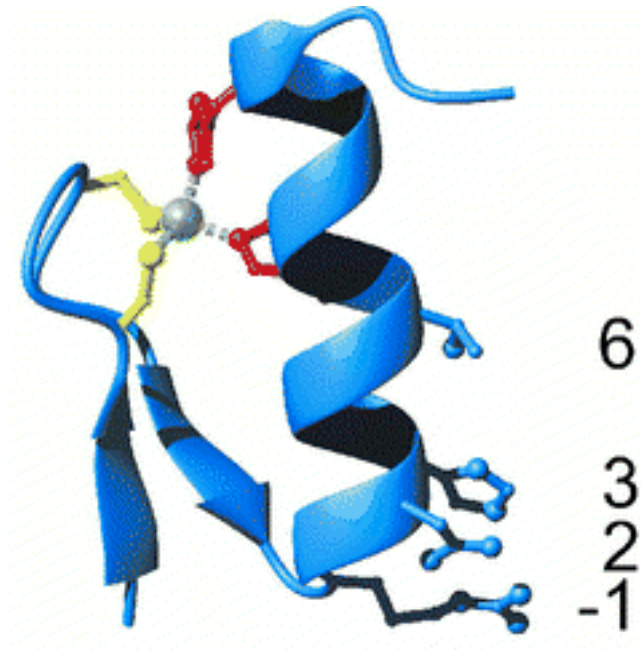
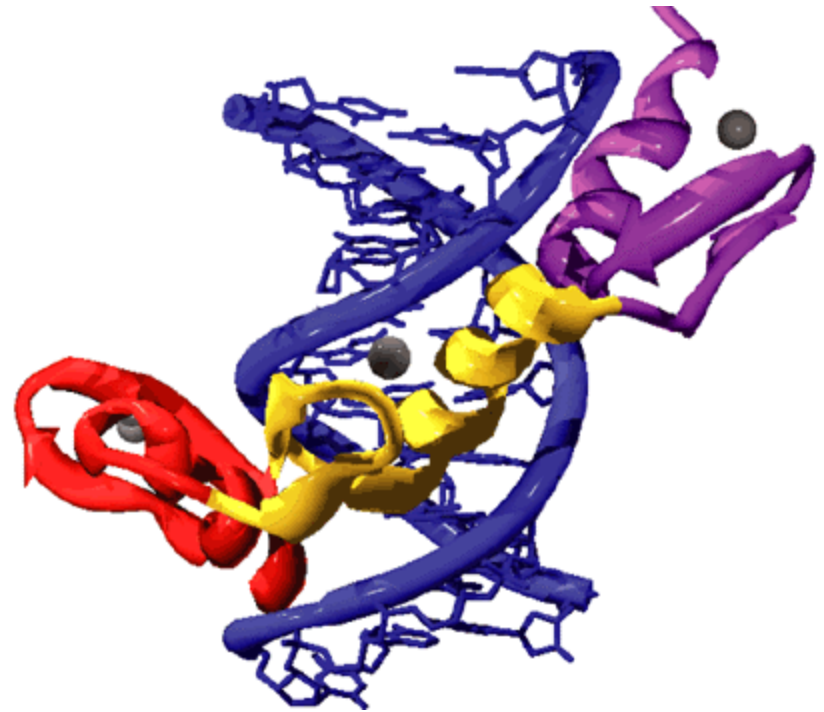


