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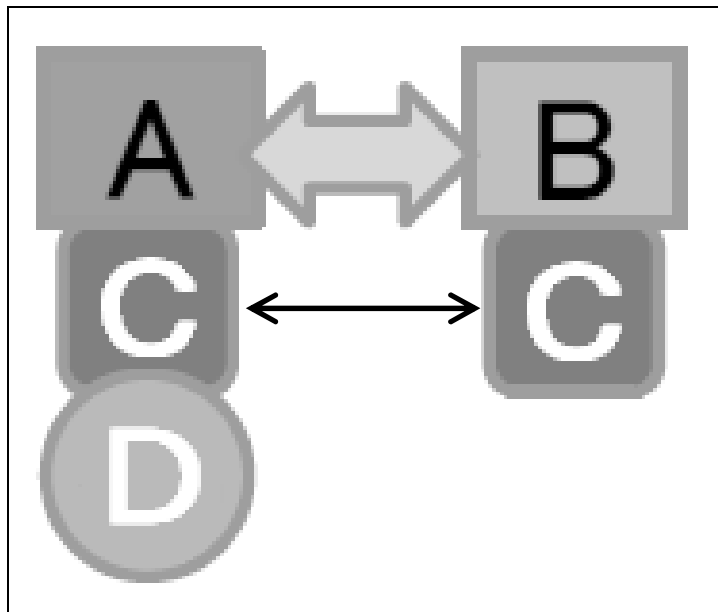


Fig. 2

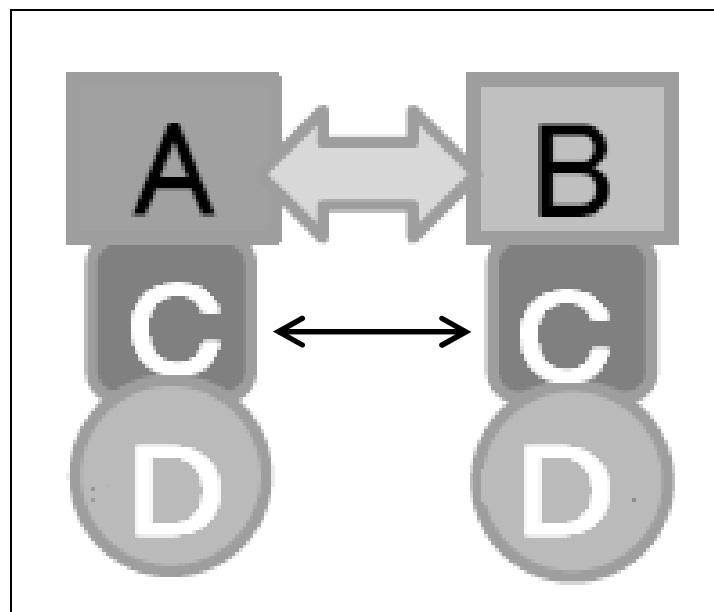


Fig. 3

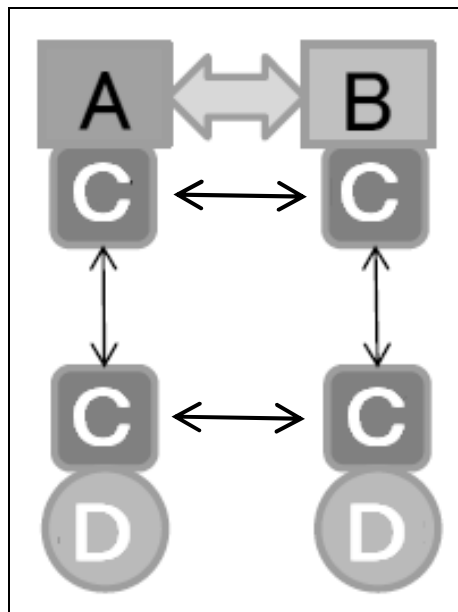


Fig. 4

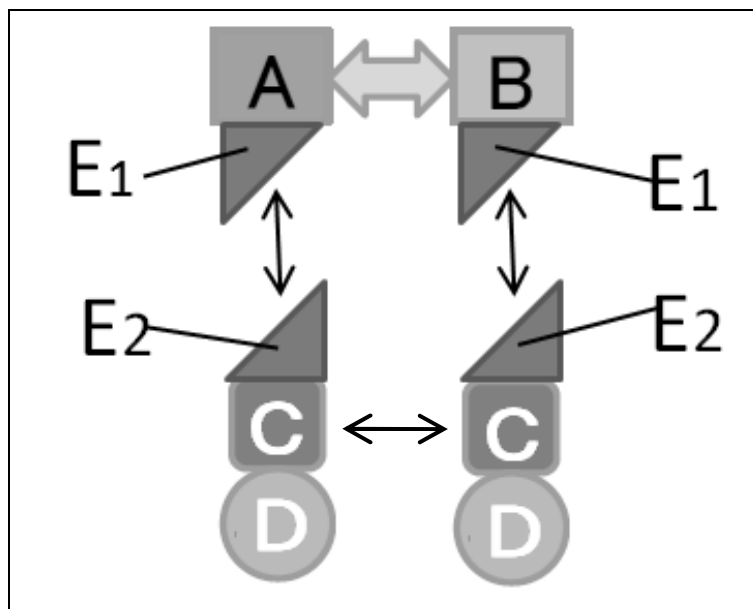


Fig. 5

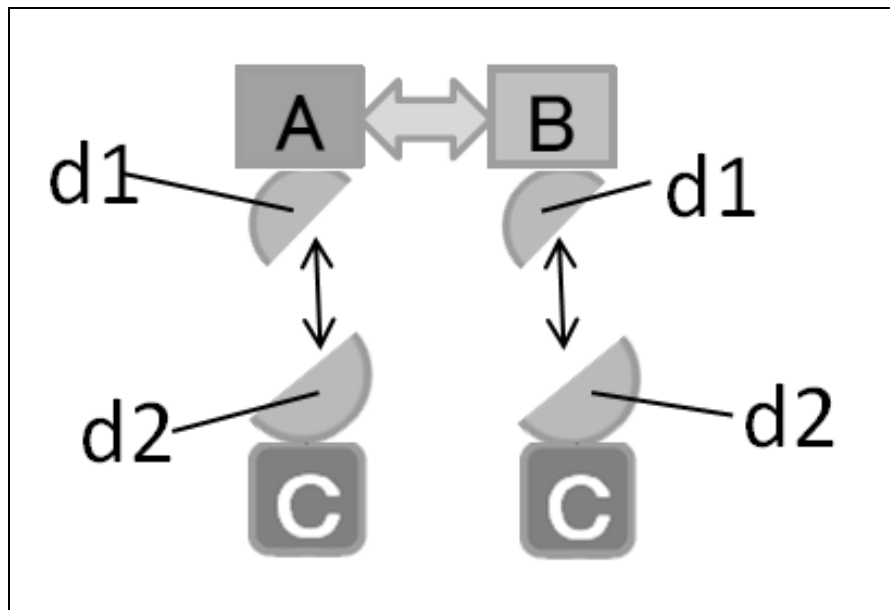


Fig. 6

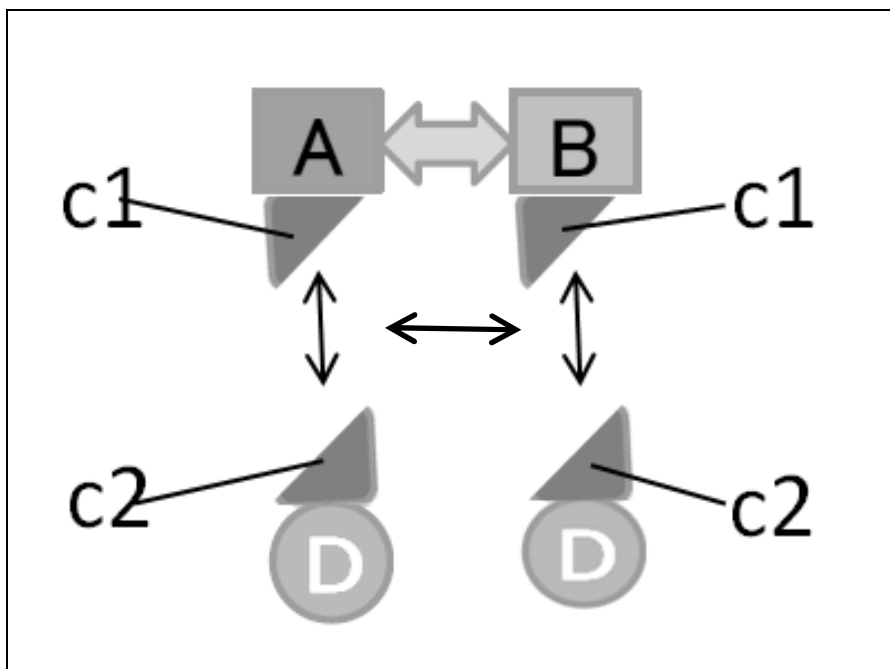


Fig. 7

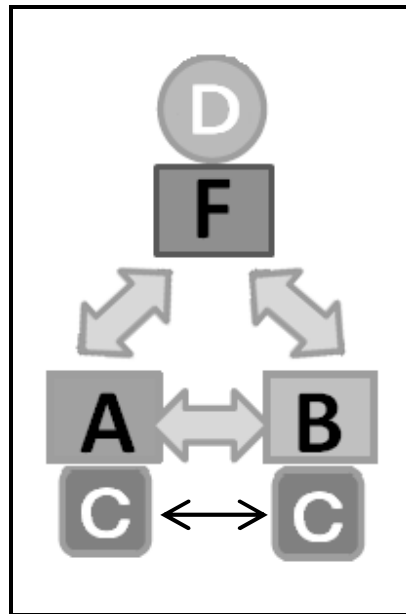


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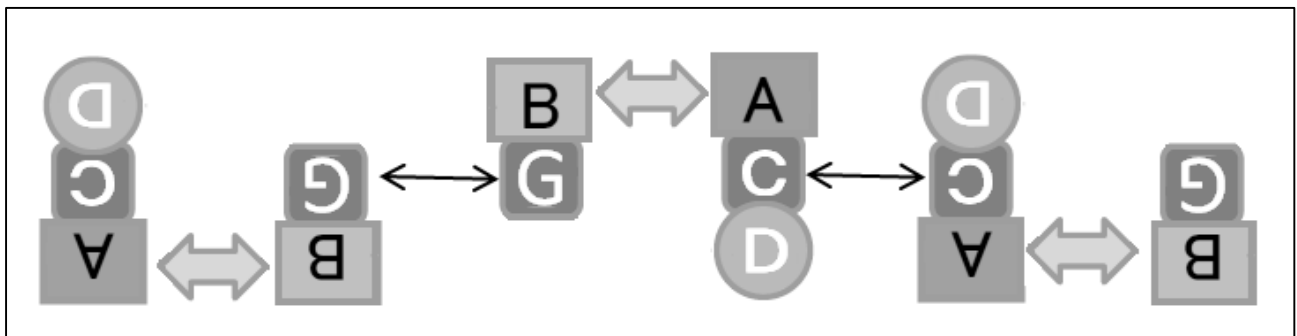


