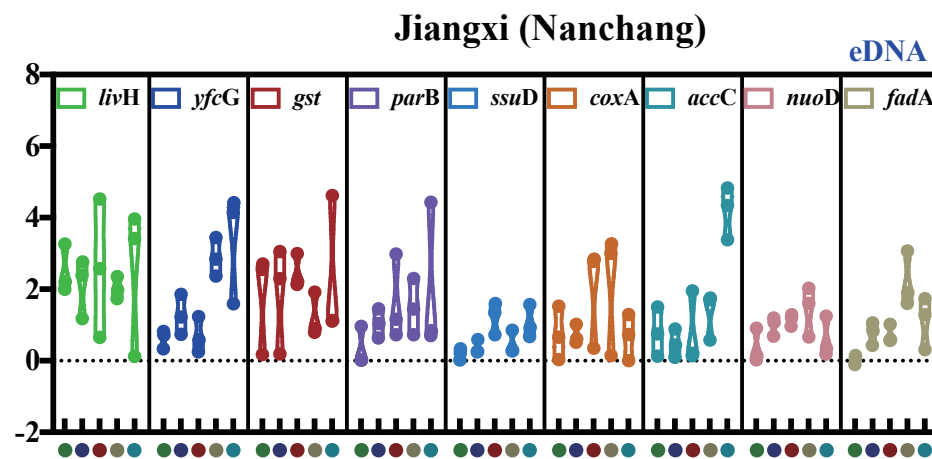
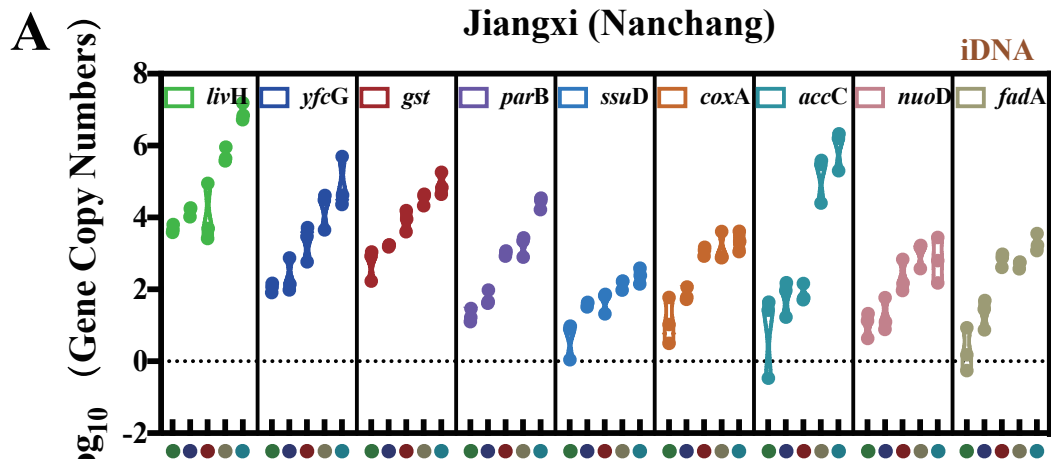


