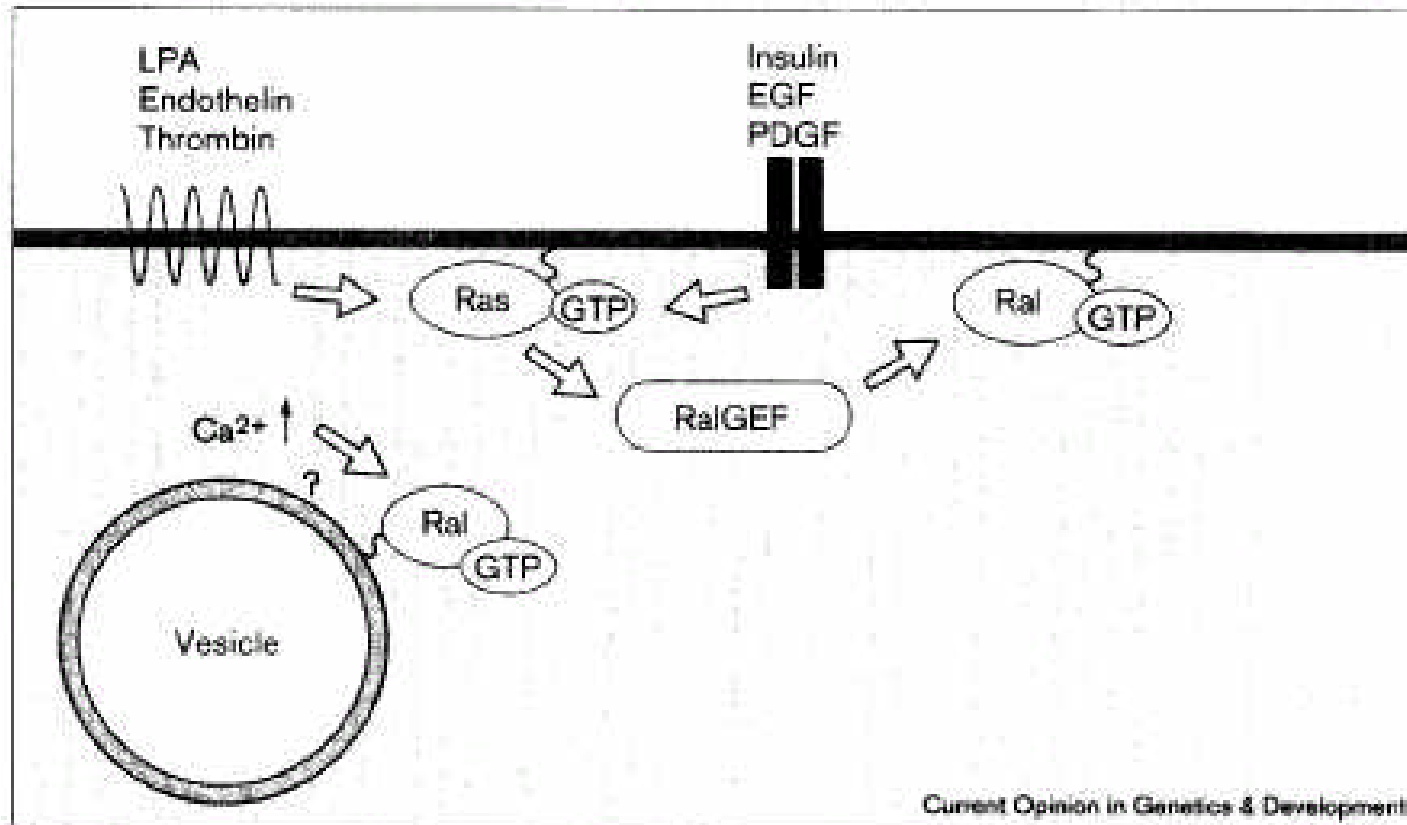


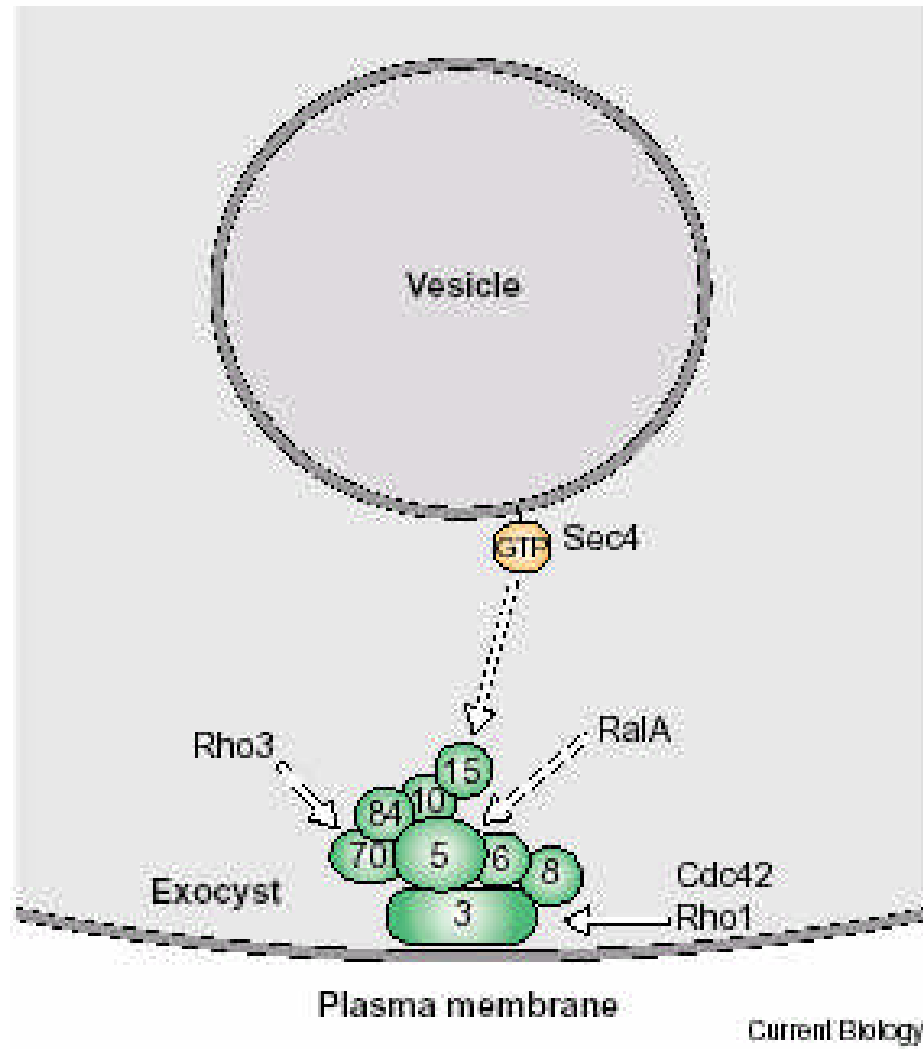
Putative Ral binding proteins

David de Gorter, Ilenia Simeoni,
Elena Mamontova, Adrian Zarebski

Ral activation



The exocyst complex



	1	10	20	30	40	50	60	70	80	90	100	105																																																																																													
	-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----																																																																																																								
hRal-BD_Sec5	M	S	R	S	R	Q	P	P	L	Y	T	G	I	S	P	N	E	G	I	P	H	T	K	V	T	I	R	G	E	N	L	G	T	G	P	T	D	L	I	G	L	T	I	C	G	H	N	C	L	L	T	A	E	H	M	S	A	S	K	I	V	C	R	V	G	Q	A	K	N	D	A	G	D	I	I	V	T	T	K	S	G	G	R	G	T	S	T	V	S	F	K	L	L	K	P	E	K	I	G	I	L	D	Q	S	A
Rsec5	M	S	R	S	R	Q	P	P	L	Y	T	G	I	S	P	N	E	G	I	P	H	T	K	V	T	I	R	G	E	N	L	G	T	G	P	T	D	L	I	G	L	T	I	C	G	H	N	C	L	L	T	A	E	H	M	S	A	S	K	I	V	C	R	V	G	Q	A	K	N	D	A	G	D	I	I	V	T	T	K	S	G	G	R	G	T	S	T	V	S	F	K	L	L	K	P	E	K	I	G	I	L	D	Q	S	A
dsec5	P	V	V	T	G	L	S	P	K	E	G	P	P	G	T	R	V	I	I	R	G	E	F	L	G	T	R	V	Q	D	L	I	G	L	K	I	C	G	S	D	C	L	S	A	E	N	K	S	P	N	K	I	A	R	T	G	P	A	K	G	-	K	G	D	I	I	V	T	L	S	G	G	V	G	T	S	T	V	Q	F	R	A	Y	H	-	E	T	I	G	P	L	K	E	S	A										