Fig. 9

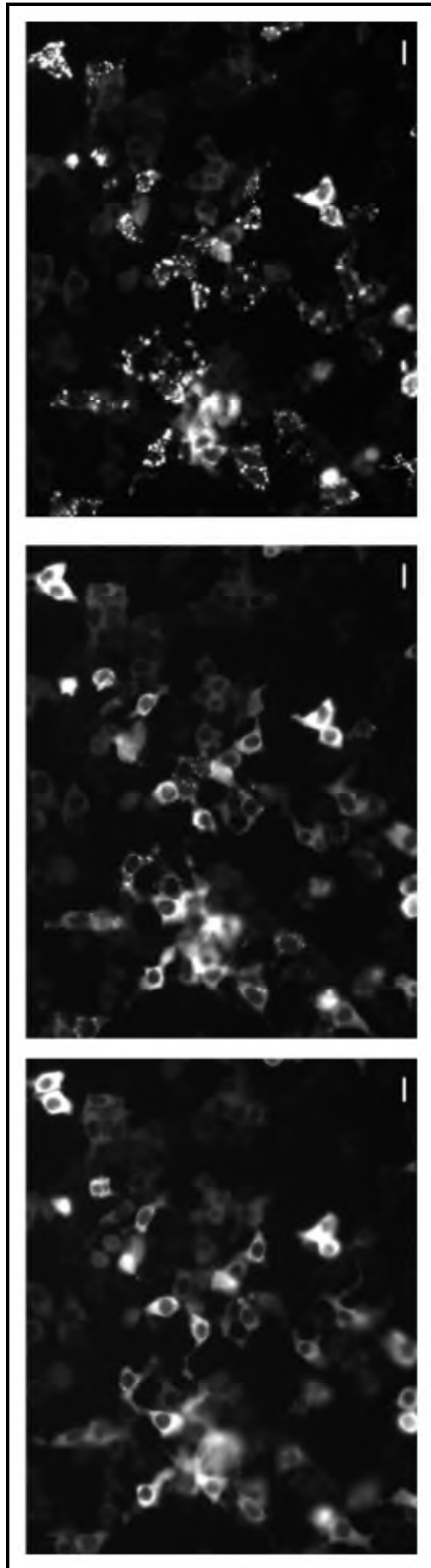


Fig. 10

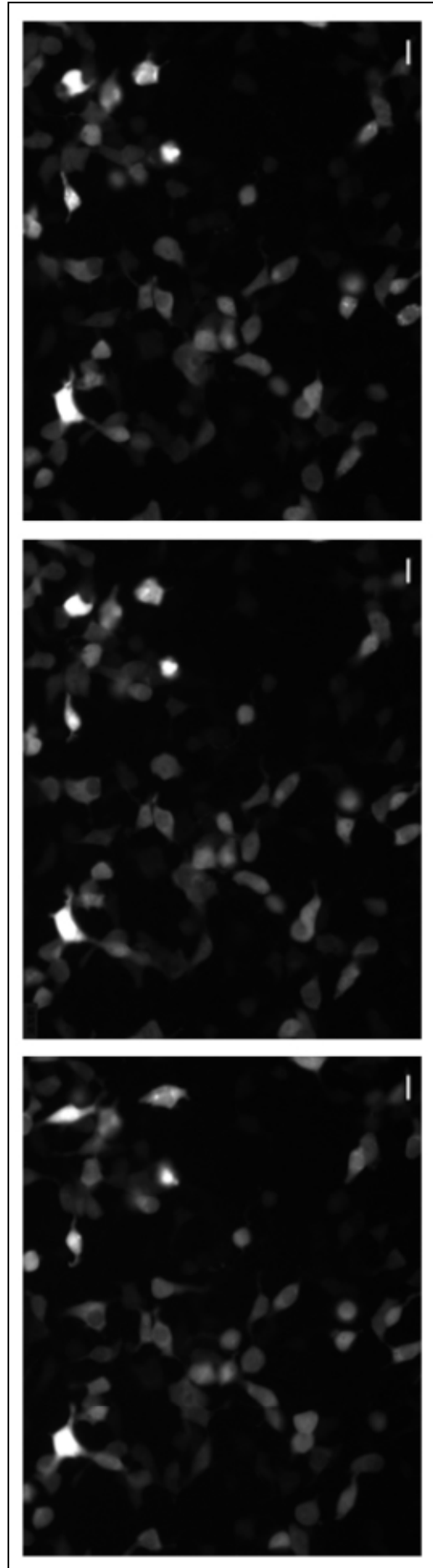


Fig. 11

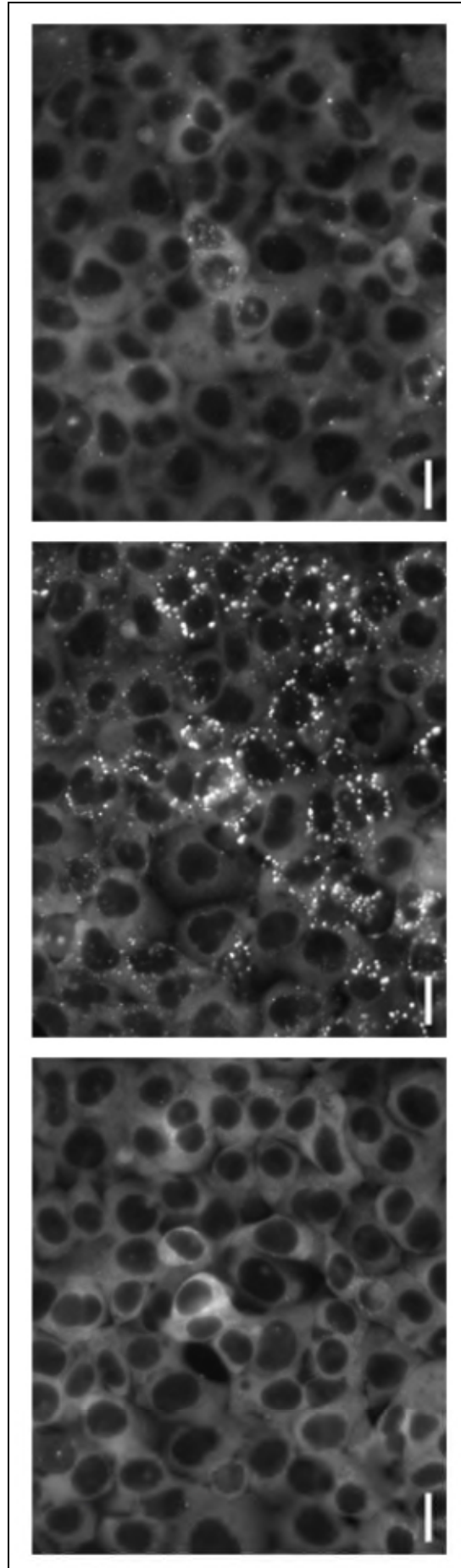


Fig. 12

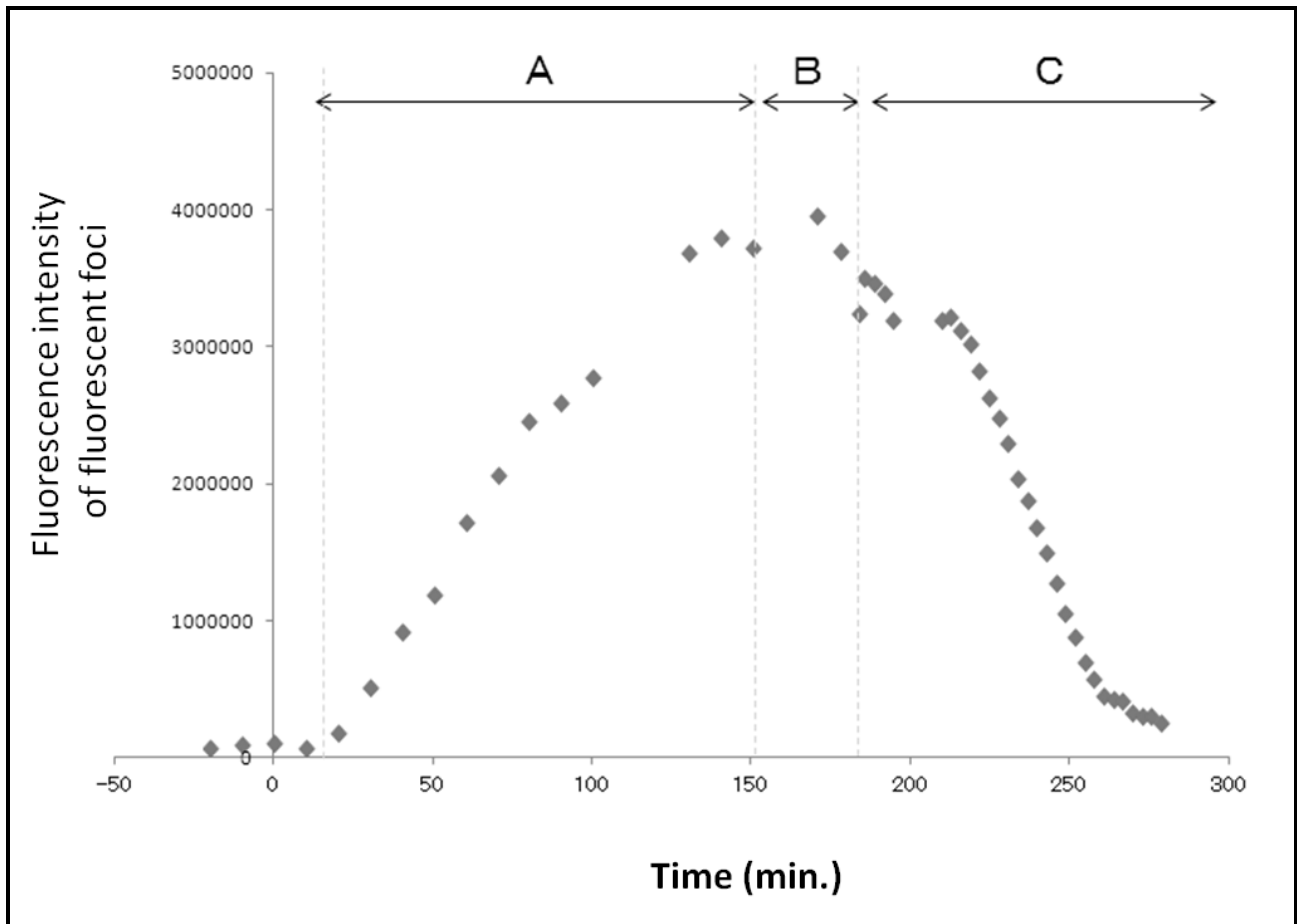


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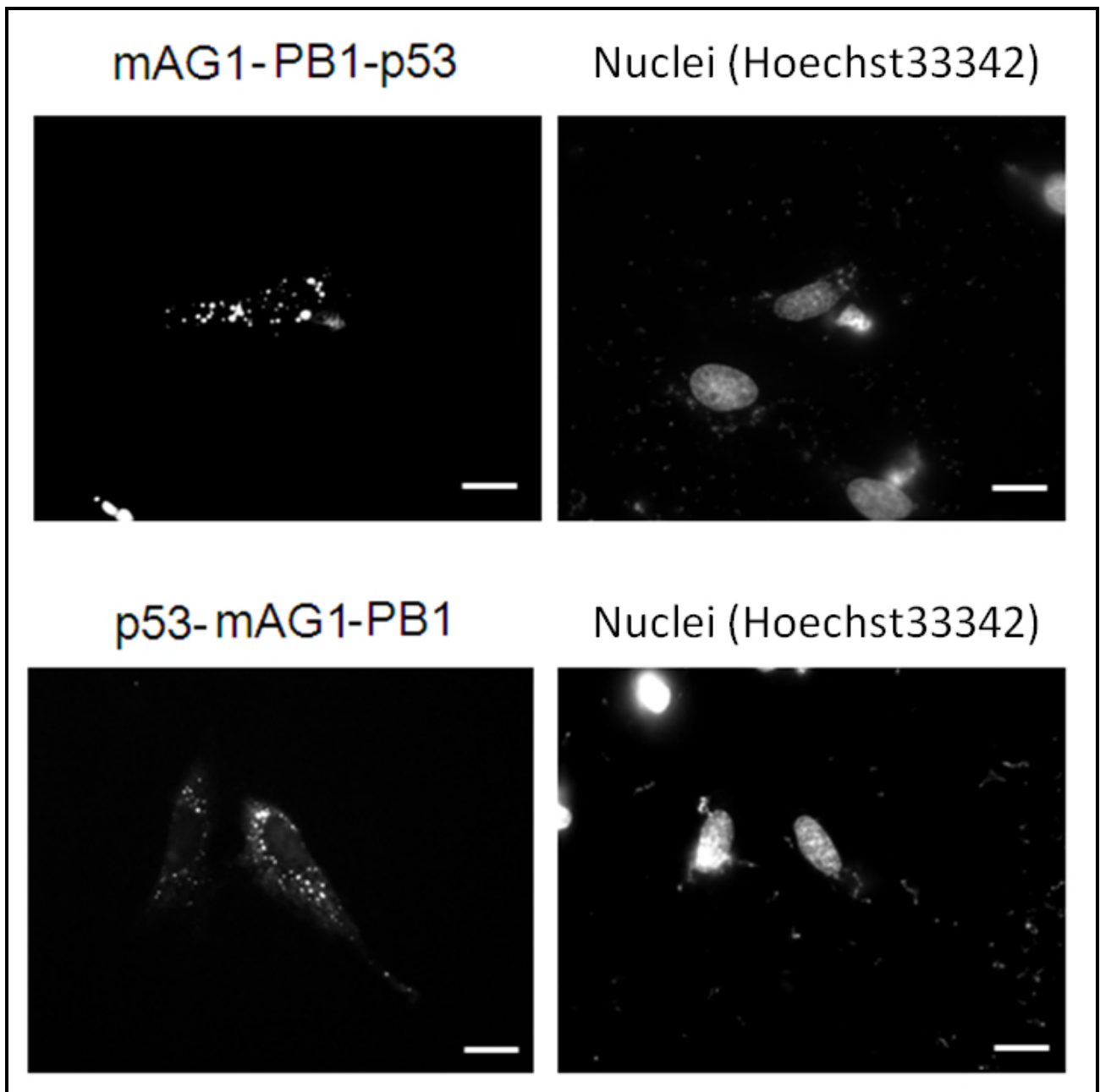


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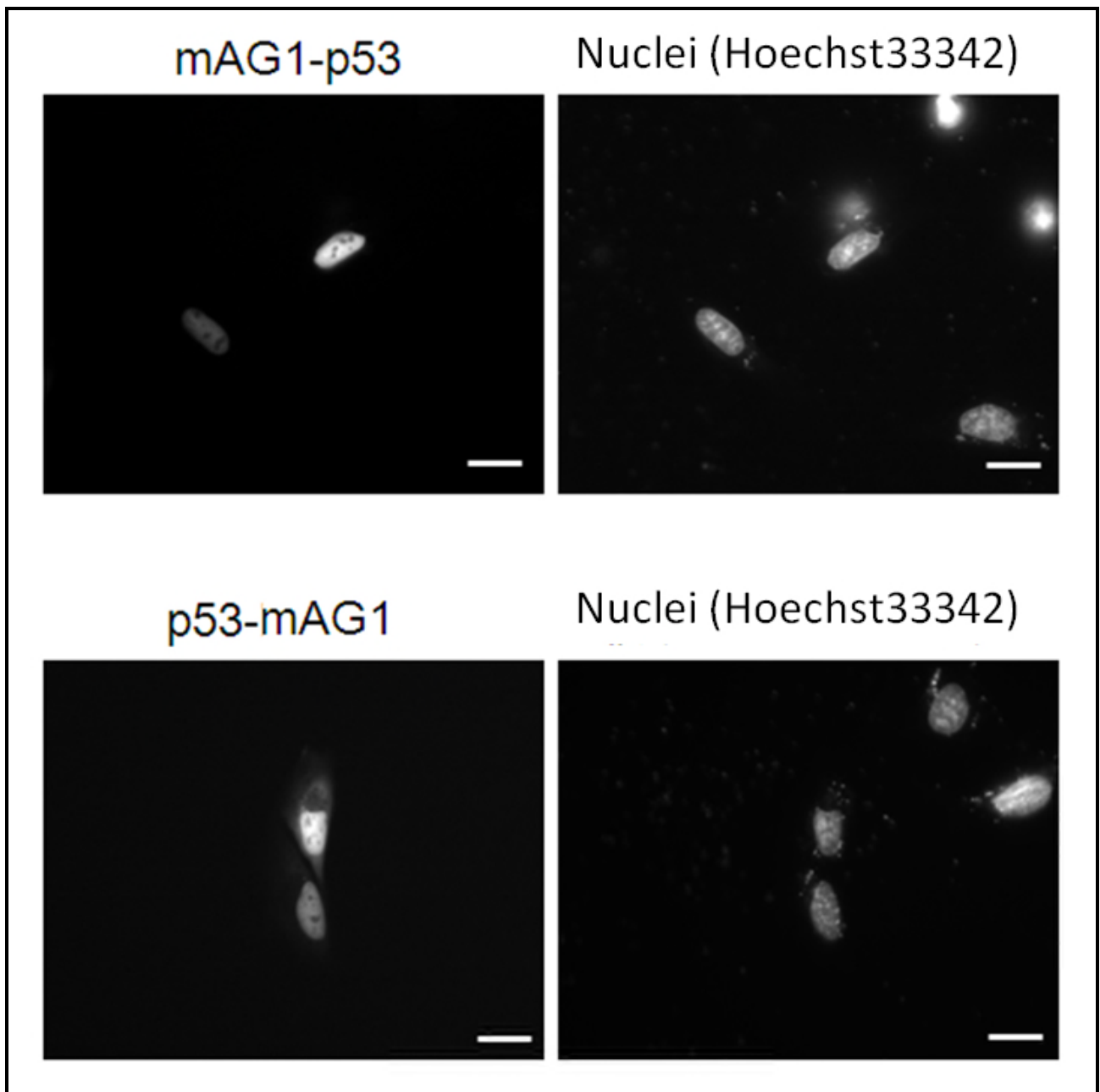


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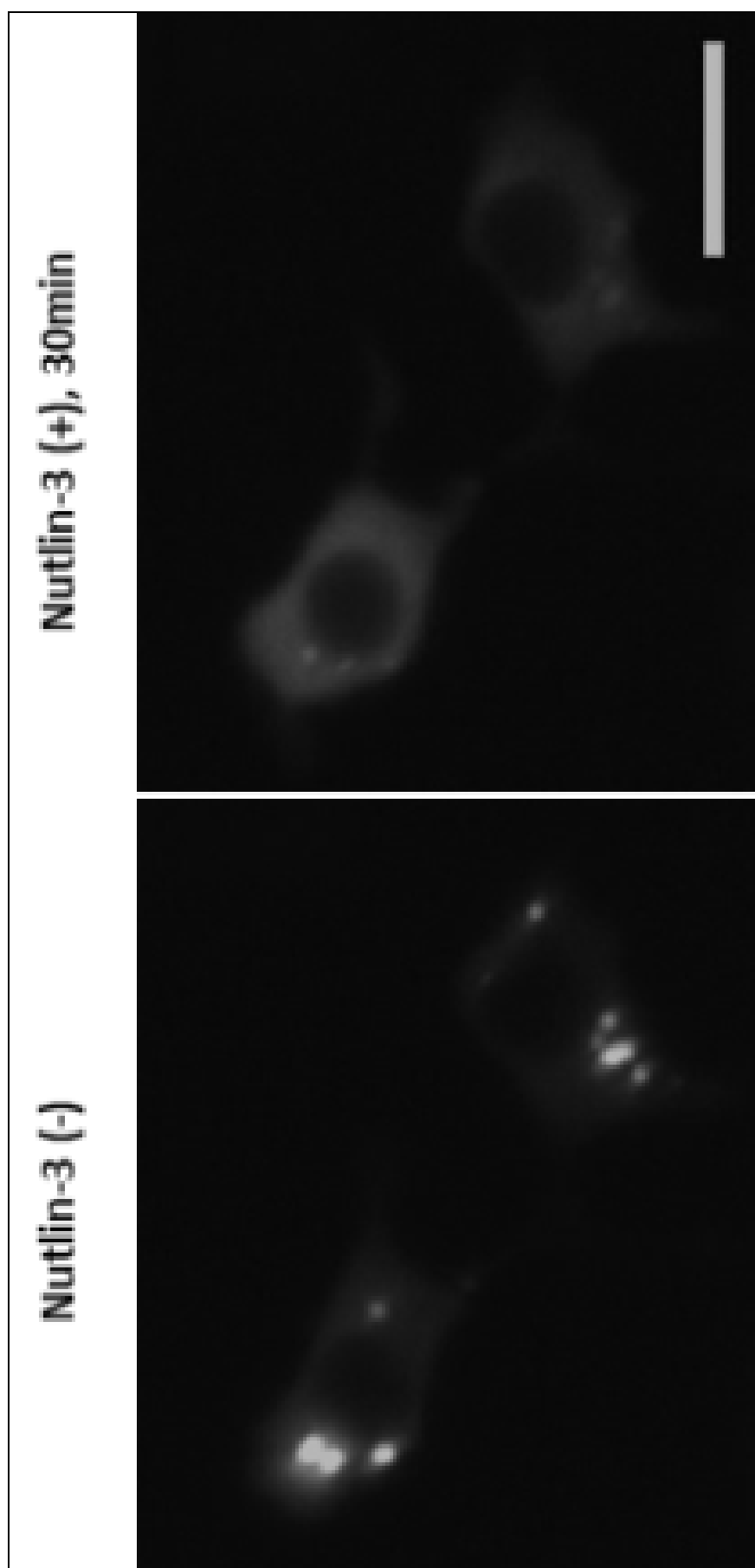


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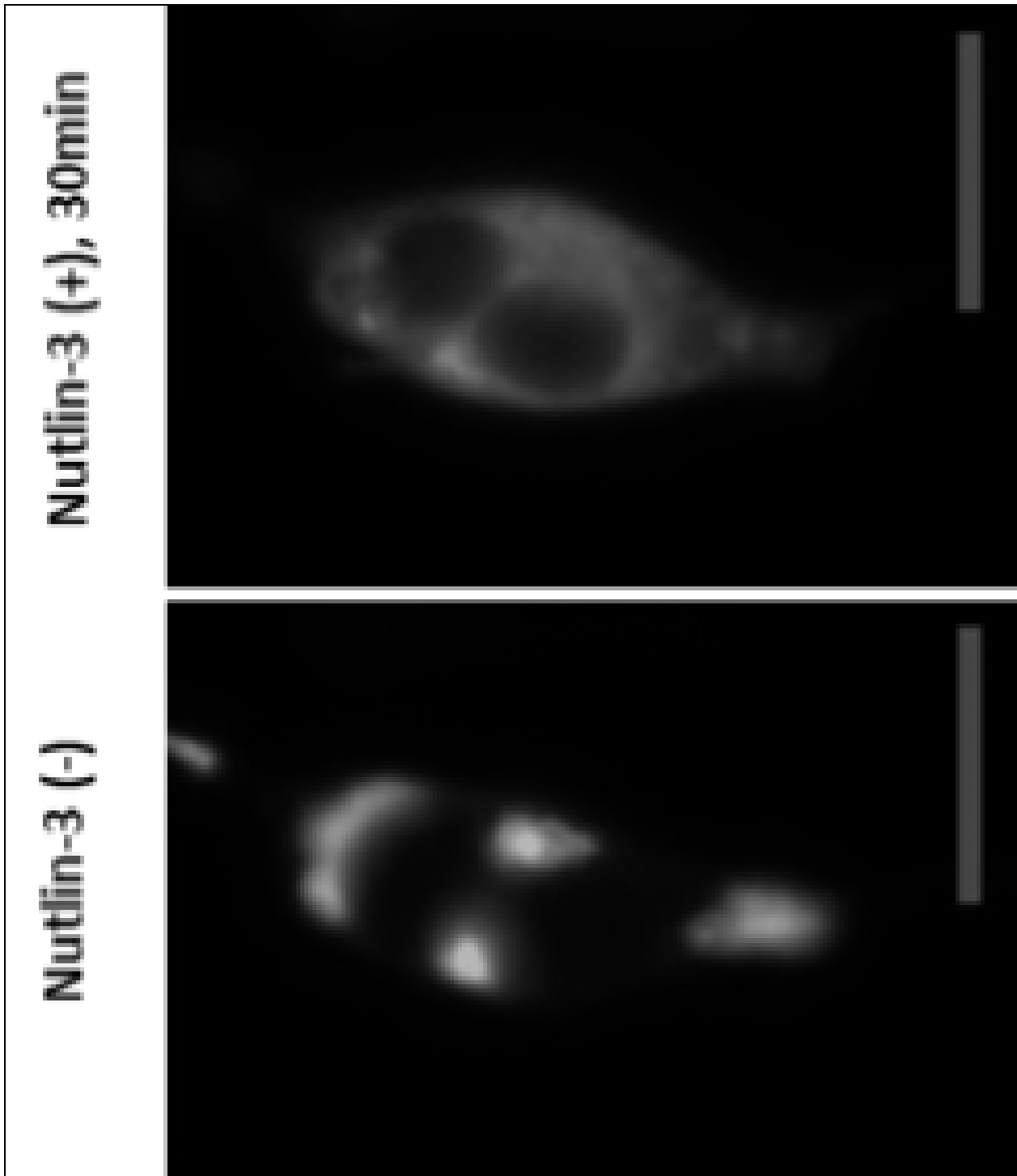


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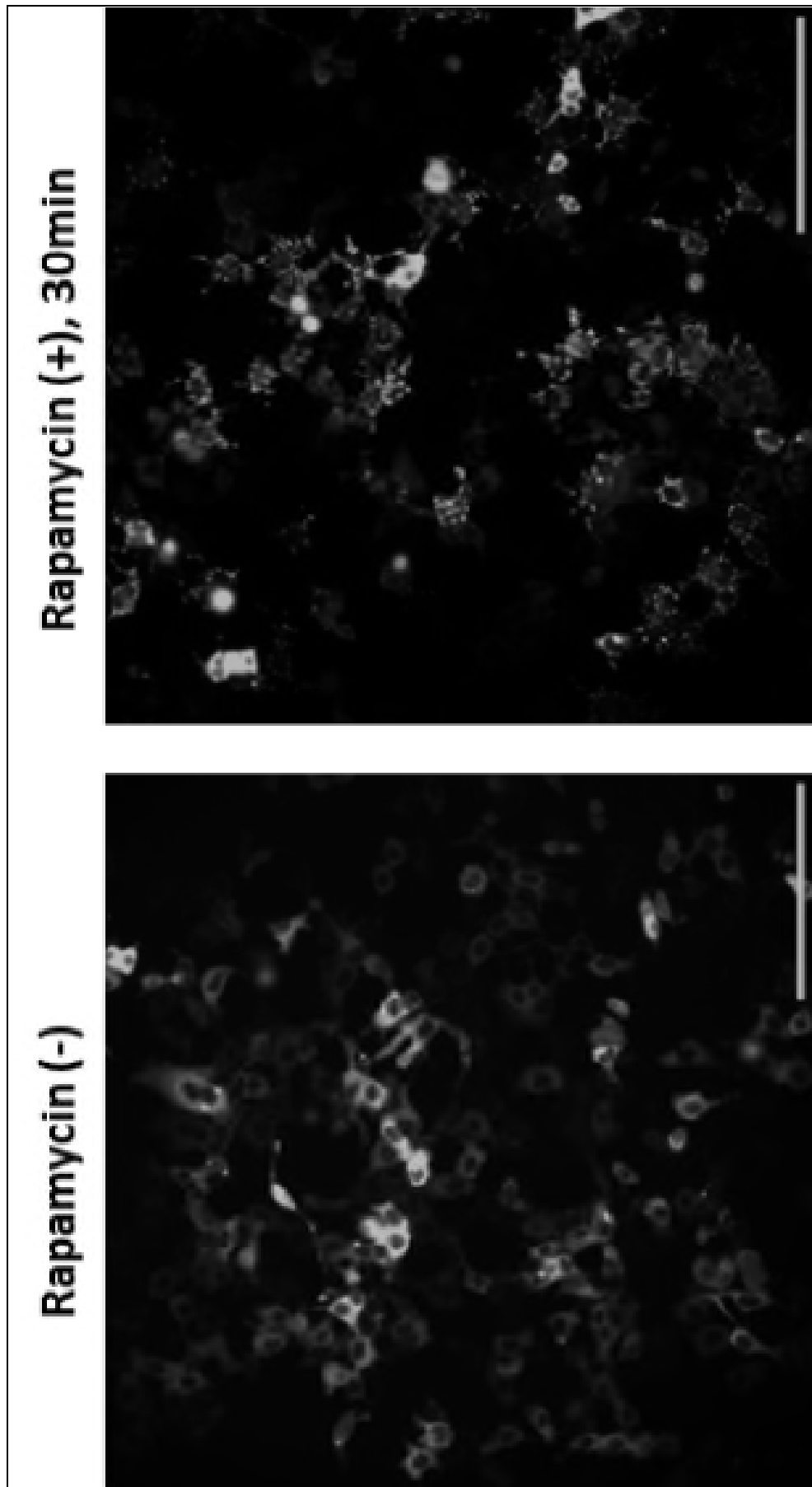