Zinc Finger Proteins



One zinc finger

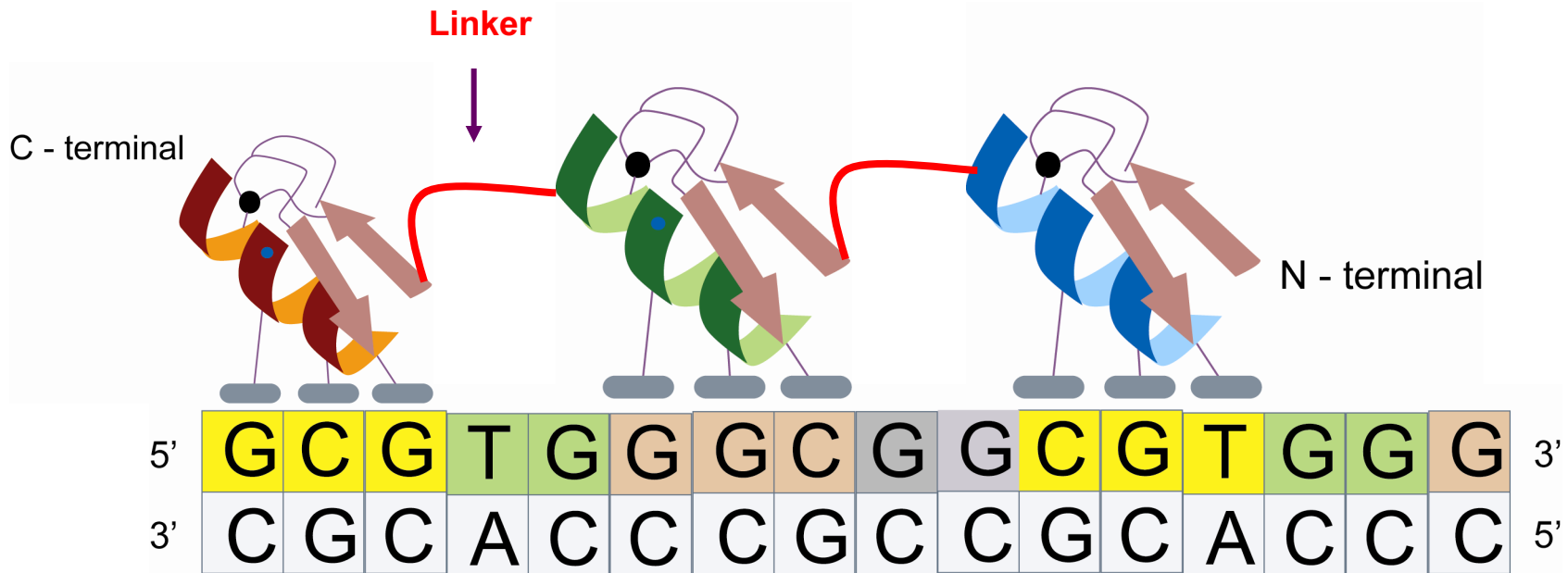
(each ZF binds to 3 bp DNA)