hRalBP1_Ral-BD	R	Q	E	F	L	L	N	C	L	H	-	R	D	L	Q	G	G	I	K	D	L	S	K	E	E	R	L	W	E	V	Q	R	I	L	T	A	L	K	R	K	L	R	E	A	K	R	Q	E	C	E	T	K	I	A	Q	E	I	A	S	L	S	K	E	D	V	S	K	E	E	M	N	E	N	E	E	V	I	N	I	L	L	A	Q	E	N	E	I	L	T	E	Q	E	E	L	L	A	M								
nRalBP-RBD	R	Q	E	F	L	L	N	C	L	H	-	R	D	L	Q	G	G	I	K	D	L	S	K	E	E	R	L	W	E	V	Q	R	I	L	T	A	L	K	R	K	L	R	E	A	K	R	Q	E	C	E	T	K	I	A	Q	E	I	A	S	L	S	K	E	D	V	S	K	E	E	M	N	E	N	E	E	V	I	N	I	L	L	A	Q	E	N	E	I	L	T	E	Q	E	E	L	L	A	M								
rRalBP-RBD	R	Q	E	F	L	L	N	C	L	H	-	R	D	L	Q	G	G	I	K	D	L	S	K	E	E	R	L	W	E	V	Q	R	I	L	T	A	L	K	R	K	L	R	E	A	K	R	Q	E	C	E	T	K	I	A	Q	E	I	A	S	L	S	K	E	D	V	S	K	E	E	T	N	E	N	E	E	V	I	N	I	L	L	A	Q	E	N	E	I	L	T	E	Q	E	E	L	L	A	M								
Consensus	r	q	.	p	l	v	t	g	l	s	p	.	#	g	.	p	g	t	k	v	.	i	r	g	E	.	L	g	t	...	d	L	i	g	L	k	i	c	g	.	#	c	l	.	a	e	w	.	s	...	k	i	!	a	r	.	g	.	a	k	...	k	g	#	i	i	v	t	t	.	s	g	g	.	g	t	s	t	v	.	f	.	l	...	E	.	i	g	.	\$...	s	a											

- gi|14091752|ref|NP_114456.1| RalA binding protein 1 [Rattus... 133 1e-30
- gi|6677751|ref|NP_033093.1| ralA binding protein 1; Ral-int... 131 3e-30
- gi|25054314|ref|XP_192825.1| ralA binding protein 1 [Mus mu... 131 3e-30