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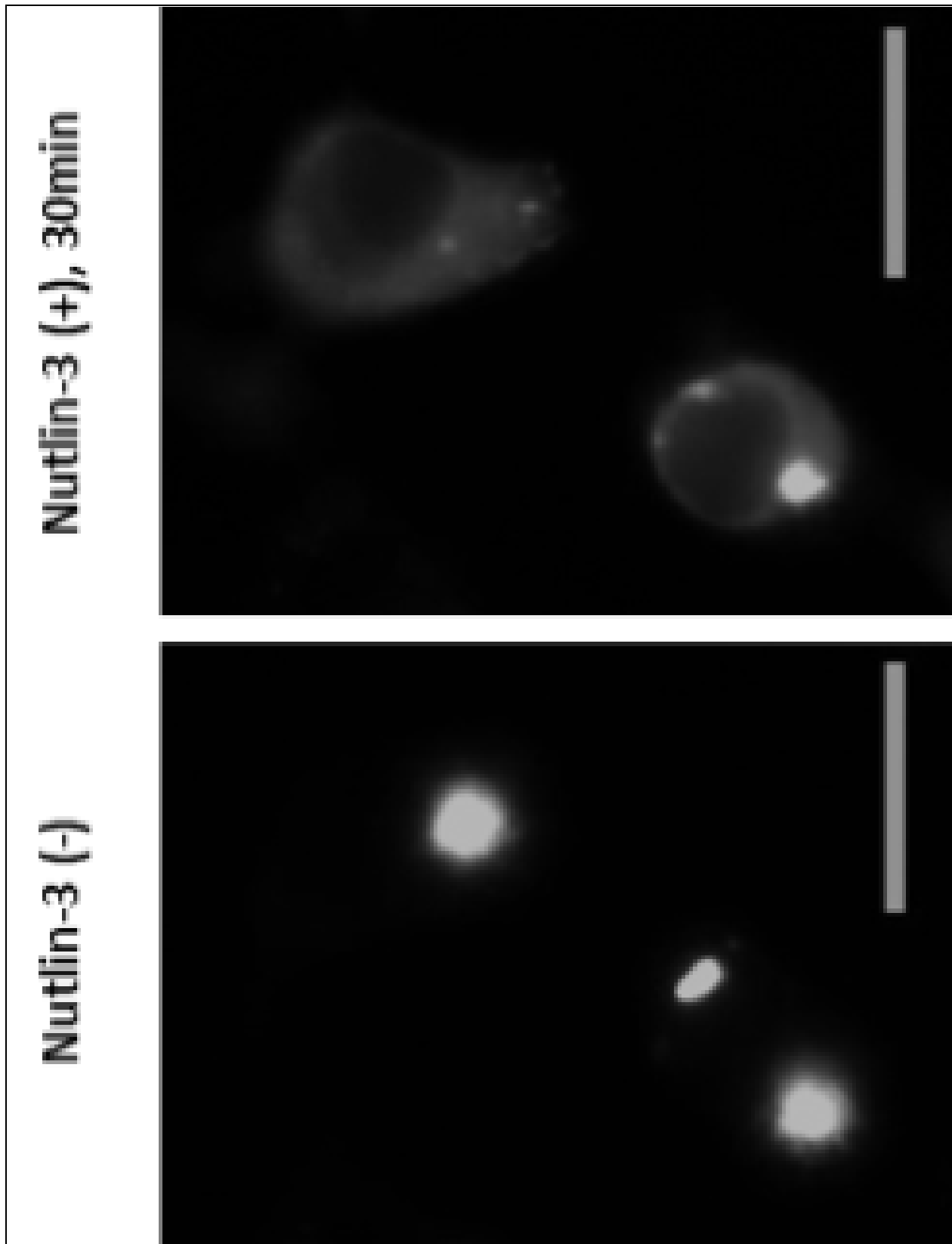


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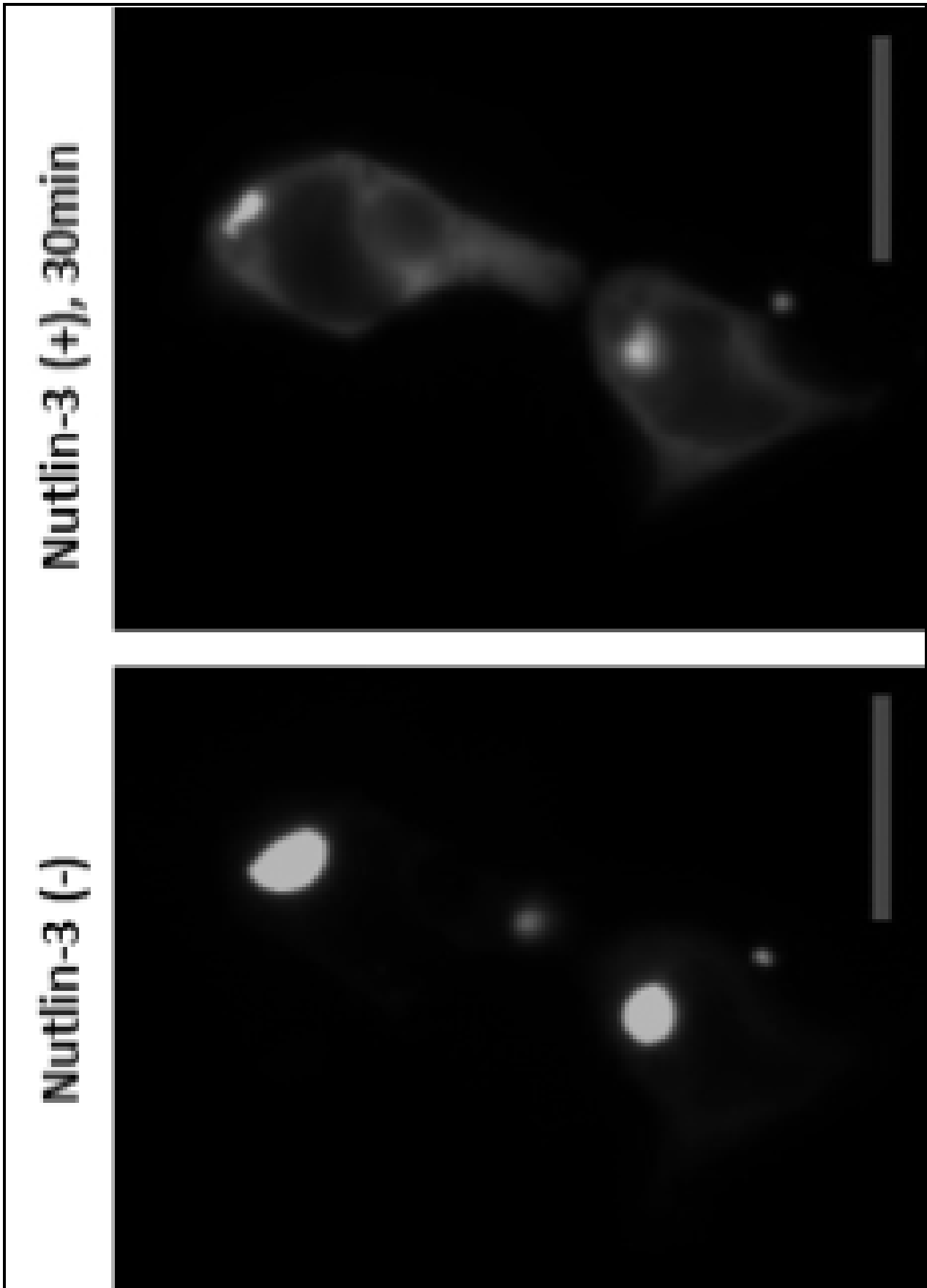


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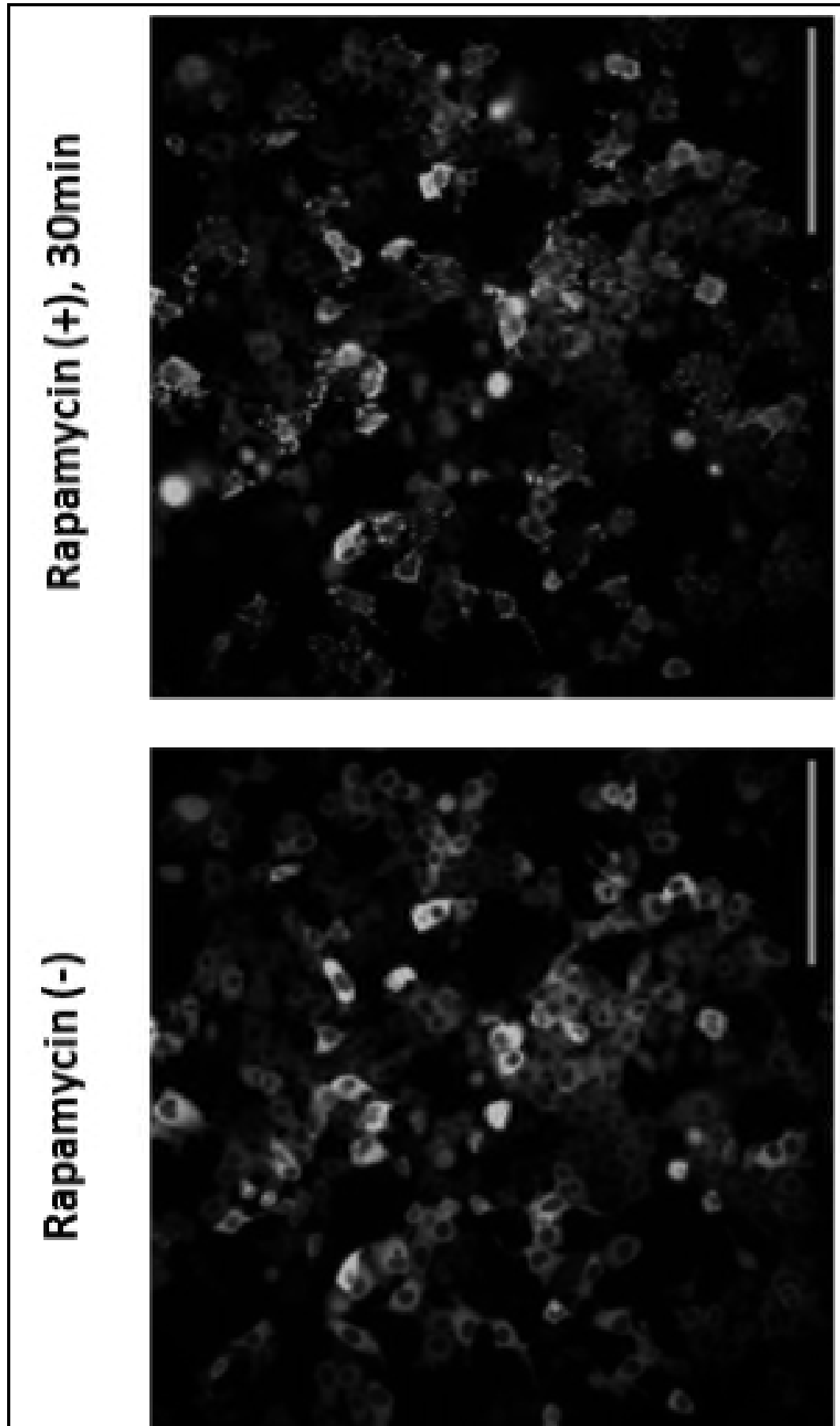


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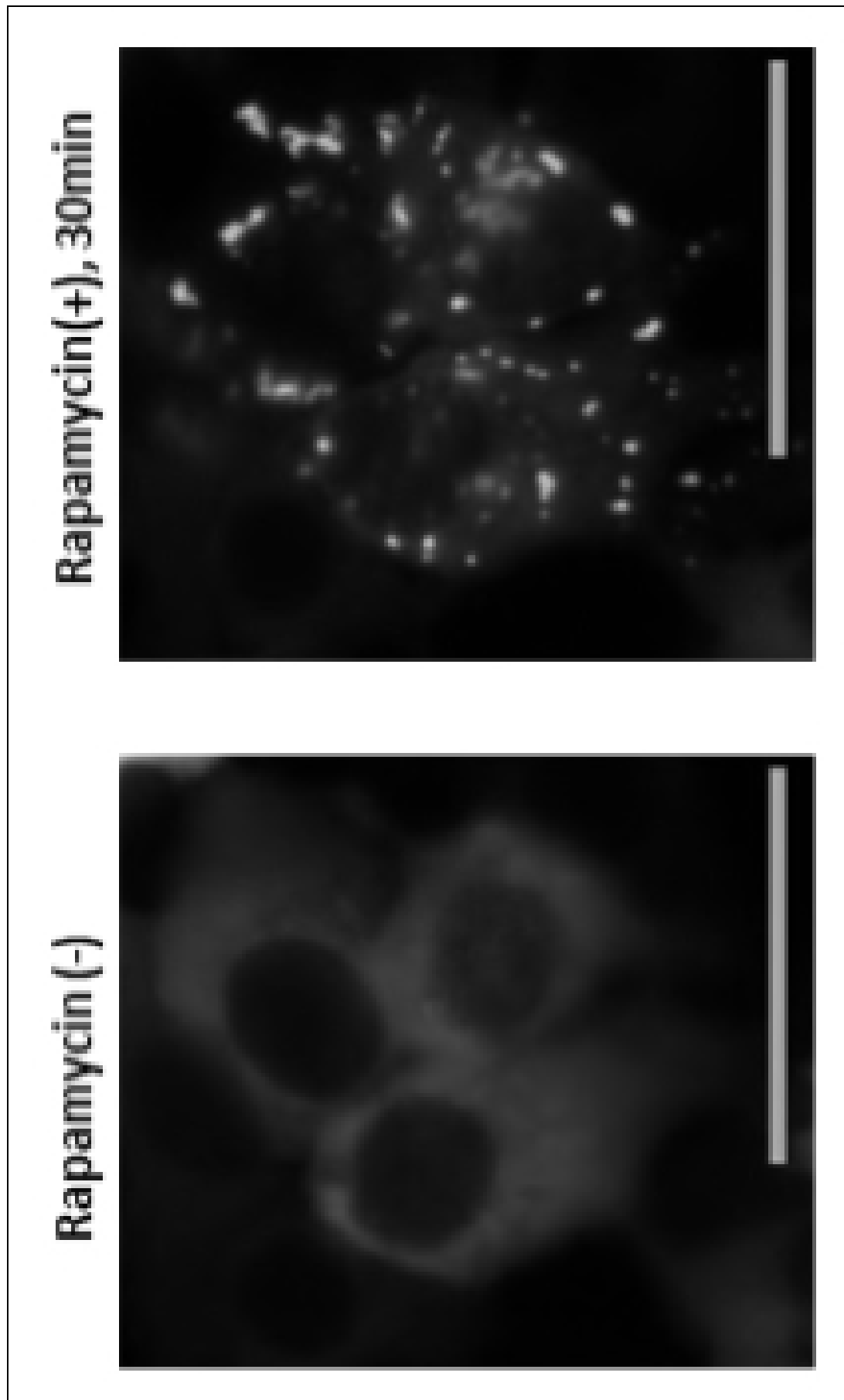


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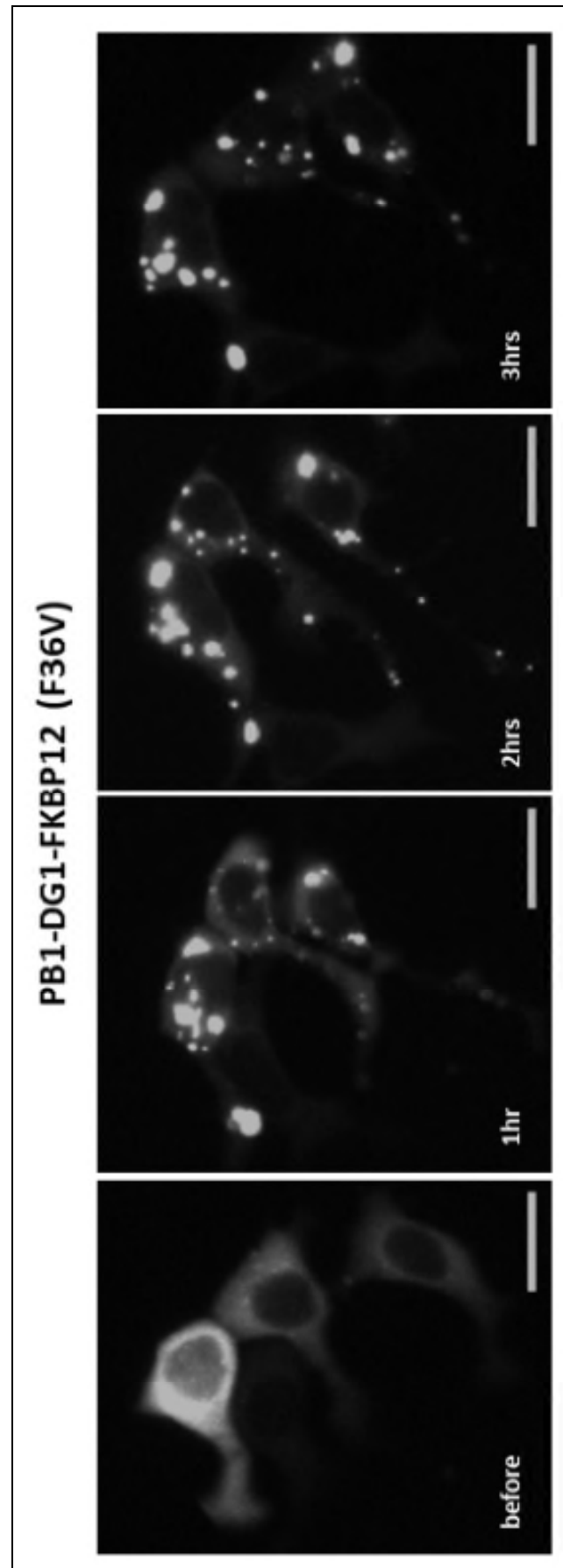


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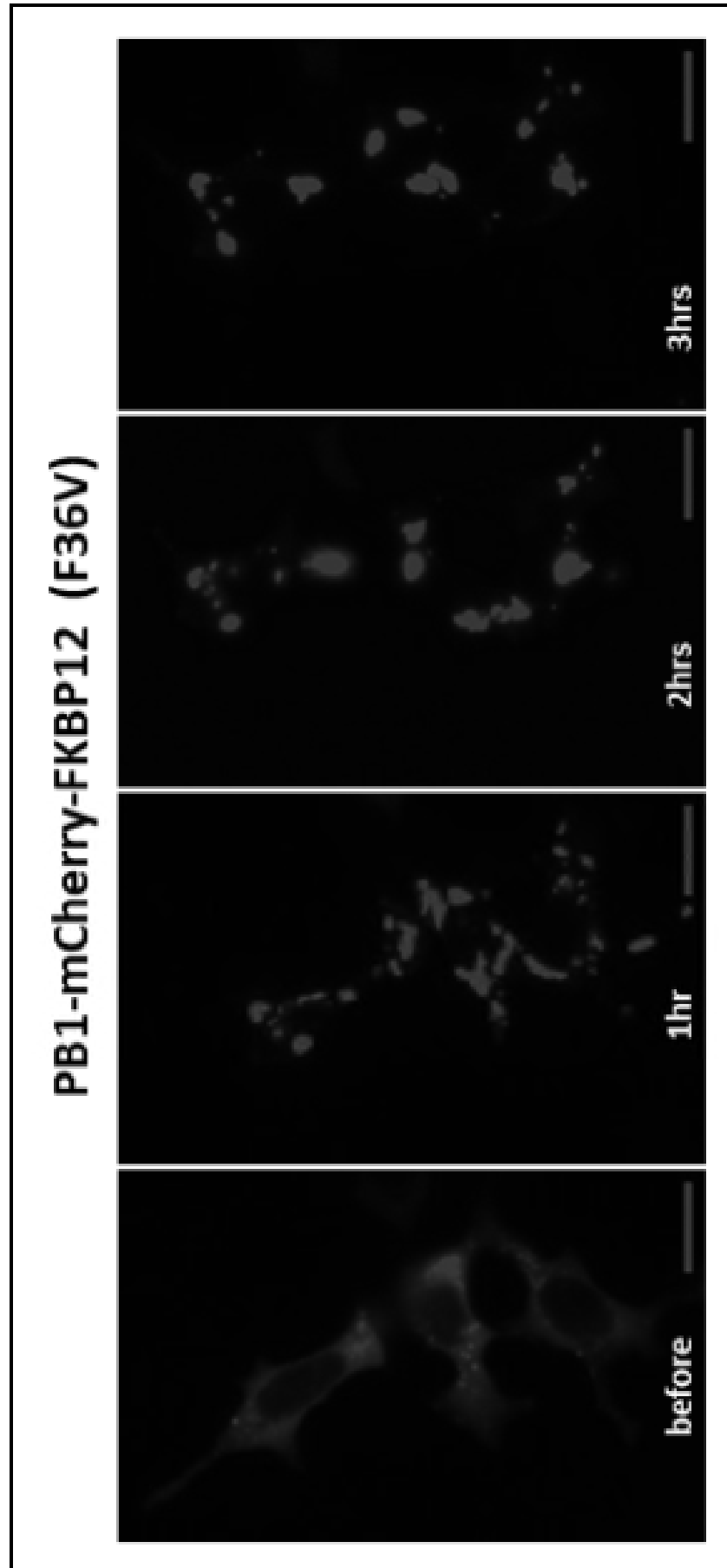