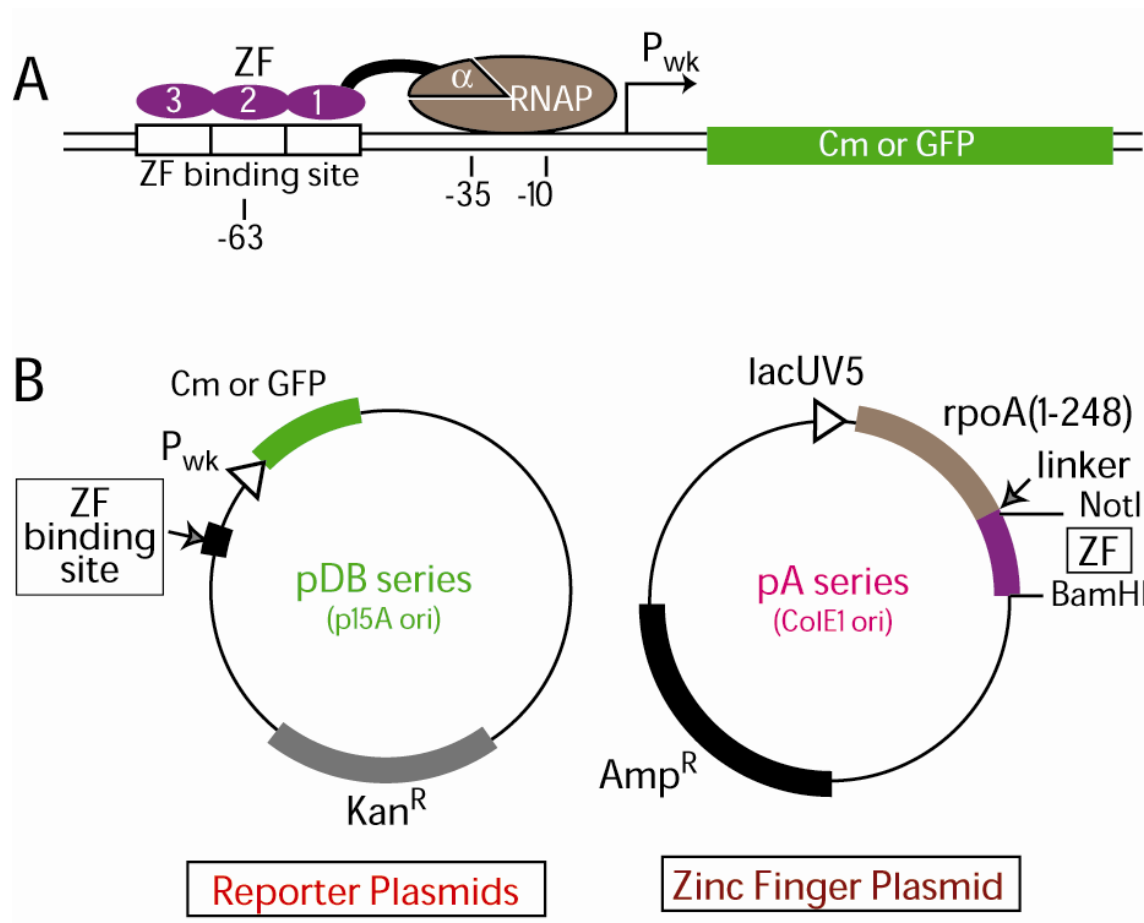
Three zinc fingers bound to DNA

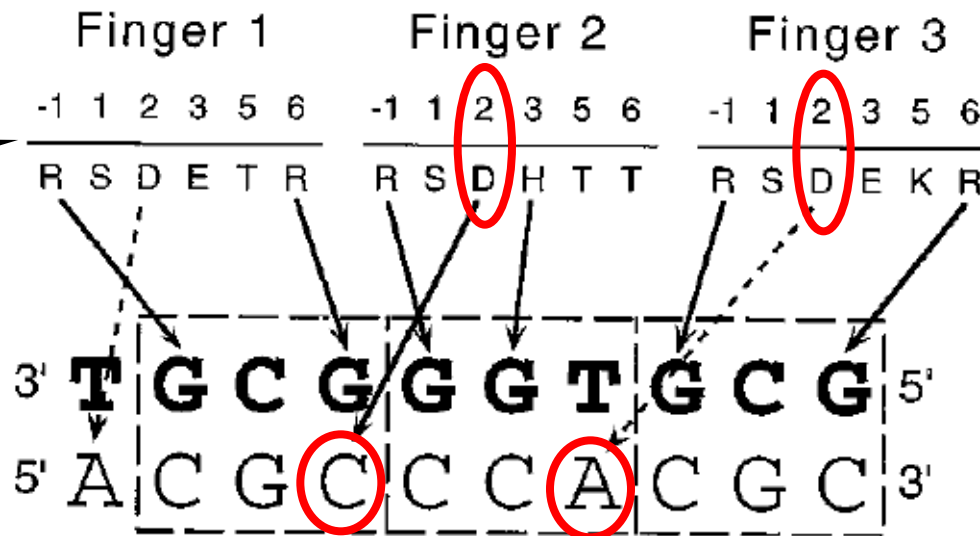
(three ZFs binds to 9 bp DNA)

Binding of longer DNA sequences



By stringing several of these zinc fingers in tandem,
we can create multiple zinc finger protein
that can bind to any sequence of interest





Key base contacts in ZF-DNA complex

Consensus framework residues

-1	1	2	3	4	5	6
A	S	G	A	L	I	A
D			D		T	E
H			H			K
N			N			N
Q			S			Q
R			T			R
T			V			T
						V

5'- ATG GAA AAA CCT TAC AAG TGT CCG GAA TGT GGG AAG TCC TTT AGT
3'- ACA CCC TTC AGG AAA TCA

-1 1 2 3 4 5 6 *Age I*
NNN TCA CCA NNN GAA NNN NNN GTG CAG CGG ACG CAT ACC GGT GAG
GTC GCC TGC GTA TGG CCA

AAG CCC TAC AAA TGC CCA GAA TGC GGA AAA TCA TTT TCG -1 1
ACG CCT TTT AGT AAA AGC NNN TCA

2 3 4 5 6
CCA NNN GAA NNN NNN GTG CAA CGA ACC CAC ACA GGC GAG AAA CCA
GTT GCT TGG GTG TGT CCG

Swal
TTT AAA TGT CCT GAG TGT GGT AAG AGC TTT AGC -1 1 2 3
C ACA CCA TTC TCG AAA TCG NNN TCA CCA NNN

4 5 6
GAA NNN NNN GTA GTT GCA TGA GTA TGC CCG - 3'
- 5'