- gi|2143949|pir||A57467 RalBP1 - rat >gi|971249|gb|AAA80654... 131 5e-30
- gi|5803145|ref|NP_006779.1| ralA binding protein 1; ralA-bi... 130 6e-30
- gi|27691880|ref|XP_221863.1| similar to RalBP1 - rat [Rattu... 126 9e-29
- gi|27684837|ref|XP_237272.1| similar to RalA binding protei... 124 5e-28
- gi|6692092|emb|CAC65771.1| Ral interacting protein [Xenopus... 121 3e-27
- gi|11991531|emb|CAC19674.1| RalB-binding protein [Xenopus l... 118 2e-

Sec5 RalBD blast

gi|5918167|emb|CAB56222.1| plexin-B1/SEP receptor [Homo sapiens]
Length = 1952

Score = 37.0 bits (84), Expect = 0.069
Identities = 32/95 (33%), Positives = 47/95 (49%), Gaps = 9/95 (9%)

Query: 8 PLVTGISPNEGIP---WTKVTIRGENLGTGPTDLIGL-TICG-HCLLTAE--WMSASKIC 60
PL+ + P G P T+VTIRG NLG D++G+ T+ G C + A+ +S+S +C
Sbjct: 887 PLIHSVEPLTG-PVDGGTRVTIRGSNLGQHVQDVLGMVTVAGVPCAVDAQEYEVSSSLVC 945

Query: 61 RVGQAKND-KGDIIVTTKSGGRGTSTVSFKLLKPE 94
G + + G V GRG S F P+
Sbjct: 946 ITGASGEEVAGATAVEVPGRGRGVSEHDFAYQDPK 980

gi|6010211|emb|CAB57277.1| semaphorin receptor [Homo sapiens] Length = 2135 Score = 36.2 bits (82),
Expect = 0.12 Identities = 31/94 (32%), Positives = 46/94 (48%), Gaps = 7/94 (7%)