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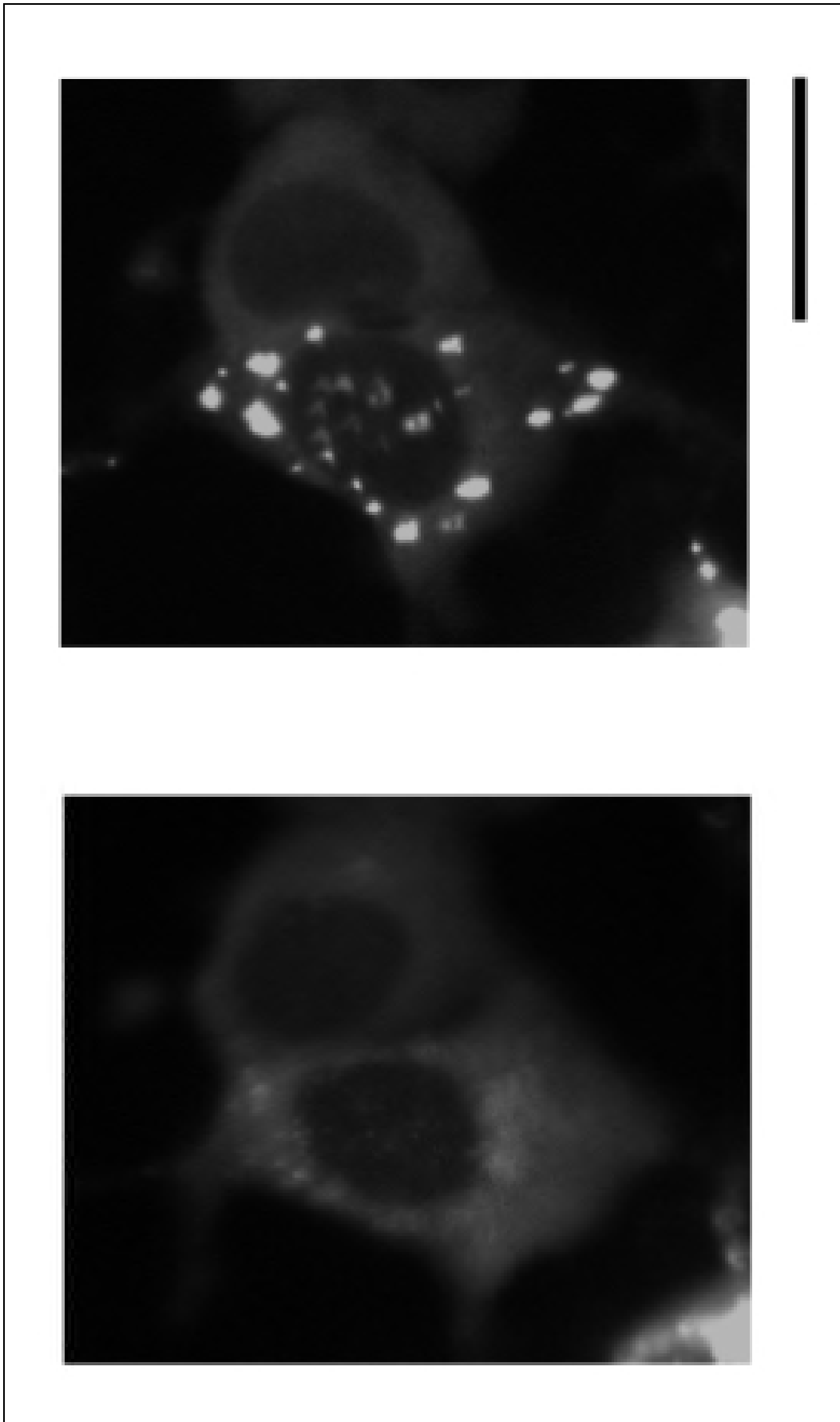


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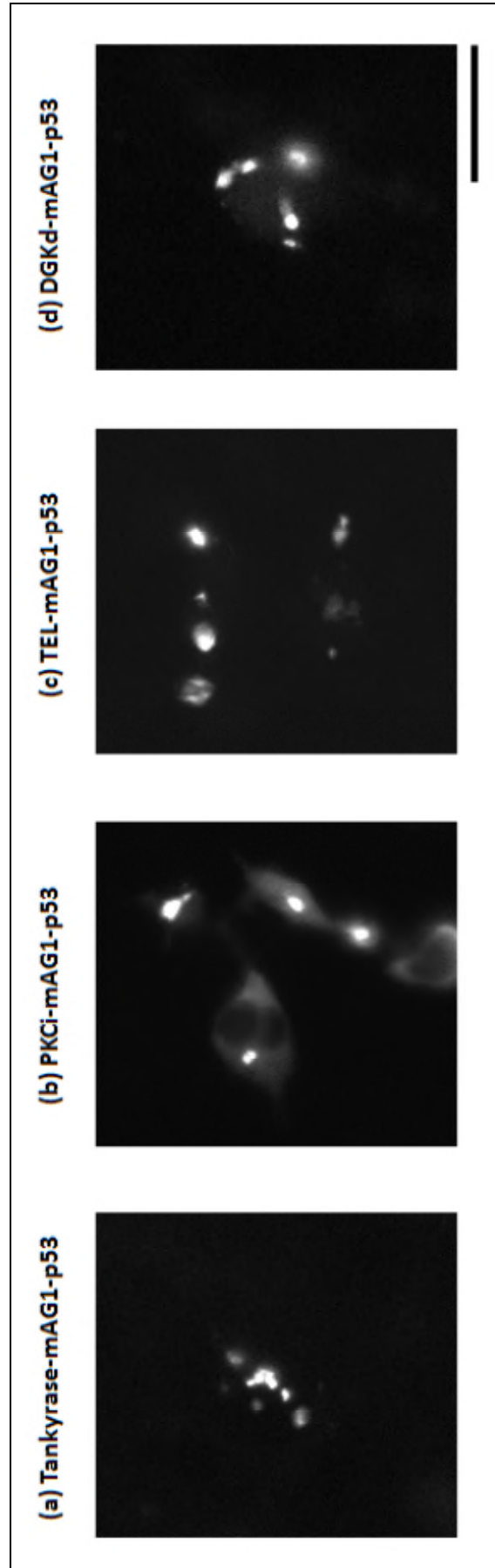


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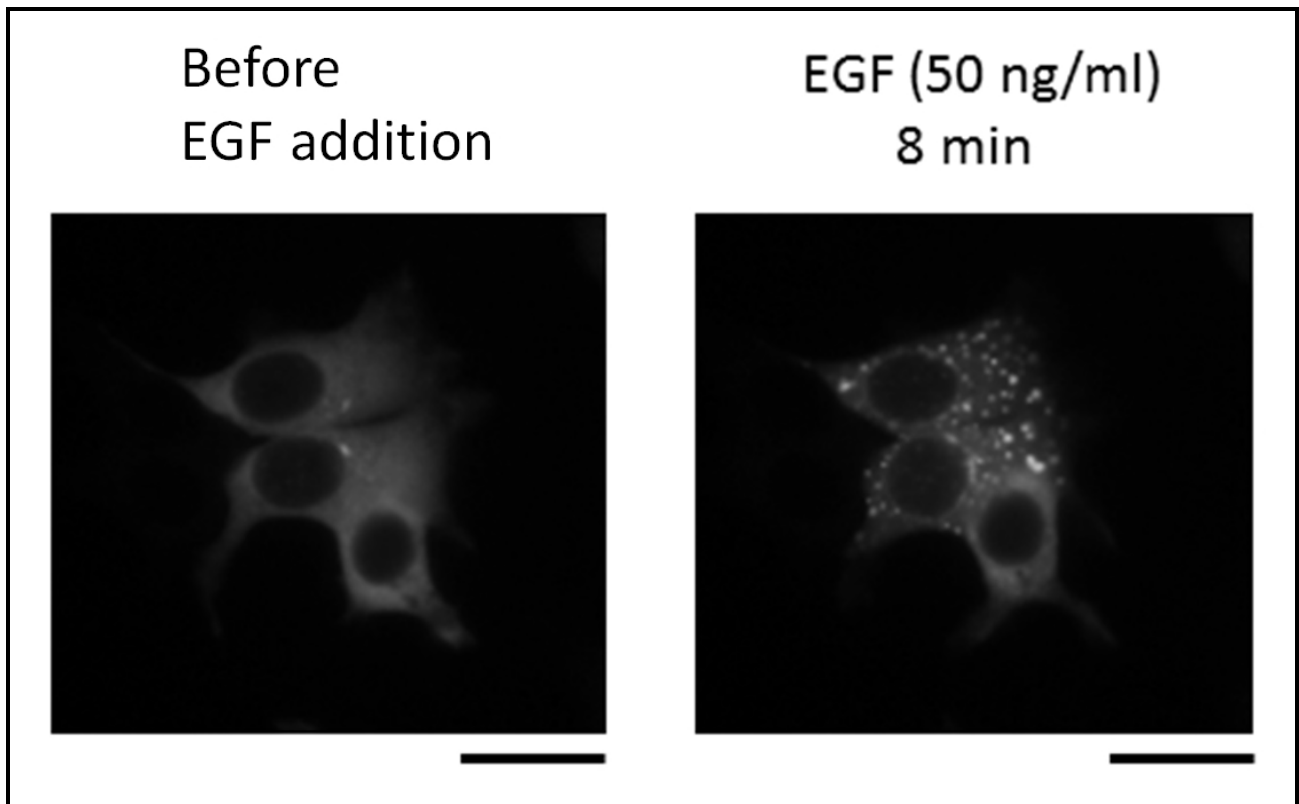


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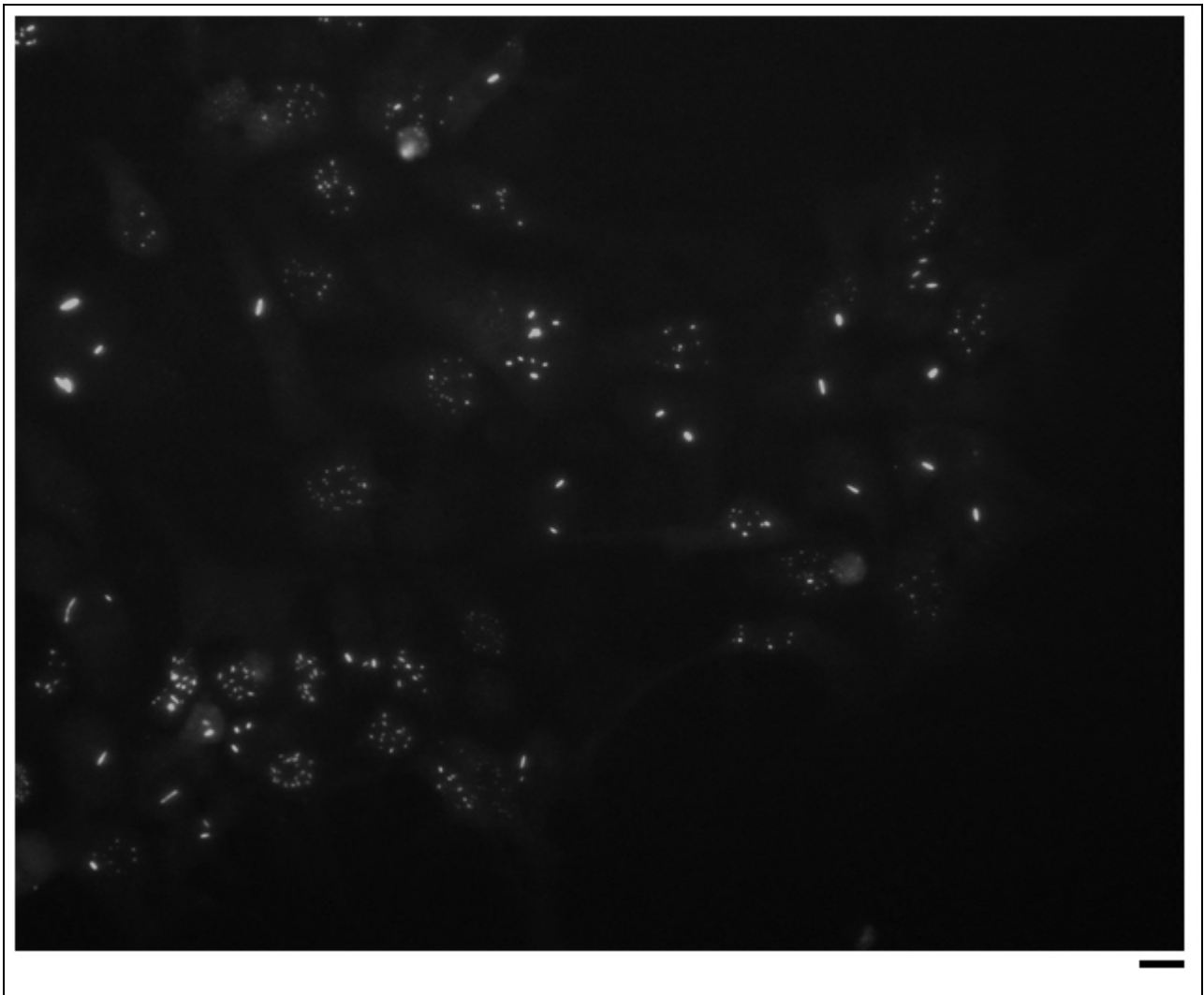


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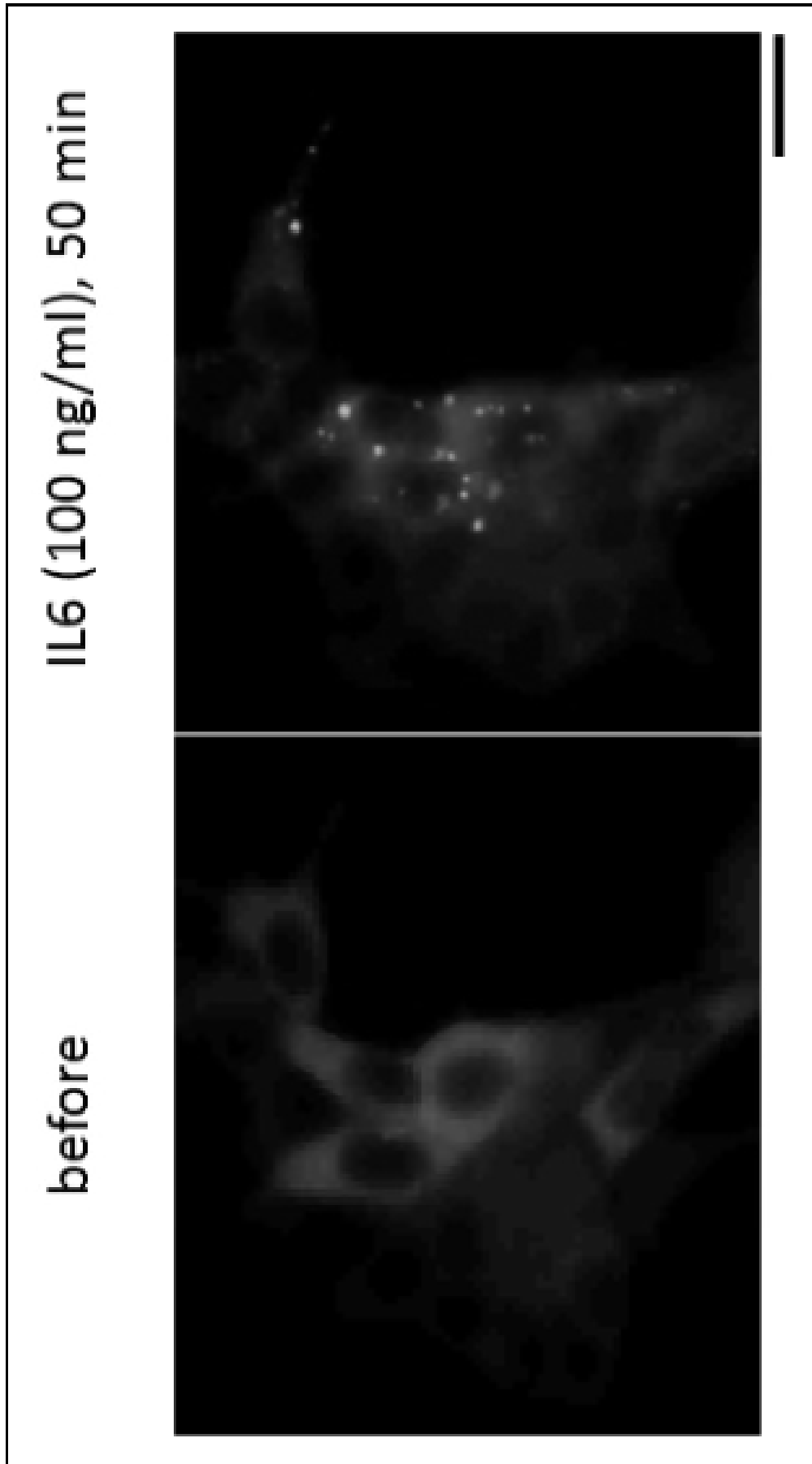


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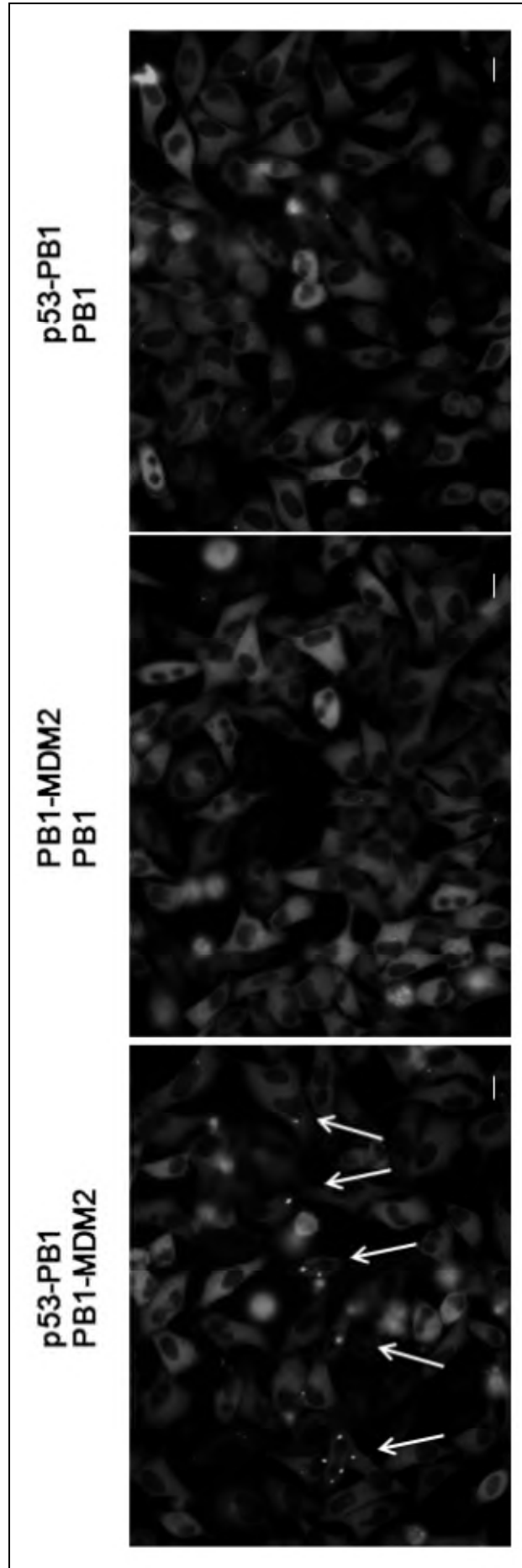


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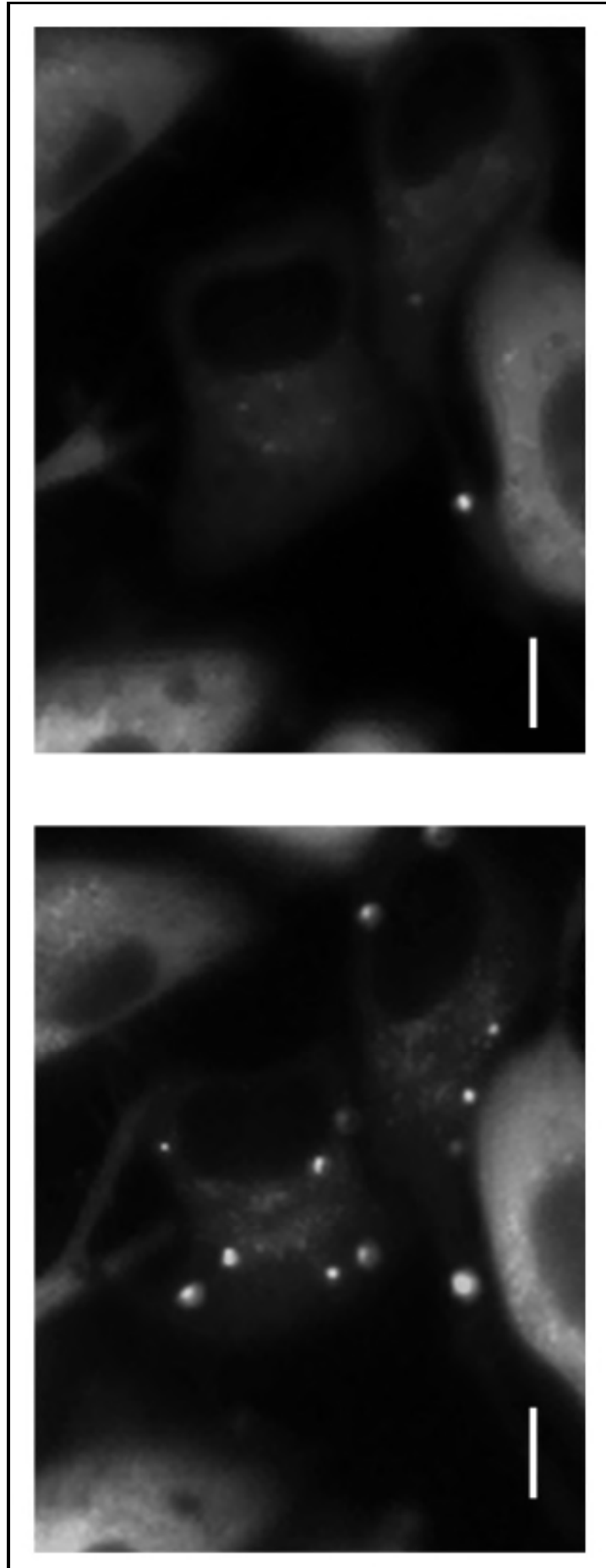