Fig. S25

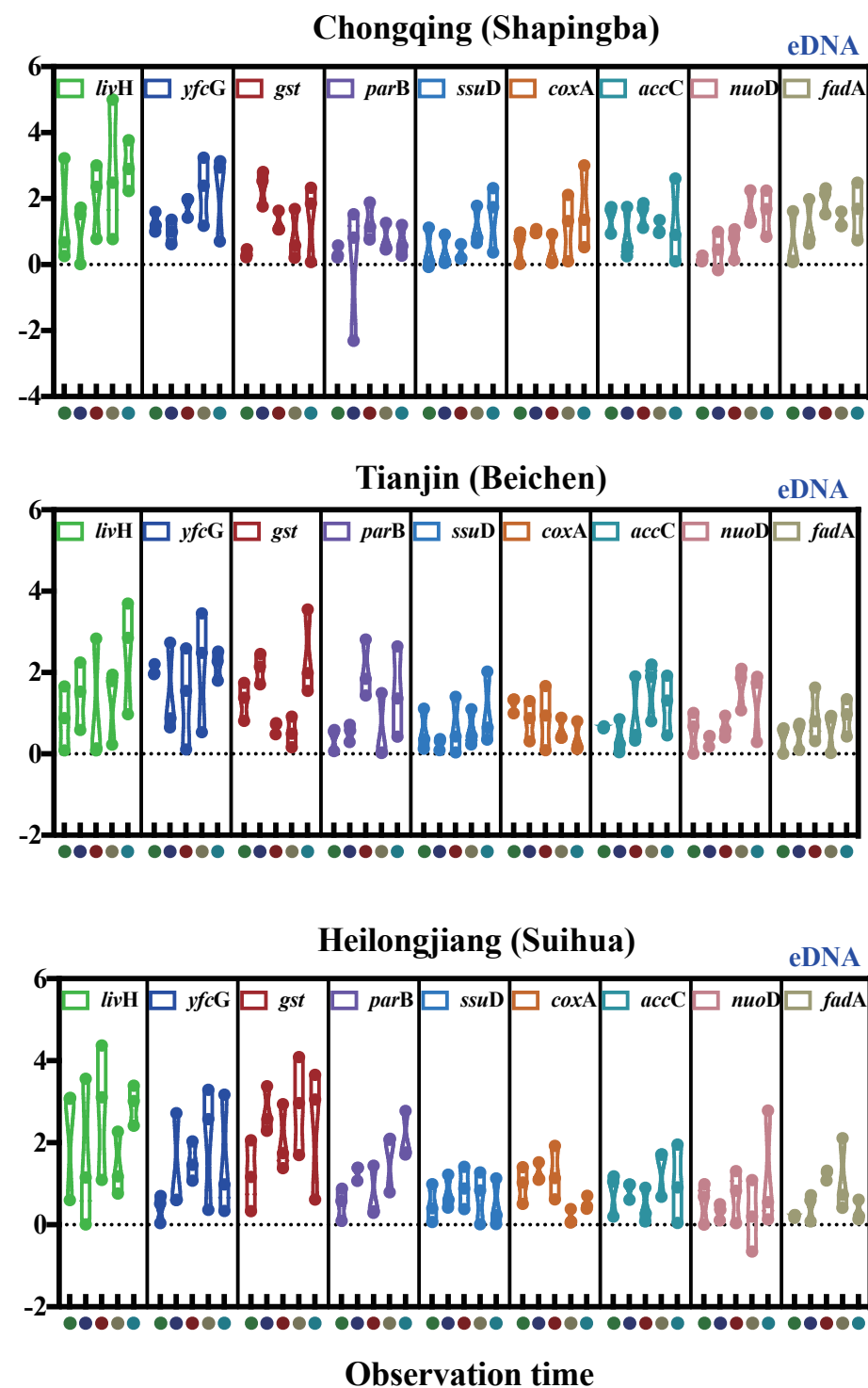
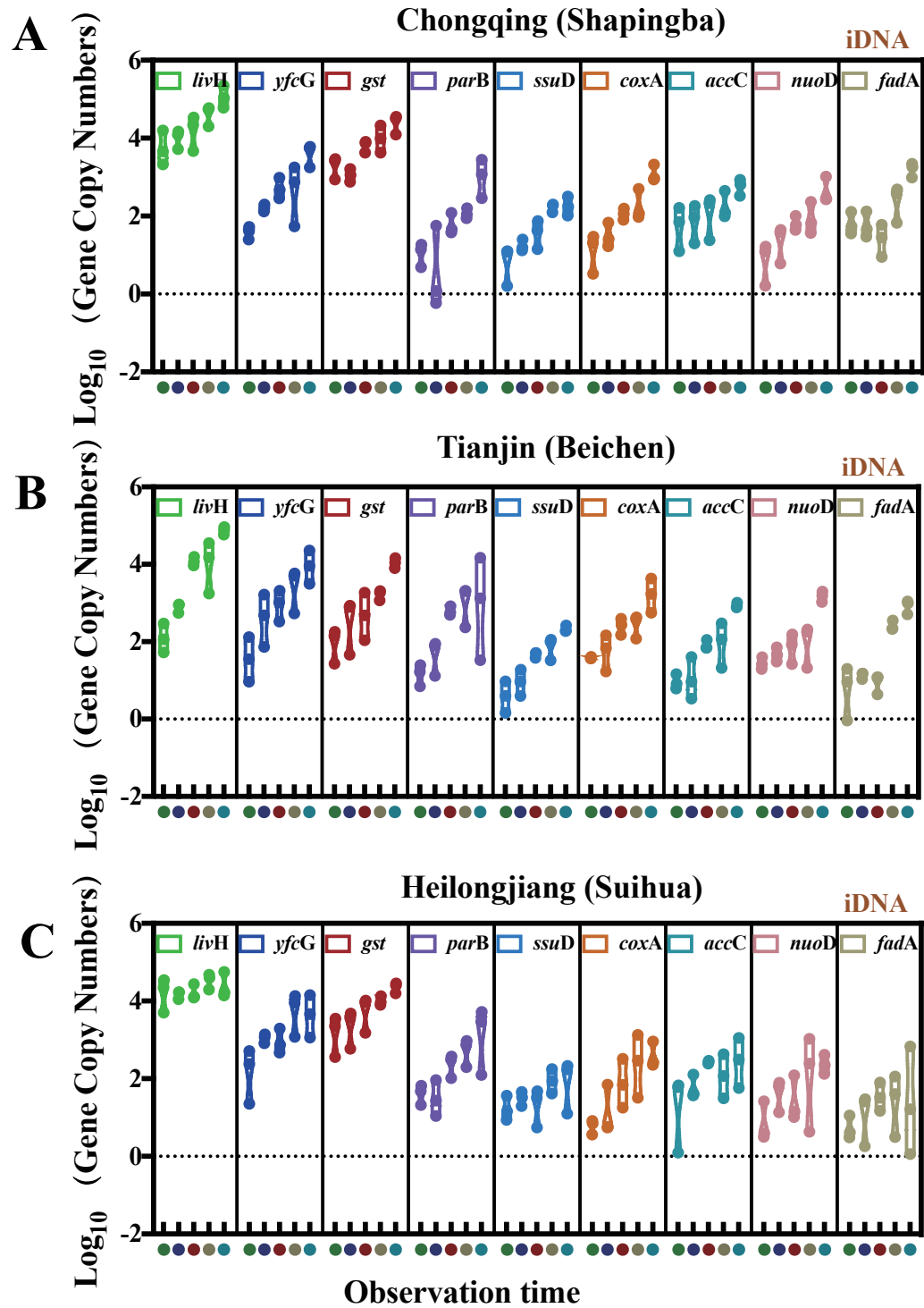


Fig. S26