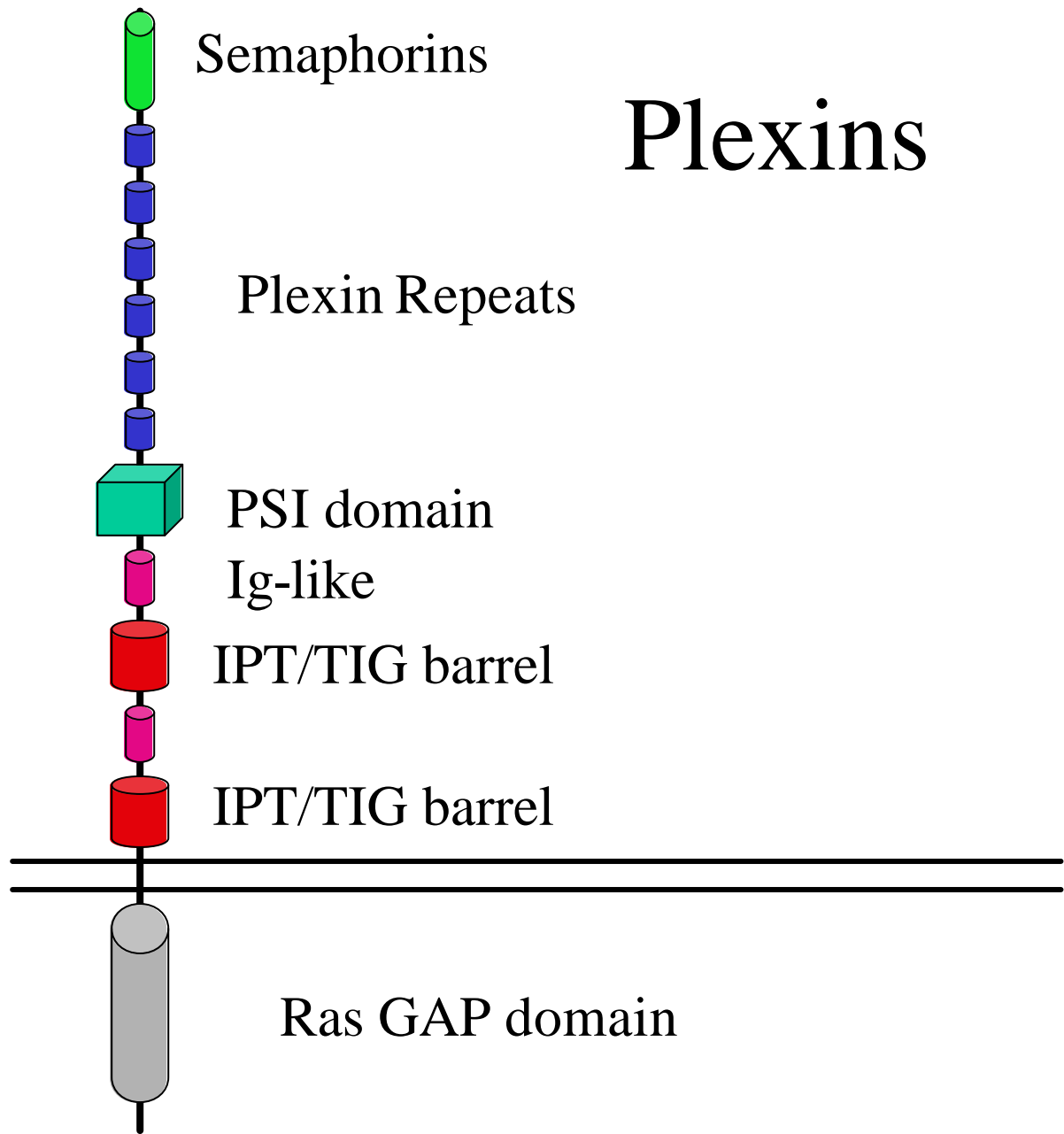
Query: 8 PLVTGISPNEGI--PWTKVTIRGENLGTGPTDLIGL-TICG-HCLLTAE--WMSASKICR 61

>gi|27721581|ref|XP_236640.1| similar to plexinB1 [Mus musculus] [Rattus norvegicus]
Length = 2150

Score = 35.8 bits (81), Expect = 0.14
Identities = 31/98 (31%), Positives = 48/98 (48%), Gaps = 7/98 (7%)