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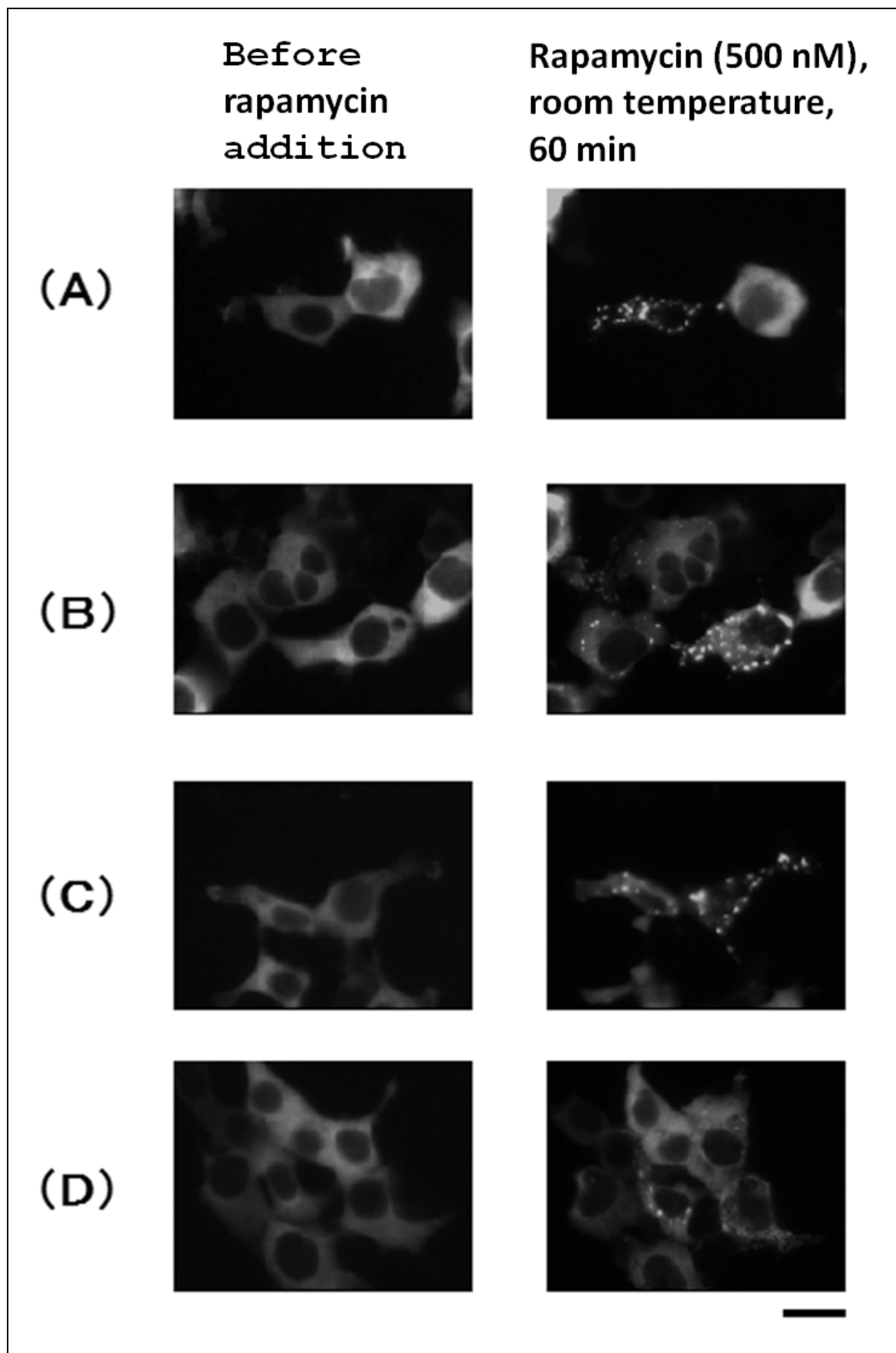


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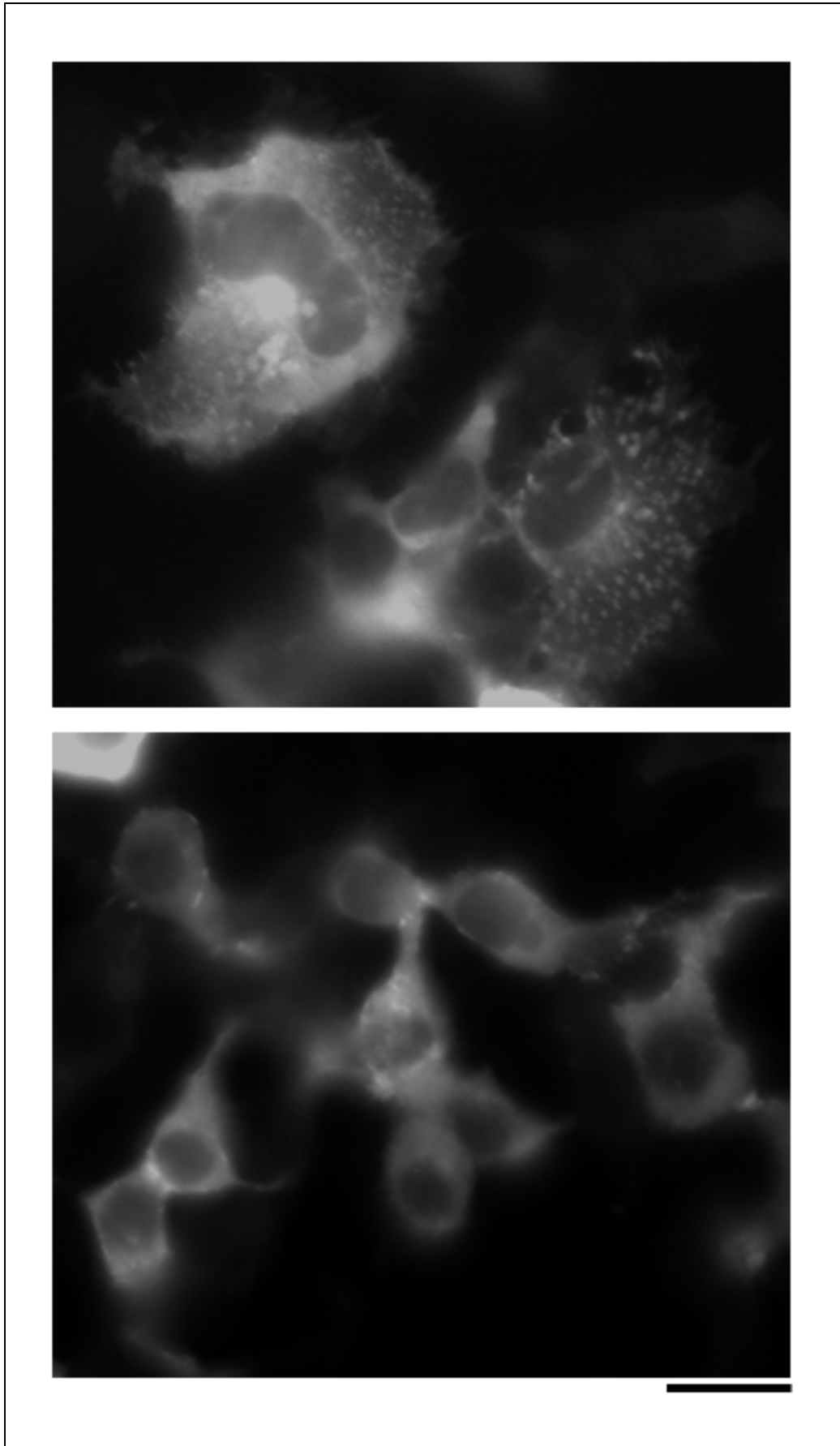


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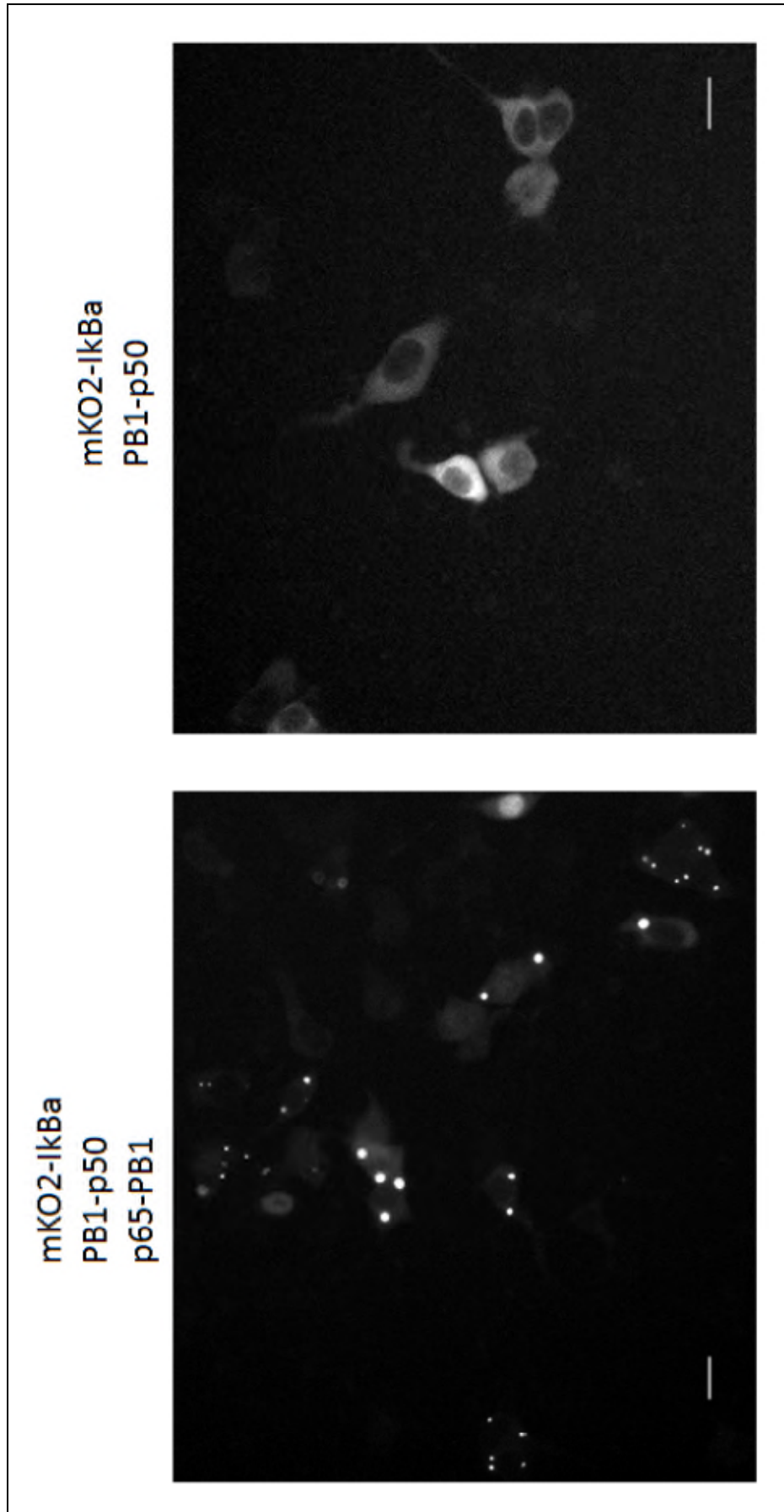


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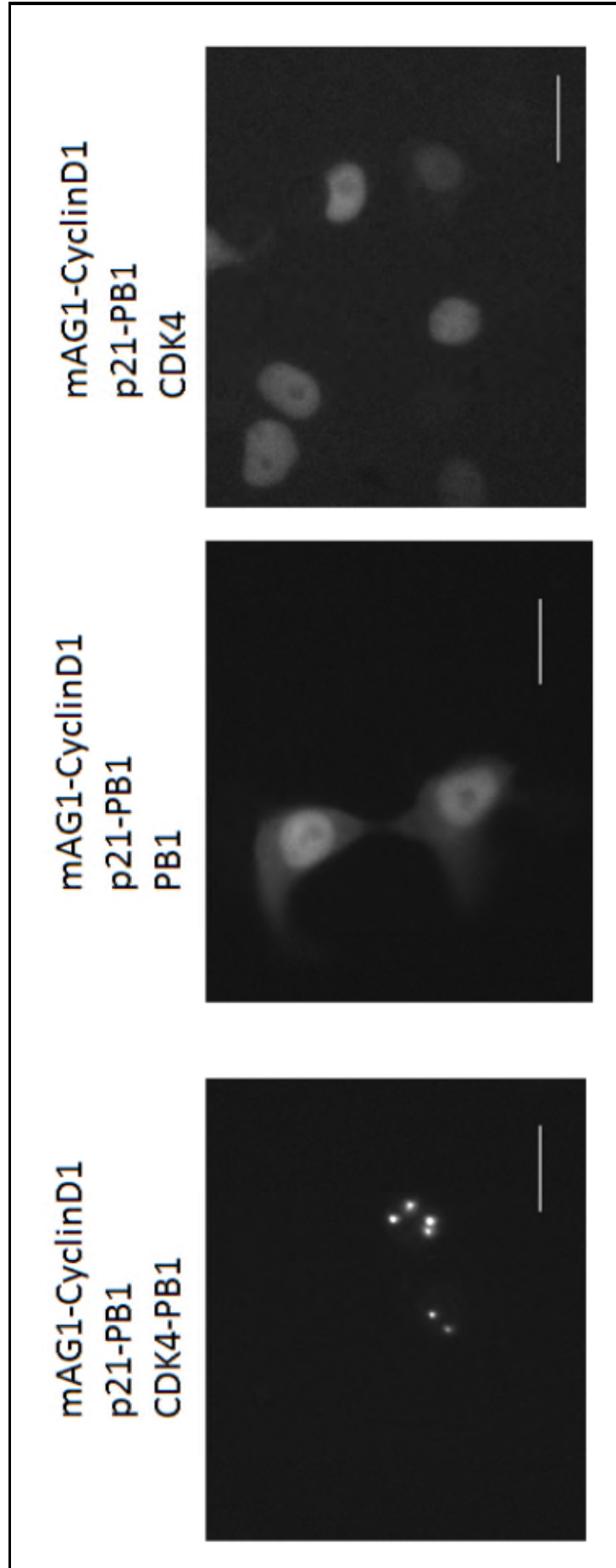


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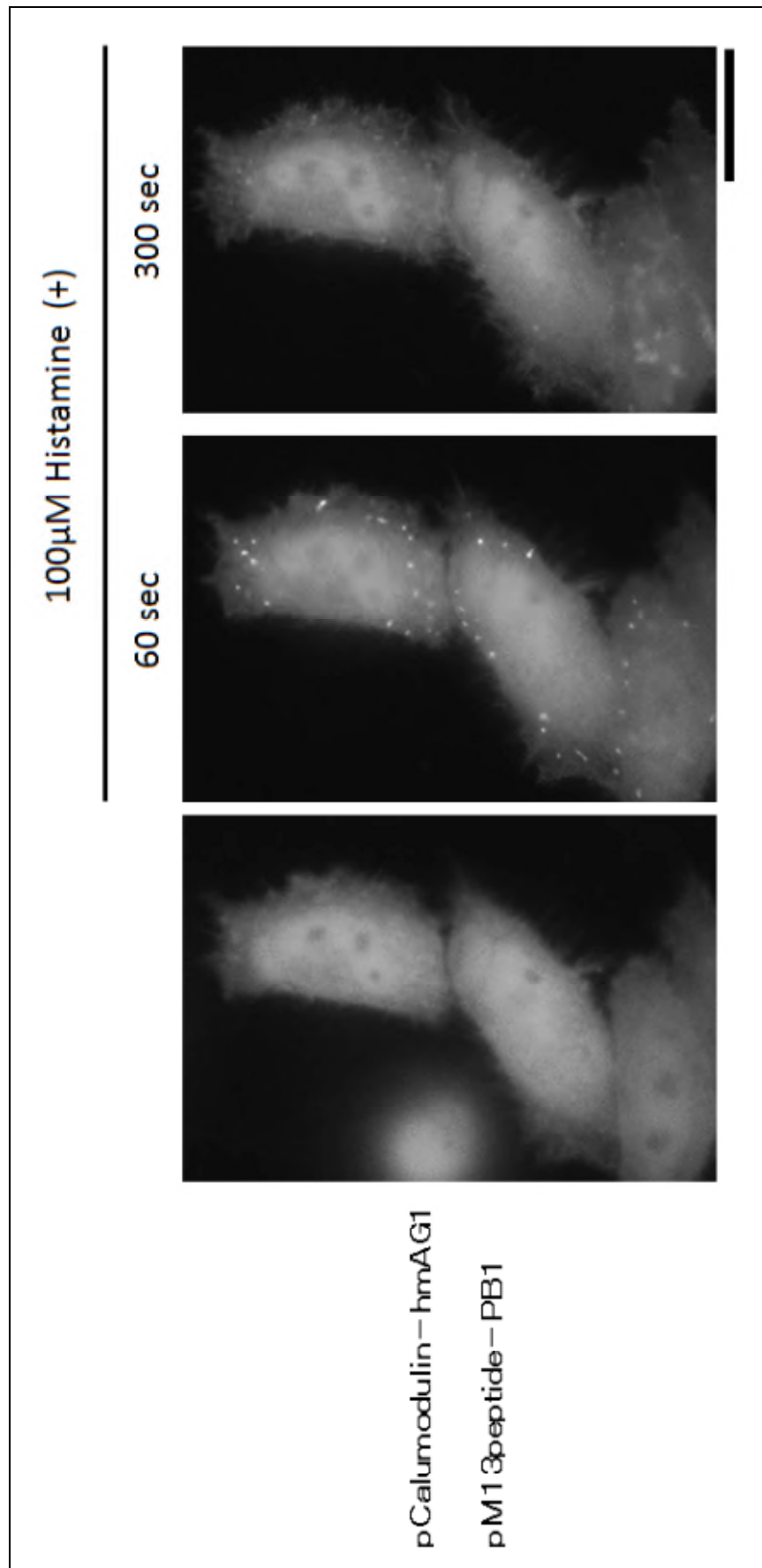


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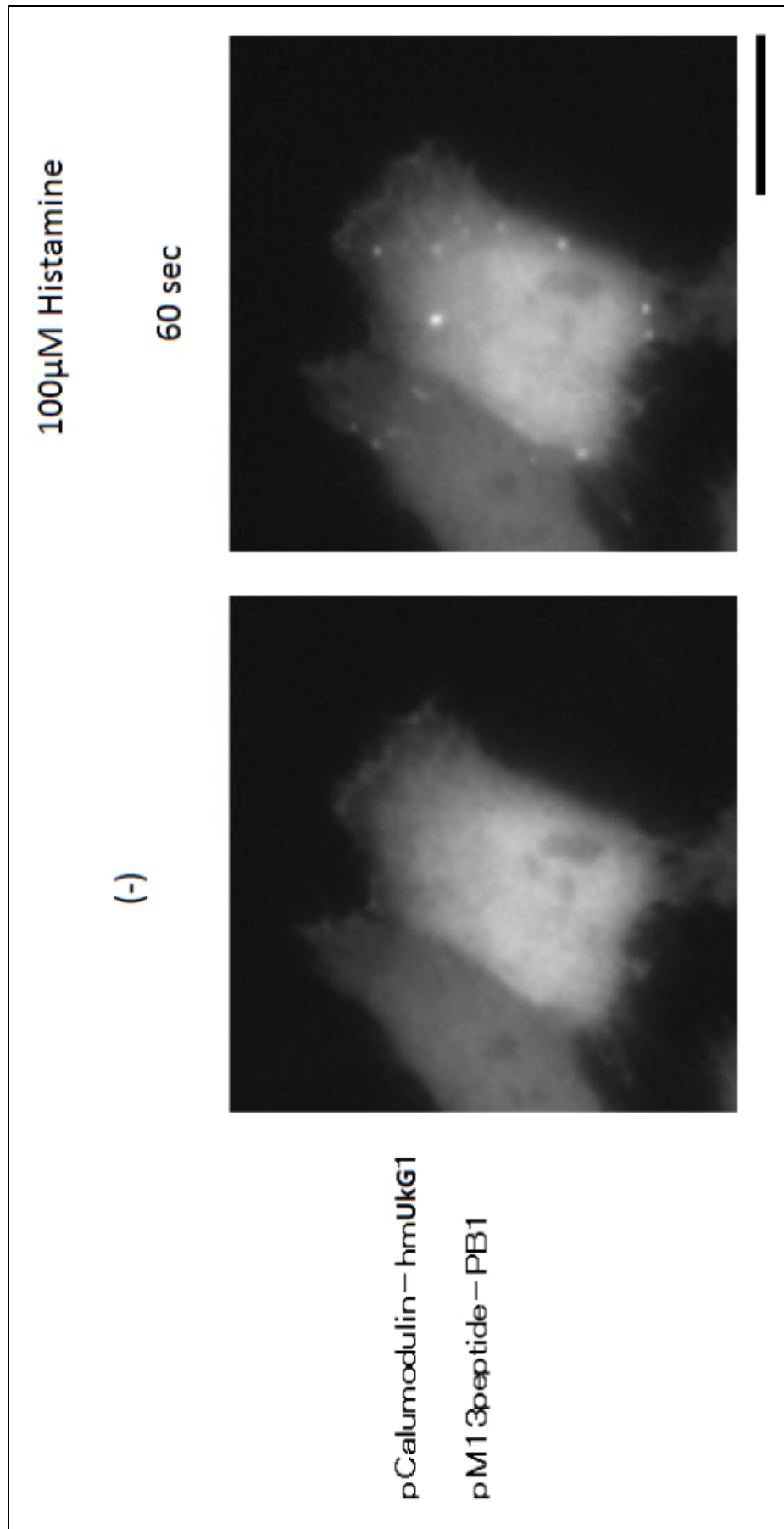


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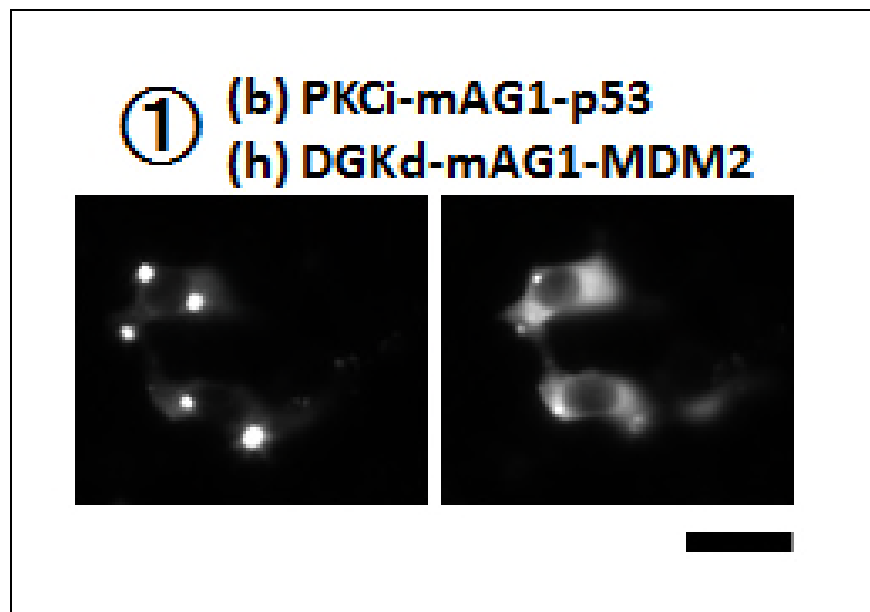


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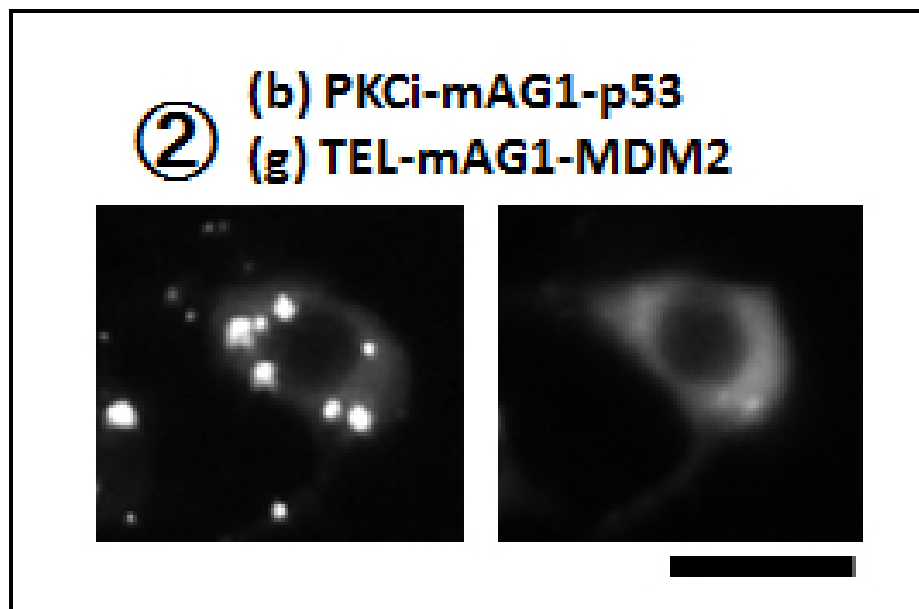


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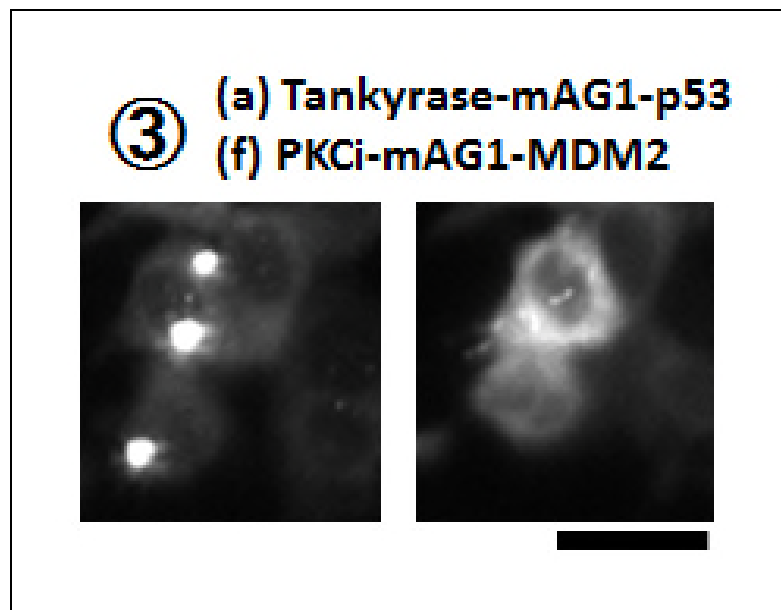


Fig. 40

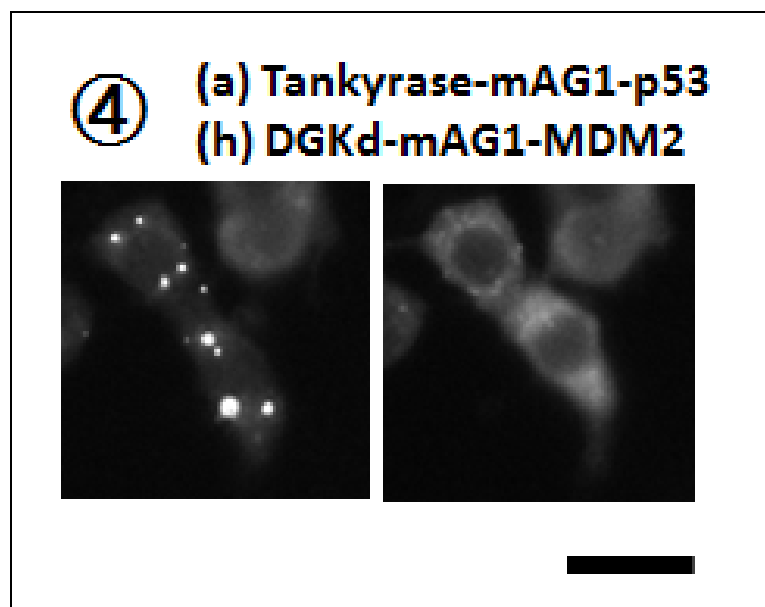


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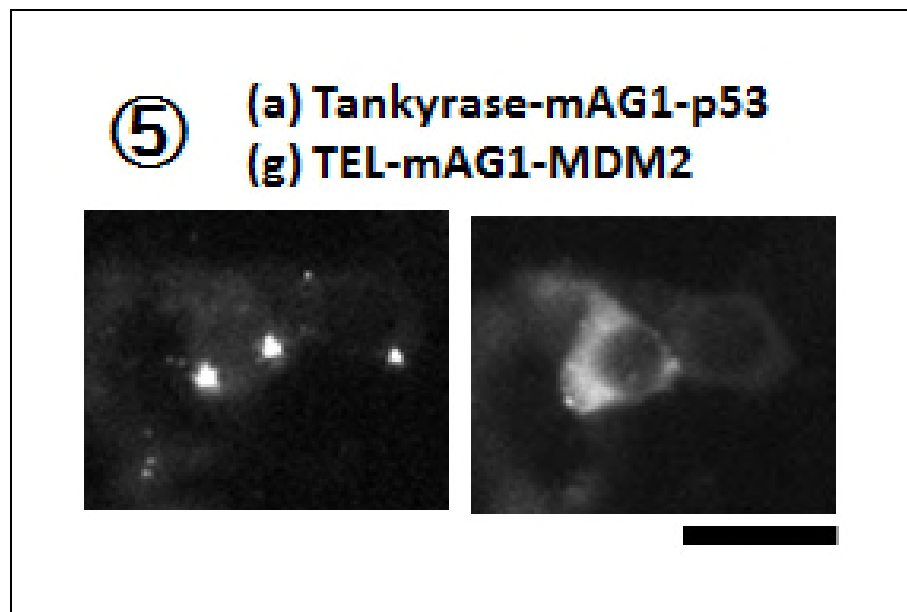


Fig. 42

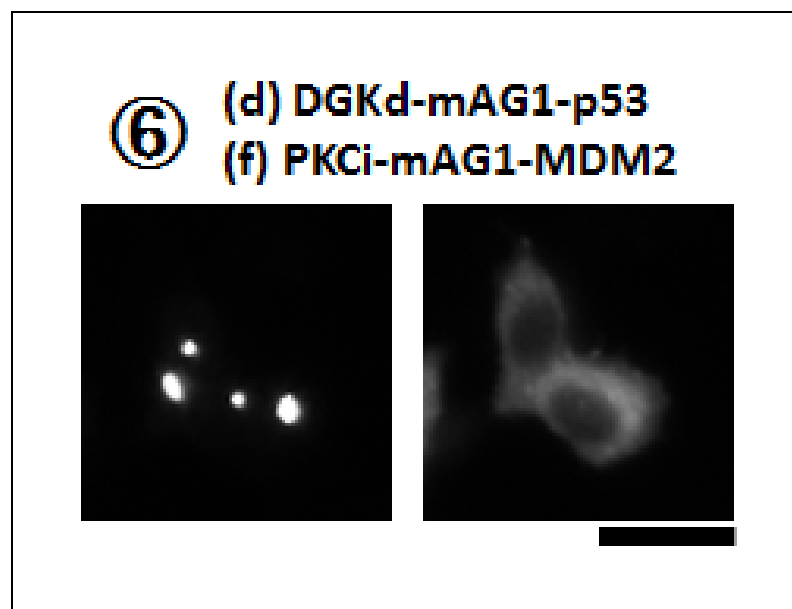


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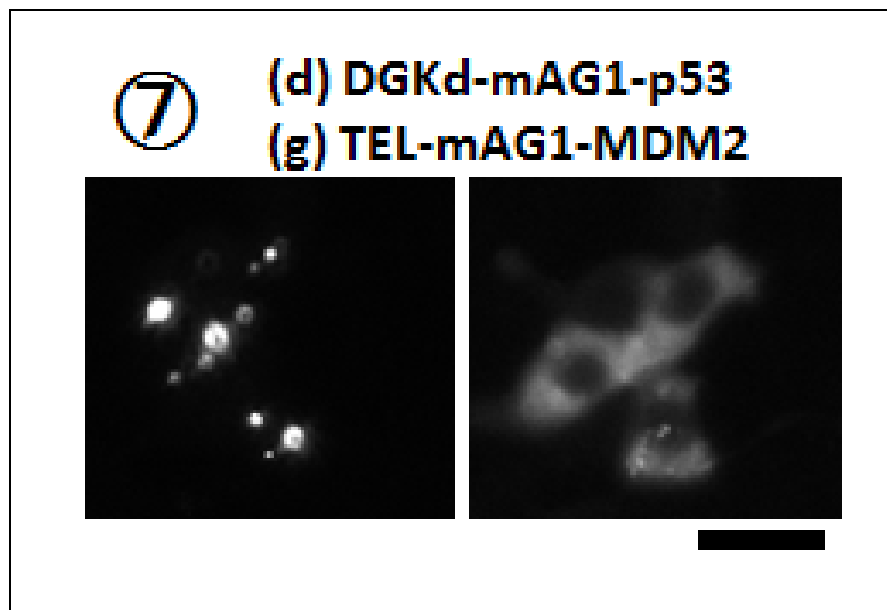


Fig. 44

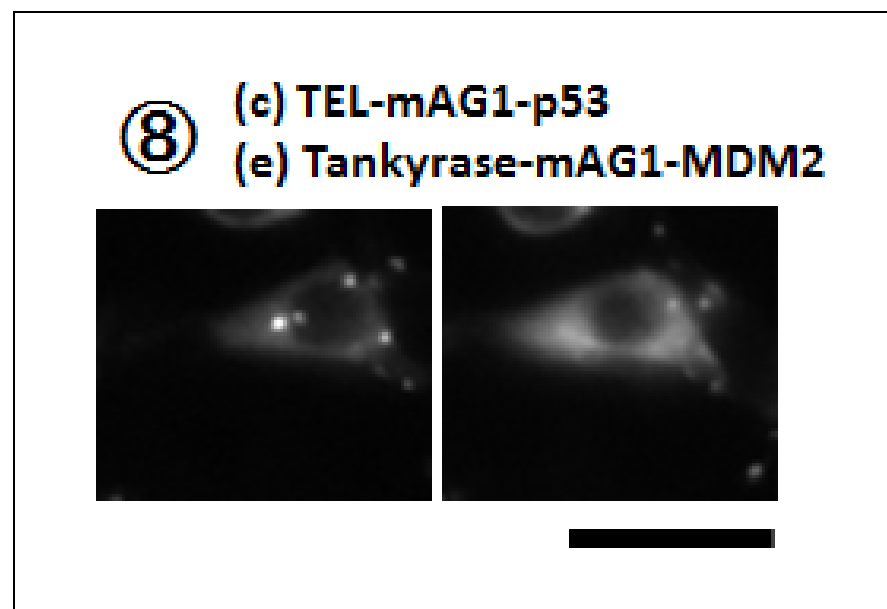
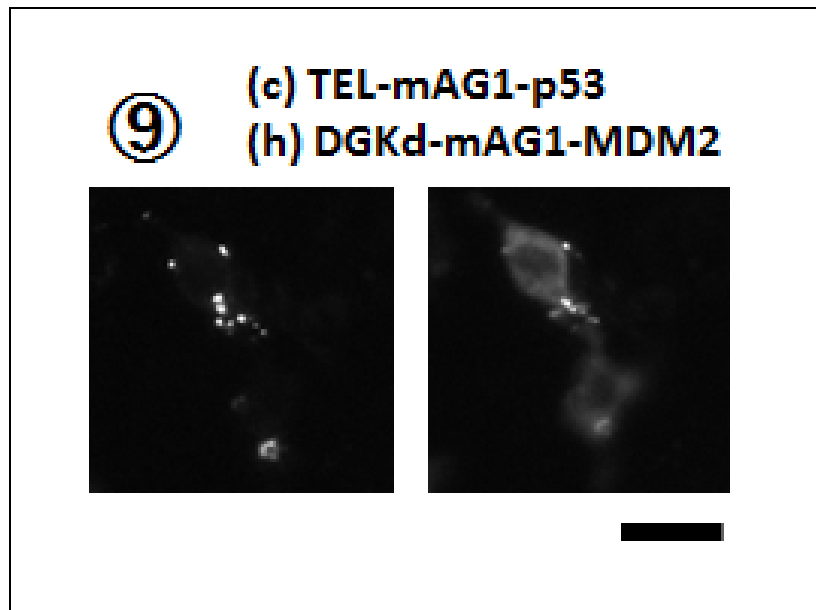


Fig. 45



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<150> JP2014-119441
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20      25      30
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Thr	Ile	Arg	Glu	His	Arg	Asp	Gly	Gly	Asn	Ala	Gly	Gly	Ile	Phe	Asn		
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			20					25					30				
Ser	Cys	Leu	Ser	Ala	Ala	Ser	Ser	Ile	Asp	Asn	Leu	Thr	Gly	Pro	Leu		
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Ala	Glu	Leu	Ala	Val	Gly	Gly	Ala	Ser	Asn	Ala	Gly	Asp	Gly	Ala	Ala		
		50				55					60						
Gly	Thr	Glu	Arg	Lys	Glu	Gly	Glu	Val	Ala	Gly	Leu	Asp	Met	Asn	Ile		
		65			70					75				80			
Ser	Gln	Phe	Leu	Lys	Ser	Leu	Gly	Leu	Glu	His	Leu	Arg	Asp	Ile	Phe		
			85					90						95			
Glu	Thr	Glu	Gln	Ile	Thr	Leu	Asp	Val	Leu	Ala	Asp	Met	Gly	His	Glu		
			100					105					110				
Glu	Leu	Lys	Glu	Ile	Gly	Ile	Asn	Ala	Tyr	Gly	His	Arg	His	Lys	Leu		
		115					120					125					
Ile	Lys	Gly	Val	Glu	Arg	Leu	Leu	Gly	Gly	Gln	Gln	Gly	Thr	Asn	Pro		
		130				135					140						
Tyr	Leu	Thr	Phe	His	Cys	Val	Asn	Gln	Gly	Thr	Ile	Leu	Leu	Asp	Leu		
					150					155				160			
Ala	Pro	Glu	Asp	Lys	Glu	Tyr	Gln	Ser	Val	Glu	Glu	Glu	Met	Gln	Ser		
				165					170					175			
Thr	Ile	Arg	Glu	His	Arg	Asp	Gly	Gly	Asn	Ala	Gly	Gly	Ile	Phe	Asn		
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Arg	Tyr	Asn	Val	Ile	Arg	Ile											
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ggc	acc	gtg	aac	ggc	cac	aac	ttc	gtg	atc	gag	ggc	gag	ggc	aag	ggc		96

IBPF15-520WO-E(seq)fin

Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly		
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Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly		
		35					40					45					
gcc	ccc	ctg	ccc	ttc	gcc	tac	gac	atc	ctg	acc	acc	gtg	ttc	cag	tac	192	
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr		
		50				55					60						
ggc	aac	agg	gcc	ttc	acc	aag	tac	ccc	gcc	gac	atc	cag	gac	tac	ttc	240	
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe		
65				70				75						80			
aag	cag	acc	ttc	ccc	gag	ggc	tac	cac	tgg	gag	agg	agc	atg	acc	tac	288	
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr		
				85					90					95			
gag	gac	cag	ggc	atc	tgc	acc	gcc	acc	agc	aac	atc	agc	atg	agg	ggc	336	
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly		
			100				105						110				
gac	tgc	ttc	ttc	tac	gac	atc	agg	ttc	gac	ggc	acc	aac	ttc	ccc	ccc	384	
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	Pro	Pro		
			115				120					125					
aac	ggc	ccc	gtg	atg	cag	aag	aag	acc	ctg	aag	tgg	gag	ccc	agc	acc	432	
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr		
			130			135					140						
gag	aag	atg	tac	gtg	gag	gac	ggc	gtg	ctg	aag	ggc	gac	gtg	aac	atg	480	
Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met		
145				150					155					160			
agg	ctg	ctg	ctg	gag	ggc	ggc	ggc	cac	tac	agg	tgc	gac	ttc	aag	acc	528	
Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr		
				165					170					175			
acc	tac	aag	gcc	aag	aag	gag	gtg	agg	ctg	ccc	gac	gcc	cac	aag	atc	576	
Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Ile		
			180				185						190				
gac	cac	agg	atc	gag	atc	ctg	aag	cac	gac	aag	gac	tac	aac	aag	gtg	624	
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val		
			195				200					205					
aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	tcc	atg	ctg	ccc	agc	cag	672	
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln		
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gcc	aag															678	
Ala	Lys																
225																	

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			20					25					30				
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly		
		35					40					45					
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr		
		50				55					60						
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe		
65				70				75						80			
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr		
				85					90					95			
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly		
			100				105						110				
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	Pro	Pro		
			115				120					125					
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr		
						135					140						
Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met		