Query: 8 PLVTGISPNEGI--PWTKVTIRGENLGTGPTDLIGLT-ICG-HCLL-TAEW-MSASKICR 61
PL+ + P G T+VTIRG NLG D++G+ + G C + E+ +S+S +C
Sbjct: 1062 PLIHSVEPLTGPIDGGTRVTIRGSNLGQHVQDVLGMVRVAGVPCAVDVGEYDVSSSLVCI 1121

Query: 62 VGQAKND-KGDIIVTTKSGGRGTSTVSFKLLKPEKIGI 98
G + + G + V G G S SF P+ + I
Sbjct: 1122 TGSSGEEVTGAVAVEVPGRGHGVSEFSFAYQDPKVLISI 1159



Semaphorins

Plexins

Plexin Repeats

PSI domain

Ig-like

IPT/TIG barrel

IPT/TIG barrel

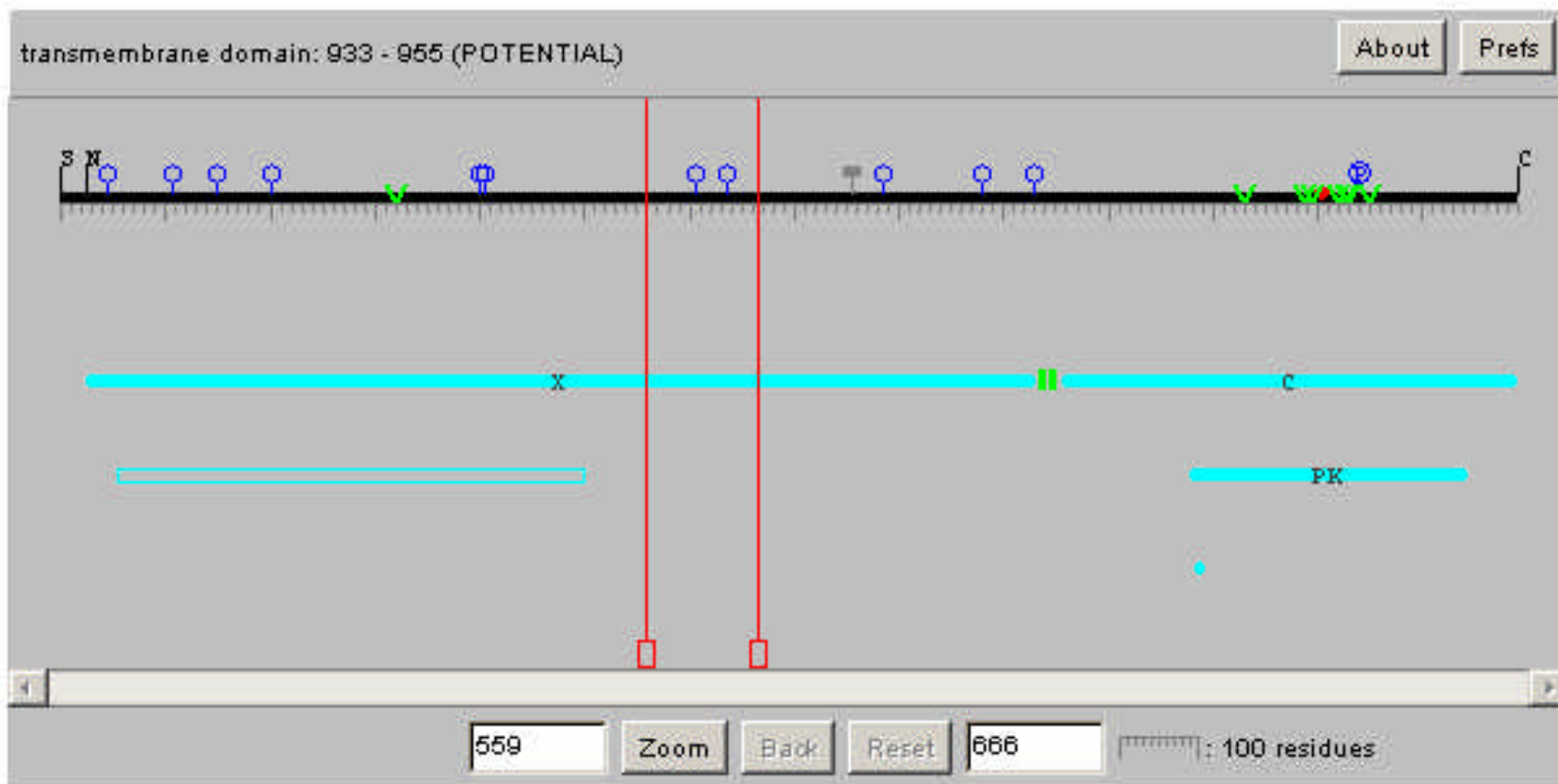
Ras GAP domain

Met proto-oncogene

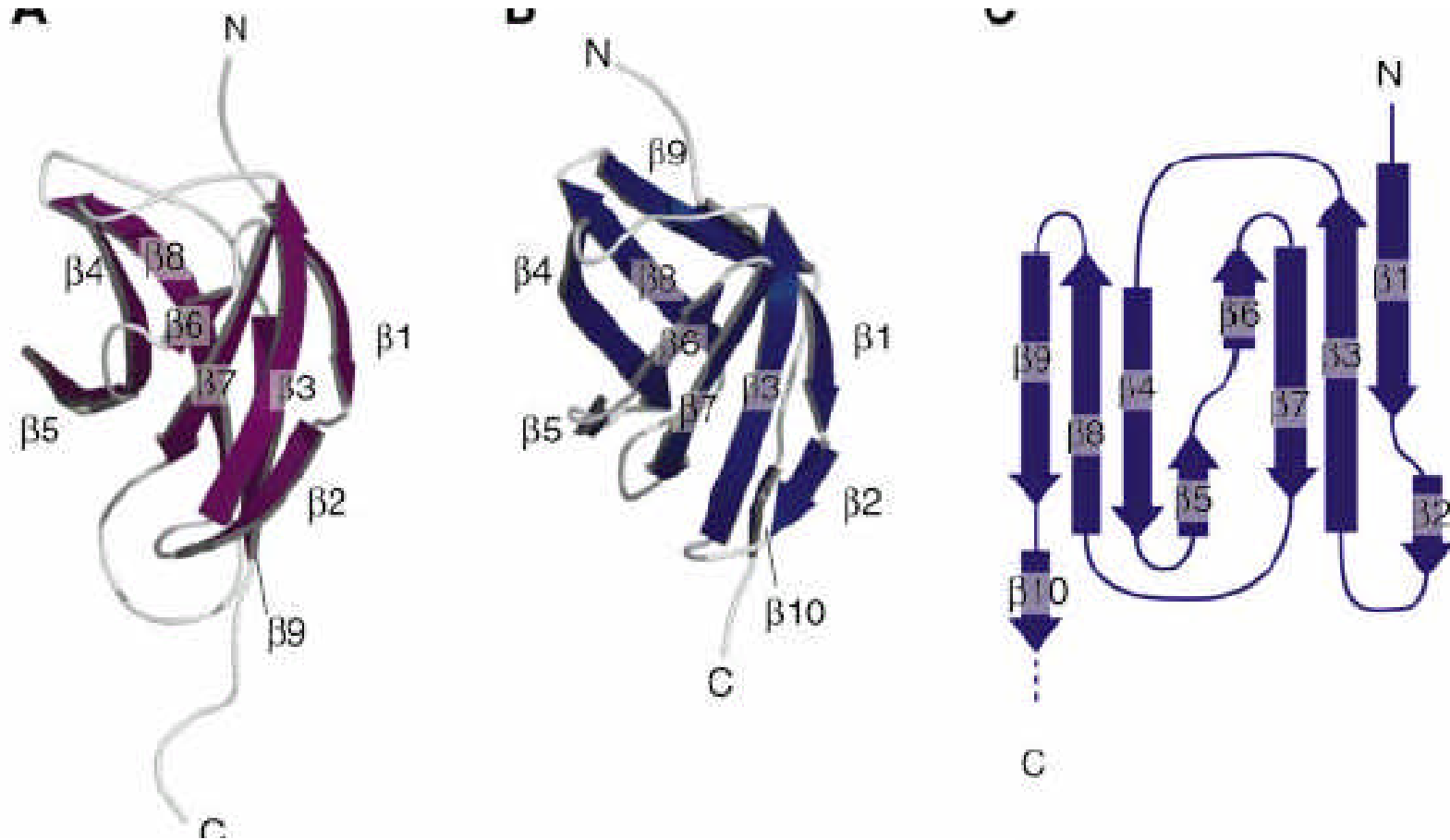
Extracellular domain

Ral binding domain
↓

Intracellular domain



Similar structure but different function



Transcription factor
NFkB p50

Ral-binding domain
of Sec5