IBPF15-520WO-E(seq)fin

145	Arg	Leu	Leu	Leu	Glu	150	Gly	Gly	Gly	His	Tyr	155	Arg	Cys	Asp	Phe	Lys	160	Thr
				165	Lys		Lys	Glu	Val	Arg	Leu	170	Pro	Asp	Ala	His	Lys	175	Ile
	Thr	Tyr	Lys	180	Ile	Glu	Ile	Leu	Lys	185	His	Asp	Lys	Asp	Tyr	190	Asn	Lys	Val
	Asp	His	Arg	195	Glu	Asn	Ala	Val	200	Ala	Arg	Tyr	Ser	Met	205	Leu	Pro	Ser	Gln
	Lys	Leu	Tyr	210				215						220					
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Met	Val	Ser	Val	Ile	Lys	Glu	Glu	Met	Lys	Ile	Lys	Leu	His	Met	Glu				
1				5					10					15					
gga	aat	gta	aac	ggg	cat	gca	ttt	gtg	att	gaa	gga	gat	gga	aaa	gga				96
Gly	Asn	Val	Asn	Gly	His	Ala	Phe	Val	Ile	Glu	Gly	Asp	Gly	Lys	Gly				
			20					25					30						
aag	cct	tac	gat	ggg	aca	cag	act	tta	aac	ctg	aca	gtg	aaa	gaa	ggc				144
Lys	Pro	Tyr	Asp	Gly	Thr	Gln	Thr	Leu	Asn	Leu	Thr	Val	Lys	Glu	Gly				
		35					40					45							
gca	cct	ctc	cct	ttt	tct	tac	gac	atc	ttg	aca	aat	gcg	ttc	cag	tac				192
Ala	Pro	Leu	Pro	Phe	Ser	Tyr	Asp	Ile	Leu	Thr	Asn	Ala	Phe	Gln	Tyr				
	50				55						60								
gga	aat	aga	gca	ttc	act	aaa	tat	cca	gcc	gat	ata	cca	gac	tat	ttc				240
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Pro	Asp	Tyr	Phe				
65				70					75					80					
aag	cag	acg	ttt	ccc	gag	ggg	tat	tca	tg	gaa	aga	acc	atg	agt	tat				288
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	Ser	Trp	Glu	Arg	Thr	Met	Ser	Tyr				
			85						90					95					
gaa	gac	aac	gcc	att	tgc	aac	gtg	aga	agc	gag	atc	agc	atg	gaa	ggc				336
Glu	Asp	Asn	Ala	Ile	Cys	Asn	Val	Arg	Ser	Glu	Ile	Ser	Met	Glu	Gly				
			100					105					110						
gac	tgc	ttt	atc	tat	aaa	att	cgg	ttt	gat	ggc	aag	aac	ttt	ccc	ccc				384
Asp	Cys	Phe	Ile	Tyr	Lys	Ile	Arg	Phe	Asp	Gly	Lys	Asn	Phe	Pro	Pro				
		115					120					125							
aat	ggt	cca	gtt	atg	cag	aag	aaa	act	ttg	aag	tg	gaa	cca	tcc	act				432
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr				
	130					135					140								
gag	atg	atg	tac	gtg	cgt	gat	ggg	ttt	ctg	atg	ggg	gat	gtt	aac	atg				480
Glu	Met	Met	Tyr	Val	Arg	Asp	Gly	Phe	Leu	Met	Gly	Asp	Val	Asn	Met				
145				150					155					160					
gct	ctg	ttg	ctt	gaa	gga	ggg	ggc	cat	cac	cga	tgt	gac	ttc	aaa	act				528
Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	His	Arg	Cys	Asp	Phe	Lys	Thr				
				165				170						175					
tcc	tac	aaa	gcg	aaa	aag	gtt	gtg	cag	ttg	cca	gat	gcc	cac	aag	atc				576
Ser	Tyr	Lys	Ala	Lys	Lys	Val	Val	Gln	Leu	Pro	Asp	Ala	His	Lys	Ile				
			180					185					190						
gac	cat	cgt	atc	gag	atc	ttg	agc	cat	gac	agg	gat	tac	agc	aaa	gtc				624
Asp	His	Arg	Ile	Glu	Ile	Leu	Ser	His	Asp	Arg	Asp	Tyr	Ser	Lys	Val				
		195					200					205							
aag	ctg	tat	gag	aat	gcg	gtt	gct	cgc	aat	tct	ttg	ctg	cca	agt	cag				672
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Asn	Ser	Leu	Leu	Pro	Ser	Gln				
	210					215					220								
gct	tcg	aag	taa																684
Ala	Ser	Lys																	
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IBPF15-520WO-E(seq)fin

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 Lys Pro Tyr Asp Gly Thr Gln Thr Leu Asn Leu Thr Val Lys Glu Gly
 35 40 45
 Ala Pro Leu Pro Phe Ser Tyr Asp Ile Leu Thr Asn Ala Phe Gln Tyr
 50 55 60
 Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Pro Asp Tyr Phe
 65 70 75 80
 Lys Gln Thr Phe Pro Glu Gly Tyr Ser Trp Glu Arg Thr Met Ser Tyr
 85 90 95
 Glu Asp Asn Ala Ile Cys Asn Val Arg Ser Glu Ile Ser Met Glu Gly
 100 105 110
 Asp Cys Phe Ile Tyr Lys Ile Arg Phe Asp Gly Lys Asn Phe Pro Pro
 115 120 125
 Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr
 130 135 140
 Glu Met Met Tyr Val Arg Asp Gly Phe Leu Met Gly Asp Val Asn Met
 145 150 155 160
 Ala Leu Leu Leu Glu Gly Gly Gly His His Arg Cys Asp Phe Lys Thr
 165 170 175
 Ser Tyr Lys Ala Lys Lys Val Val Gln Leu Pro Asp Ala His Lys Ile
 180 185 190
 Asp His Arg Ile Glu Ile Leu Ser His Asp Arg Asp Tyr Ser Lys Val
 195 200 205
 Lys Leu Tyr Glu Asn Ala Val Ala Arg Asn Ser Leu Leu Pro Ser Gln
 210 215 220
 Ala Ser Lys
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 Gly Ser Val Asn Gly His Glu Phe Thr Ile Glu Gly Glu Gly Thr Gly
 20 25 30
 aga cct tac gag gga cat cag gag atg aca ctg cgc gtc aca atg gcc 144
 Arg Pro Tyr Glu Gly His Gln Glu Met Thr Leu Arg Val Thr Met Ala
 35 40 45
 gag ggc ggg cca atg cct ttc gcc ttc gac ctg gtg tcc cac gtg ttc 192
 Glu Gly Gly Pro Met Pro Phe Ala Phe Asp Leu Val Ser His Val Phe
 50 55 60
 tgt tac ggc cac aga gtt ttt acc aag tac cca gaa gag atc cca gac 240
 Cys Tyr Gly His Arg Val Phe Thr Lys Tyr Pro Glu Glu Ile Pro Asp
 65 70 75 80
 tat ttc aag cag gcc ttt cct gag ggc ctg tcc tgg gag agg tcc ctg 288
 Tyr Phe Lys Gln Ala Phe Pro Glu Gly Leu Ser Trp Glu Arg Ser Leu
 85 90 95
 gag ttc gag gac ggc ggc tcc gcc tcc gtg agc gcc cac atc agc ctg 336
 Glu Phe Glu Asp Gly Gly Ser Ala Ser Val Ser Ala His Ile Ser Leu

IBPF15-520WO-E(seq)fin

agg	ggc	aac	100	ttc	tac	cac	aag	105	tcc	aag	ttc	acc	ggc	110	aac	ttc	384
Arg	Gly	Asn	Thr	Phe	Tyr	His	Lys	Ser	Lys	Phe	Thr	Gly	Val	Asn	Phe		
ccc	gcc	gac	115	ggc	ccc	atc	atg	120	cag	aac	cag	agc	gtg	125	gac	tgg	432
Pro	Ala	Asp	Gly	Pro	Ile	Met	Gln	Asn	Gln	Ser	Val	Asp	Trp	Glu	Pro		
tcc	acc	gag	130	aag	atc	acc	ggc	135	agc	gac	ggc	gtg	140	aag	ggc	gac	480
Ser	Thr	Glu	Lys	Ile	Thr	Ala	Ser	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val		
145	acc	atg	tac	ctg	aag	ctg	gag	150	ggc	ggc	ggc	aac	cac	aag	tgc	cag	528
Thr	Met	Tyr	Leu	Lys	Leu	Glu	Gly	Gly	Gly	Asn	His	Lys	Cys	Gln	Met		
aag	acc	acc	165	tac	aag	ggc	ggc	170	aag	gag	atc	ctg	gag	atg	ccc	ggc	576
Lys	Thr	Thr	Tyr	Lys	Ala	Ala	Lys	Glu	Ile	Leu	Glu	Met	Pro	Gly	Asp		
cac	tac	atc	180	ggc	cac	agg	ctg	185	gtg	agg	aag	acc	gag	ggc	aac	atc	624
His	Tyr	Ile	Gly	His	Arg	Leu	Val	Arg	Lys	Thr	Glu	Gly	Asn	Ile	Thr		
195	gag	cag	gtg	gag	gac	gcc	gtg	200	gcc	cac	tcc						654
Glu	Gln	Val	Glu	Asp	Ala	Val	Ala	His	Ser								
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Arg	Pro	Tyr	20	Glu	Gly	His	Gln	Glu	Met	Thr	Leu	Arg	Val	Thr	Met
Glu	Gly	Gly	35	Pro	Met	Pro	Phe	Ala	Phe	Asp	Leu	Val	Ser	His	Val
50	Cys	Tyr	Gly	His	Arg	Val	Phe	Thr	Lys	Tyr	Pro	Glu	Glu	Ile	Pro
65	Tyr	Phe	Lys	Gln	Ala	Phe	Pro	Glu	Gly	Leu	Ser	Trp	Glu	Arg	Ser
85	Glu	Phe	Glu	Asp	Gly	Gly	Ser	Ala	Ser	Val	Ser	Ala	His	Ile	Ser
100	Arg	Gly	Asn	Thr	Phe	Tyr	His	Lys	Ser	Lys	Phe	Thr	Gly	Val	Asn
115	Pro	Ala	Asp	Gly	Pro	Ile	Met	Gln	Asn	Gln	Ser	Val	Asp	Trp	Glu
130	Ser	Thr	Glu	Lys	Ile	Thr	Ala	Ser	Asp	Gly	Val	Leu	Lys	Gly	Asp
145	Thr	Met	Tyr	Leu	Lys	Leu	Glu	Gly	Gly	Gly	Asn	His	Lys	Cys	Gln
165	Lys	Thr	Thr	Tyr	Lys	Ala	Ala	Lys	Glu	Ile	Leu	Glu	Met	Pro	Gly
180	His	Tyr	Ile	Gly	His	Arg	Leu	Val	Arg	Lys	Thr	Glu	Gly	Asn	Ile
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IBPF15-520WO-E(seq)fin

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Tyr Arg Met Glu Gly Ser Val Asn Gly His Glu Phe Thr Ile Glu Gly
20 25 30
gtg ggc acc ggc aac ccc tac gag ggc aag cag acc tcc gag ctg gtg      144
Val Gly Thr Gly Asn Pro Tyr Glu Gly Lys Gln Thr Ser Glu Leu Val
35 40 45
atc atc aag ccc aag ggc aag ccc ctg ccc ttc tcc ttc gac atc ctg      192
Ile Ile Lys Pro Lys Gly Lys Pro Leu Pro Phe Ser Phe Asp Ile Leu
50 55 60
tcc acc gtg ttc cag tac ggc aac agg tgc ttc acc aag tac ccc gcc      240
Ser Thr Val Phe Gln Tyr Gly Asn Arg Cys Phe Thr Lys Tyr Pro Ala
65 70 75 80
gac atg ccc gac tac ttc aag cag gcc ttc ccc gac ggc atg tcc tac      288
Asp Met Pro Asp Tyr Phe Lys Gln Ala Phe Pro Asp Gly Met Ser Tyr
85
gag agg tcc ttc ctg ttc gag gac ggc ggc gtg gcc acc gcc agc tgg      336
Glu Arg Ser Phe Leu Phe Glu Asp Gly Gly Val Ala Thr Ala Ser Trp
100 105 110
agc atc cgc ctg gag ggc aac tgc ttc atc cac aac tcc atc tac cac      384
Ser Ile Arg Leu Glu Gly Asn Cys Phe Ile His Asn Ser Ile Tyr His
115 120 125
ggc acc aac ttc ccc gcc gac ggc ccc gtg atg aag aag cag acc atc      432
Gly Thr Asn Phe Pro Ala Asp Gly Pro Val Met Lys Lys Gln Thr Ile
130 135 140
ggc tgg gac aag tcc tcc gag aag atg agc gtg gcc aag gag gtg ctg      480
Gly Trp Asp Lys Ser Ser Glu Lys Met Ser Val Ala Lys Glu Val Leu
145 150 155 160
agg ggc gac gtg acc cag ttc ctg ctg ctg gag ggc ggc ggc tac cag      528
Arg Gly Asp Val Thr Gln Phe Leu Leu Leu Glu Gly Gly Gly Tyr Gln
165 170 175
agg tgc cag ctg cac tcc acc tac aag acc gag aag ccc gtg gcc atg      576
Arg Cys Gln Leu His Ser Thr Tyr Lys Thr Glu Lys Pro Val Ala Met
180 185 190
ccc ccc agc cac gtg gtg gag cac cag atc gtg agg acc gac ctg ggc      624
Pro Pro Ser His Val Val Glu His Gln Ile Val Arg Thr Asp Leu Gly
195 200 205
cag acc gcc aag ggc ttc aag gtg aag ctg gag gag cac gcc gag gcc      672
Gln Thr Ala Lys Gly Phe Lys Val Lys Leu Glu Glu His Ala Glu Ala
210 215 220
cac gtg aac ccc ctg aag gtg aag
His Val Asn Pro Leu Lys Val Lys
225 230

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35 40 45
Ile Ile Lys Pro Lys Gly Lys Pro Leu Pro Phe Ser Phe Asp Ile Leu
50 55 60
Ser Thr Val Phe Gln Tyr Gly Asn Arg Cys Phe Thr Lys Tyr Pro Ala
65 70 75 80
Asp Met Pro Asp Tyr Phe Lys Gln Ala Phe Pro Asp Gly Met Ser Tyr
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Glu Arg Ser Phe Leu Phe Glu Asp Gly Gly Val Ala Thr Ala Ser Trp
100 105 110

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IBPF15-520WO-E(seq)fin

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	130					135					140				
Gly	Trp	Asp	Lys	Ser	Ser	Glu	Lys	Met	Ser	Val	Ala	Lys	Glu	Val	Leu
	145				150					155					160
Arg	Gly	Asp	Val	Thr	Gln	Phe	Leu	Leu	Leu	Glu	Gly	Gly	Gly	Tyr	Gln
				165					170					175	
Arg	Cys	Gln	Leu	His	Ser	Thr	Tyr	Lys	Thr	Glu	Lys	Pro	Val	Ala	Met
			180					185					190		
Pro	Pro	Ser	His	Val	Val	Glu	His	Gln	Ile	Val	Arg	Thr	Asp	Leu	Gly
		195					200					205			
Gln	Thr	Ala	Lys	Gly	Phe	Lys	Val	Lys	Leu	Glu	Glu	His	Ala	Glu	Ala
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1				5					10					15		
ggc	tcc	gtc	aat	ggg	cat	gag	ttc	aca	ggt	gaa	ggg	gaa	ggc	aca	ggc	96
Gly	Ser	Val	Asn	Gly	His	Glu	Phe	Thr	Val	Glu	Gly	Glu	Gly	Thr	Gly	
			20					25					30			
aga	cct	tac	gag	gga	aag	cac	aaa	ata	aca	ctt	gac	gtc	acc	aag	ggg	144
Arg	Pro	Tyr	Glu	Gly	Lys	His	Lys	Ile	Thr	Leu	Asp	Val	Thr	Lys	Gly	
		35					40					45				
ggg	cca	ctg	cct	ttt	gcg	ttt	gac	ttg	ttg	tct	aca	gtg	ttc	tct	tat	192
Gly	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Leu	Leu	Ser	Thr	Val	Phe	Ser	Tyr	
	50				55						60					
ggc	aac	aga	gcc	ctt	act	aaa	tat	cct	gac	gat	atc	ccc	gac	tat	ttc	240
Gly	Asn	Arg	Ala	Leu	Thr	Lys	Tyr	Pro	Asp	Asp	Ile	Pro	Asp	Tyr	Phe	
	65				70				75						80	
aaa	caa	tgc	ttt	cct	gga	ggc	tat	tca	tgg	gaa	aga	aag	ttt	gag	ttc	288
Lys	Gln	Cys	Phe	Pro	Gly	Gly	Tyr	Ser	Trp	Glu	Arg	Lys	Phe	Glu	Phe	
				85					90					95		
gaa	gat	ggc	ggg	ttg	gcg	ata	gcc	aaa	gcg	gaa	ata	agc	ctt	aaa	gga	336
Glu	Asp	Gly	Gly	Leu	Ala	Ile	Ala	Lys	Ala	Glu	Ile	Ser	Leu	Lys	Gly	
			100					105					110			
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Asn	Cys	Phe	Glu	His	Lys	Ser	Thr	Ile	Glu	Gly	Thr	Phe	Pro	Asp	Ser	
		115					120					125				
agt	cct	att	atg	caa	aac	aag	acg	cta	gga	tgg	gaa	cca	tcc	acc	gag	432
Ser	Pro	Ile	Met	Gln	Asn	Lys	Thr	Leu	Gly	Trp	Glu	Pro	Ser	Thr	Glu	
	130					135					140					
aag	atg	acc	gtc	cgc	gac	gga	tca	atg	aag	ggg	gat	gat	gcg	gcc	tac	480
Lys	Met	Thr	Val	Arg	Asp	Gly	Ser	Met	Lys	Gly	Asp	Asp	Ala	Ala	Tyr	
	145				150					155					160	
ctc	aaa	ttg	gtg	gga	ggc	ggc	aat	cac	aaa	tgc	tac	ttt	aca	act	acc	528
Leu	Lys	Leu	Val	Gly	Gly	Gly	Asn	His	Lys	Cys	Tyr	Phe	Thr	Thr	Thr	
				165					170					175		
tac	aca	gcg	aag	aaa	aag	att	cct	aac	ctg	cca	gga	agc	cat	ttc	att	576
Tyr	Thr	Ala	Lys	Lys	Lys	Ile	Pro	Asn	Leu	Pro	Gly	Ser	His	Phe	Ile	
			180					185					190			
ggc	cat	cgc	atc	tcc	agt	gtc	gtc	gag	ggc	act	aaa	att	aaa	gtg	atg	624
Gly	His	Arg	Ile	Ser	Ser	Val	Val	Glu	Gly	Thr	Lys	Ile	Lys	Val	Met	
		195					200					205				
gaa	gat	gca	att	gct	cat	ctt	tac	cct	ttt	aat	ggc	agc				663
Glu	Asp	Ala	Ile	Ala	His	Leu	Tyr	Pro	Phe	Asn	Gly	Ser				

IBPF15-520WO-E(seq)fin

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 Arg Pro Tyr Glu Gly Lys His Lys Ile Thr Leu Asp Val Thr Lys Gly
 35 40 45
 Gly Pro Leu Pro Phe Ala Phe Asp Leu Leu Ser Thr Val Phe Ser Tyr
 50 55 60
 Gly Asn Arg Ala Leu Thr Lys Tyr Pro Asp Asp Ile Pro Asp Tyr Phe
 65 70 75 80
 Lys Gln Cys Phe Pro Gly Gly Tyr Ser Trp Glu Arg Lys Phe Glu Phe
 85 90 95
 Glu Asp Gly Gly Leu Ala Ile Ala Lys Ala Glu Ile Ser Leu Lys Gly
 100 105 110
 Asn Cys Phe Glu His Lys Ser Thr Ile Glu Gly Thr Phe Pro Asp Ser
 115 120 125
 Ser Pro Ile Met Gln Asn Lys Thr Leu Gly Trp Glu Pro Ser Thr Glu
 130 135 140
 Lys Met Thr Val Arg Asp Gly Ser Met Lys Gly Asp Asp Ala Ala Tyr
 145 150 155 160
 Leu Lys Leu Val Gly Gly Gly Asn His Lys Cys Tyr Phe Thr Thr Thr
 165 170 175
 Tyr Thr Ala Lys Lys Lys Ile Pro Asn Leu Pro Gly Ser His Phe Ile
 180 185 190
 Gly His Arg Ile Ser Ser Val Val Glu Gly Thr Lys Ile Lys Val Met
 195 200 205
 Glu Asp Ala Ile Ala His Leu Tyr Pro Phe Asn Gly Ser
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 ggc act gta aac ggg cat aat ttc gtg att gaa gga gaa gga aaa gga 96
 Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly Lys Gly
 20 25 30
 aat cct tac gag gga acg cag att tta gac ctg aac gtc act gaa ggc 144
 Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr Glu Gly
 35 40 45
 gca cct ctg cct ttc gct tac gat atc ttg aca aca gtg ttc cag tac 192
 Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr
 50 55 60
 ggc aac agg gca ttc acc aag tac cca gca gat att cag gac tat ttc 240
 Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe
 65 70 75 80
 aag cag act ttt cct gag ggg tat cac tgg gaa aga agc atg act tat 288
 Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr
 85 90 95
 gaa gac cag ggc att tgc acc gcc aca agc aac ata agc atg cgt ggc 336
 Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly

IBPF15-520WO-E(seq)fin

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Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Val	Asn	Phe	Pro	Pro	
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Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr	
	130					135					140					
gag	aaa	atg	tac	gta	cgt	gat	gga	gtg	ctg	aag	ggg	gat	ggt	aac	atg	480
Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met	
145					150					155					160	
gct	ctg	tgt	ctt	gaa	gga	ggg	ggc	cat	tat	cga	tgt	gat	ttc	aaa	act	528
Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr	
				165					170					175		
act	tac	aaa	gca	aag	aag	gat	gtc	cgt	ttg	cca	gac	gag	cac	aaa	gtg	576
Thr	Tyr	Lys	Ala	Lys	Lys	Asp	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Val	
			180					185					190			
gac	cac	cgc	att	gag	att	tgt	aag	cat	gac	aaa	gat	tac	aac	aag	gtc	624
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val	
		195					200					205				
aag	ctc	tat	gag	aat	gcc	gtt	gct	cgc	tat	tct	atg	ctg	ccg	agt	cag	672
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln	
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Ala	Lys															
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			20					25					30		
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly
		35					40					45			
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr
		50				55					60				
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe
65					70				75						80
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr
				85				90					95		
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly
			100					105					110		
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Val	Asn	Phe	Pro	Pro
		115					120					125			
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr
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Glu	Lys	Met	Tyr	Val	Arg	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met
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Ala	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr
				165					170					175	
Thr	Tyr	Lys	Ala	Lys	Lys	Asp	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Val
			180					185					190		
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val
		195					200					205			
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln
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gga  tgt  gtc  aac  ggc  cac  tcc  ttc  aag  att  gag  ggt  gac  ggc  aaa  ggc      96
Gly Cys Val Asn Gly His Ser Phe Lys Ile Glu Gly Asp Gly Lys Gly
20
aaa  ccg  tac  gag  gga  gac  caa  act  gtg  aag  ctg  cgt  gtt  act  gaa  gga      144
Lys Pro Tyr 35 Glu Gly Asp Gln Thr 40 Val Lys Leu Arg 45 Val Thr Glu Gly
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Gly Pro Leu Pro Phe Ala Phe Asp Ile Leu Ser Ala Ser Met Cys Tyr
50
gga  aac  agg  tgt  ttt  acc  aaa  tat  ccg  gca  gag  att  ccc  gac  att  ttc      240
Gly Asn Arg Cys Phe Thr 70 Lys Tyr Pro Ala Glu Ile Pro Asp Ile Phe
65
aag  cag  aca  ttt  cct  gaa  ggc  tac  tca  tgg  gaa  aga  gcc  ttg  aca  ttt      288
Lys Gln Thr Phe Pro 85 Glu Gly Tyr Ser Trp 90 Glu Arg Ala Leu Thr Phe
gaa  gat  gga  ggg  ttt  gct  tca  tca  agc  tcg  cac  atc  agt  gtc  cgt  ggc      336
Glu Asp Gly Gly 100 Phe Ala Ser Ser 105 Ser His Ile Ser 110 Val Arg Gly
aac  tgc  ttc  ttc  tac  gac  gtc  aaa  tat  cat  ggc  gta  aac  ttc  cct  tcc      384
Asn Cys Phe Phe Tyr Asp Val Lys Tyr His Gly Val Asn Phe Pro Ser
115
aat  gga  cca  att  atg  caa  aga  aag  aca  atc  ggc  tgg  caa  cca  tcc  aca      432
Asn Gly Pro Ile Met Gln Arg 135 Lys Thr Ile Gly Trp 140 Gln Pro Ser Thr
gag  aaa  ttg  tac  atc  gga  gag  gga  acg  ctg  aag  ggt  gat  gat  acg  atg      480
Glu Lys Leu Tyr Ile Gly Glu Gly Thr Leu Lys Gly Asp Asp Thr Met
145
ttc  ctc  aag  ctc  gaa  gga  ggg  gga  act  cat  aaa  tgc  cac  gtc  cta  acc      528
Phe Leu Lys Leu 165 Glu Gly Gly Gly Thr His 170 Lys Cys His Val Leu Thr
act  tac  aaa  acg  aag  aaa  gat  gtc  cag  atg  cca  gac  agc  cac  ttc  att      576
Thr Tyr Lys Thr 180 Lys Lys Asp Val Gln Met Pro Asp Ser His Phe Ile
gac  cat  cgt  ctc  ctg  acc  agc  cac  ctt  gat  aag  gaa  tgc  aac  gtg      624
Asp His Arg Leu Leu Thr Ser His 200 Leu Asp Lys Glu Cys Asn Asn Val
195
gaa  ttg  cgc  gag  cac  gca  gtt  gcg  cgt  aac  tca  agt  ctg  cct  tcc  cgt      672
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Lys Pro Tyr 35 Glu Gly Asp Gln Thr 40 Val Lys Leu Arg 45 Val Thr Glu Gly
Gly Pro Leu Pro Phe Ala Phe Asp Ile Leu Ser Ala Ser Met Cys Tyr
50
Gly Asn Arg Cys Phe Thr 70 Lys Tyr Pro Ala Glu Ile Pro Asp Ile Phe
65
Lys Gln Thr Phe Pro 85 Glu Gly Tyr Ser Trp 90 Glu Arg Ala Leu Thr Phe
85

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IBPFI5-520WO-E(seq)fin

Glu	Asp	Gly	Gly	Phe	Ala	Ser	Ser	Ser	Ser	His	Ile	Ser	Val	Arg	Gly
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		115					120					125			
Asn	Gly	Pro	Ile	Met	Gln	Arg	Lys	Thr	Ile	Gly	Trp	Gln	Pro	Ser	Thr
	130					135					140				
Glu	Lys	Leu	Tyr	Ile	Gly	Glu	Gly	Thr	Leu	Lys	Gly	Asp	Asp	Thr	Met
	145				150					155					160
Phe	Leu	Lys	Leu	Glu	Gly	Gly	Gly	Thr	His	Lys	Cys	His	Val	Leu	Thr
				165					170					175	
Thr	Tyr	Lys	Thr	Lys	Lys	Asp	Val	Gln	Met	Pro	Asp	Ser	His	Phe	Ile
			180					185					190		
Asp	His	Arg	Leu	Leu	Thr	Ser	His	Leu	Asp	Lys	Glu	Cys	Asn	Asn	Val
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aag gag gac gct gca agg gag att aga cgt ttc agc ttc tgc tgt agc	98	
Lys Glu Asp Ala Ala Arg Glu Ile Arg Arg Phe Ser Phe Cys Cys Ser		
	15 20 25	
cct gag cct gag gct gaa gca gag gct gct gct ggt cct gga cca tgt	146	
Pro Glu Pro Glu Ala Glu Ala Glu Ala Ala Gly Pro Gly Pro Cys		
	30 35 40	
gag cgt ctt ctg tct cgg gta gct gcc ttg ttc cca gca ctg aga cct	194	
Glu Arg Leu Leu Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro		
	45 50 55 60	
ggt ggc ttc cag gcg cac tac cgc gat gag gac ggg gac ttg gtt gcc	242	
Gly Gly Phe Gln Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala		
	65 70 75	
ttt tcc agt gac gag gaa ttg aca atg gcc atg tcc tac gtg aag gat	290	
Phe Ser Ser Asp Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp		
	80 85 90	
gac atc ttc cga atc tac att aaa gag aaa acc ggg aac tcc gct gac	338	
Asp Ile Phe Arg Ile Tyr Ile Lys Glu Lys Thr Gly Asn Ser Ala Asp		
	95 100 105	
ggt ggc gga gga tcg ggt gga agt ggt ggt tca gga gga gga tcg acc	386	
Gly Gly Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Thr		
	110 115 120	
caa gga act agt atg gtg agc gtg atc aag ccc gag atg aag atc aag	434	
Gln Gly Thr Ser Met Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys		
	125 130 135 140	
ctg tgc atg agg ggc acc gtg aac ggc cac aac ttc gtg atc gag ggc	482	
Leu Cys Met Arg Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly		
	145 150 155	
gag ggc aag ggc aac ccc tac gag ggc acc cag atc ctg gac ctg aac	530	
Glu Gly Lys Gly Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn		
	160 165 170	

IBPF15-520WO-E(seq)fin

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Val	Thr	Glu	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	
		175					180					185				
gtg	ttc	cag	tac	ggc	aac	agg	gcc	ttc	acc	aag	tac	cct	gcc	gac	atc	626
Val	Phe	Gln	Tyr	Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	
	190					195					200					
cag	gac	tac	ttc	aag	cag	acc	ttc	ccc	gag	ggc	tac	cac	tgg	gag	agg	674
Gln	Asp	Tyr	Phe	Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	
205				210						215					220	
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Ser	Met	Thr	Tyr	Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	
				225					230					235		
agc	atg	agg	gga	gac	tgc	ttc	ttc	tac	gac	atc	agg	ttc	gac	ggc	acc	770
Ser	Met	Arg	Gly	Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	
			240					245					250			
aac	ttc	cct	ccc	aac	ggc	cca	gtg	atg	cag	aag	aag	act	ctg	aag	tgg	818
Asn	Phe	Pro	Pro	Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	
		255					260					265				
gag	cct	agc	acc	gag	aag	atg	tac	gtg	gag	gac	ggc	gtg	ctg	aag	ggc	866
Glu	Pro	Ser	Thr	Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	
	270					275					280					
gac	gtg	aac	atg	agg	ctg	ctg	ctg	gag	gga	ggc	ggc	cac	tac	agg	tgc	914
Asp	Val	Asn	Met	Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	
285					290					295					300	
gac	ttc	aag	acc	acc	tac	aag	gcc	aag	aag	gag	gtg	agg	ctg	ccc	gac	962
Asp	Phe	Lys	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	
				305					310					315		
gcc	cac	aag	atc	gac	cac	agg	atc	gag	atc	ctg	aag	cac	gac	aag	gac	1010
Ala	His	Lys	Ile	Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	
			320					325					330			
tac	aac	aag	gtg	aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	tcc	atg	1058
Tyr	Asn	Lys	Val	Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	
		335					340					345				
ctg	ccc	agc	cag	gcc	aag	accgtaa										1084
Leu	Pro	Ser	Gln	Ala	Lys											
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			20					25					30			
Ala	Glu	Ala	Glu	Ala	Ala	Ala	Gly	Pro	Gly	Pro	Cys	Glu	Arg	Leu	Leu	
		35					40					45				
Ser	Arg	Val	Ala	Ala	Leu	Phe	Pro	Ala	Leu	Arg	Pro	Gly	Gly	Phe	Gln	
	50					55					60					
Ala	His	Tyr	Arg	Asp	Glu	Asp	Gly	Asp	Leu	Val	Ala	Phe	Ser	Ser	Asp	
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Glu	Glu	Leu	Thr	Met	Ala	Met	Ser	Tyr	Val	Lys	Asp	Asp	Ile	Phe	Arg	
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Ile	Tyr	Ile	Lys	Glu	Lys	Thr	Gly	Asn	Ser	Ala	Asp	Gly	Gly	Gly	Gly	
			100					105					110			
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	Thr	Ser	
		115					120					125				
Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	Met	Arg	
	130					135					140					
Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly	
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Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly	
				165					170					175		
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr	
			180					185					190			

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Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe
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Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr
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Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly
225					230					235					240
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	Pro	Pro
				245					250					255	
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr
			260					265					270		
Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met
		275					280					285			
Arg	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr	
	290				295					300					
Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Ile
305					310					315					320
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val
				325					330					335	
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln
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Ala Lys

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	1				5					10				
ctg tgc atg agg ggc acc gtg aac ggc cac aac ttc gtg atc gag ggc													98	
Leu Cys Met Arg Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly														
	15				20				25					
gag ggc aag ggc aac ccc tac gag ggc acc cag atc ctg gac ctg aac													146	
Glu Gly Lys Gly Asn Pro Tyr Gly Thr Gln Ile Leu Asp Leu Asn														
	30				35				40					
gtg acc gag ggc gcc cct ctg ccc ttc gcc tac gac atc ctg acc acc													194	
Val Thr Glu Gly Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr														
	45				50				55				60	
gtg ttc cag tac ggc aac agg gcc ttc acc aag tac cct gcc gac atc													242	
Val Phe Gln Tyr Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile														
	65				70								75	
cag gac tac ttc aag cag acc ttc ccc gag ggc tac cac tgg gag agg													290	
Gln Asp Tyr Phe Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg														
	80								85				90	
agc atg acc tac gag gac cag ggc atc tgc acc gcc acc agc aac atc													338	
Ser Met Thr Tyr Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile														
	95								100				105	
agc atg agg gga gac tgc ttc ttc tac gac atc agg ttc gac ggc acc													386	
Ser Met Arg Gly Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr														
	110				115									
aac ttc cct ccc aac ggc cca gtg atg cag aag act ctg aag tgg													434	
Asn Phe Pro Pro Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp														
	125				130									140
									135					

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gag	cct	agc	acc	gag	aag	atg	tac	gtg	gag	gac	ggc	gtg	ctg	aag	ggc	482
Glu	Pro	Ser	Thr	Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	
				145					150					155		
gac	gtg	aac	atg	agg	ctg	ctg	ctg	gag	gga	ggc	ggc	cac	tac	agg	tgc	530
Asp	Val	Asn	Met	Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	
			160					165					170			
gac	ttc	aag	acc	acc	tac	aag	gcc	aag	aag	gag	gtg	agg	ctg	ccc	gac	578
Asp	Phe	Lys	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	
		175					180					185				
gcc	cac	aag	atc	gac	cac	agg	atc	gag	atc	ctg	aag	cac	gac	aag	gac	626
Ala	His	Lys	Ile	Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	
			190			195					200					
tac	aac	aag	gtg	aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	tcc	atg	674
Tyr	Asn	Lys	Val	Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	
205					210					215					220	
ctg	ccc	agc	cag	gcc	aag	act	agt	aac	tcc	gct	gac	ggg	ggc	gga	gga	722
Leu	Pro	Ser	Gln	Ala	Lys	Thr	Ser	Asn	Ser	Ala	Asp	Gly	Gly	Gly	Gly	
			225					230						235		
tcg	ggg	gga	agt	ggg	ggg	tca	gga	gga	gga	tcg	acc	caa	gga	act	ggg	770
Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	Thr	Gly	
			240					245					250			
atg	gcg	tcg	ctc	acc	gtg	aag	gcc	tac	ctt	ctg	ggc	aag	gag	gac	gct	818
Met	Ala	Ser	Leu	Thr	Val	Lys	Ala	Tyr	Leu	Leu	Gly	Lys	Glu	Asp	Ala	
		255					260					265				
gca	agg	gag	att	aga	cgt	ttc	agc	ttc	tg	tg	agc	cct	gag	cct	gag	866
Ala	Arg	Glu	Ile	Arg	Arg	Phe	Ser	Phe	Cys	Cys	Ser	Pro	Glu	Pro	Glu	
		270				275					280					
gct	gaa	gca	gag	gct	gct	gct	ggg	cct	gga	cca	tgt	gag	cgt	ctt	ctg	914
Ala	Glu	Ala	Glu	Ala	Ala	Ala	Gly	Pro	Gly	Pro	Cys	Glu	Arg	Leu	Leu	
285				290					295						300	
tct	cgg	gta	gct	gcc	ttg	ttc	cca	gca	ctg	aga	cct	ggg	ggc	ttc	cag	962
Ser	Arg	Val	Ala	Ala	Leu	Phe	Pro	Ala	Leu	Arg	Pro	Gly	Gly	Phe	Gln	
				305				310						315		
gcg	cac	tac	cg	gat	gag	gac	ggg	gac	ttg	gtt	gcc	ttt	tcc	agt	gac	1010
Ala	His	Tyr	Arg	Asp	Glu	Asp	Gly	Asp	Leu	Val	Ala	Phe	Ser	Ser	Asp	
			320				325					330				
gag	gaa	ttg	aca	atg	gcc	atg	tcc	tac	gtg	aag	gat	gac	atc	ttc	cga	1058
Glu	Glu	Leu	Thr	Met	Ala	Met	Ser	Tyr	Val	Lys	Asp	Asp	Ile	Phe	Arg	
		335					340					345				
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Ile	Tyr	Ile	Lys	Glu	Lys											
	350															

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Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly
			20				25					30			
Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly
		35				40						45			
Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr
	50				55					60					
Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe
65				70				75						80	
Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr
				85				90					95		
Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly
			100				105					110			
Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	Pro	Pro
		115					120					125			
Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr
	130					135					140				

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Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met
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Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr
				165					170					175	
Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	Lys	Ile
			180					185					190		
Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	Lys	Val
		195					200					205			
Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	Ser	Gln
	210					215					220				
Ala	Lys	Thr	Ser	Asn	Ser	Ala	Asp	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Ser
225					230					235					240
Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	Thr	Gly	Met	Ala	Ser	Leu
				245					250					255	
Thr	Val	Lys	Ala	Tyr	Leu	Leu	Gly	Lys	Glu	Asp	Ala	Ala	Arg	Glu	Ile
			260					265					270		
Arg	Arg	Phe	Ser	Phe	Cys	Cys	Ser	Pro	Glu	Pro	Glu	Ala	Glu	Ala	Glu
		275					280					285			
Ala	Ala	Ala	Gly	Pro	Gly	Pro	Cys	Glu	Arg	Leu	Leu	Ser	Arg	Val	Ala
		290				295					300				
Ala	Leu	Phe	Pro	Ala	Leu	Arg	Pro	Gly	Gly	Phe	Gln	Ala	His	Tyr	Arg
305					310					315					320
Asp	Glu	Asp	Gly	Asp	Leu	Val	Ala	Phe	Ser	Ser	Asp	Glu	Glu	Leu	Thr
				325					330					335	
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Glu	Lys														

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Gly Arg Thr Phe Pro Lys Arg Gly Gln Thr Cys Val Val His Tyr Thr	
15 20 25	
ggg atg ctt gaa gat gga aag aaa gtt gat tcc tcc cgg gac aga aac	148
Gly Met Leu Glu Asp Gly Lys Lys Val Asp Ser Ser Arg Asp Arg Asn	
30 35 40	
aag ccc ttt aag ttt atg cta ggc aag cag gag gtg atc cga ggc tgg	196
Lys Pro Phe Lys Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp	
45 50 55 60	
gaa gaa ggg gtt gcc cag atg agt gtg ggt cag aga gcc aaa ctg act	244
Glu Glu Gly Val Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr	
65 70 75	
ata tct cca gat tat gcc tat ggt gcc act ggg cac cca ggc atc atc	292
Ile Ser Pro Asp Tyr Ala Tyr Gly Ala Thr Gly His Pro Gly Ile Ile	
80 85 90	
cca cca cat gcc act ctc gtc ttc gat gtg gag ctt cta aaa ctg gaa	340
Pro Pro His Ala Thr Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu	
95 100 105	

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 Asp Gly Lys Lys Val Asp Ser Ser Arg Asp Arg Asn Lys Pro Phe Lys
 35 40 45
 Phe Met Leu Gly Lys Gln Glu Val Ile Arg Gly Trp Glu Glu Gly Val
 50 55 60
 Ala Gln Met Ser Val Gly Gln Arg Ala Lys Leu Thr Ile Ser Pro Asp
 65 70 75 80
 Tyr Ala Tyr Gly Ala Thr Gly His Pro Gly Ile Ile Pro Pro His Ala
 85 90 95
 Thr Leu Val Phe Asp Val Glu Leu Leu Lys Leu Glu
 100 105

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 cct ctg agt cag gaa aca ttt tca gac cta tgg aaa cta ctt cct gaa 97
 Pro Leu Ser Gln Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu
 15 20 25
 aac aac gtt ctg tcc ccc ttg ccg tcc caa gca atg gat gat ttg atg 145
 Asn Asn Val Leu Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met
 30 35 40
 ctg tcc ccg gac gat att gaa caa tgg ttc act gaa gac cca ggt cca 193
 Leu Ser Pro Asp Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro
 45 50 55 60
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 Asp Glu Ala Pro Arg Met Pro Glu Ala Ala
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 Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
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 Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu

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20 25 30

Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp

35 40 45

Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro

50 55 60

Arg Met Pro Glu Ala Ala

65 70

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Ser	Gln	Ile	Pro	Ala	Ser	Glu	Gln	Glu	Thr	Leu	Val	Arg	Pro	Lys	Pro
			20					25					30		
Leu	Leu	Leu	Lys	Leu	Leu	Lys	Ser	Val	Gly	Ala	Gln	Lys	Asp	Thr	Tyr
		35					40					45			
Thr	Met	Lys	Glu	Val	Leu	Phe	Tyr	Leu	Gly	Gln	Tyr	Ile	Met	Thr	Lys
	50					55					60				
Arg	Leu	Tyr	Asp	Glu	Lys	Gln	Gln	His	Ile	Val	Tyr	Cys	Ser	Asn	Asp
65					70					75					80

IBPF15-520WO-E(seq)fin

Leu Leu Gly Asp Leu Phe Gly Val Pro Ser Phe Ser Val Lys Glu His
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 Arg Lys Ile Tyr Thr Met Ile Tyr Arg Asn Leu Val Val Val Asn Gln
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 Gln Glu Ser Ser Asp Ser Gly
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 Asp Ala Ala Arg Glu Ile Arg Arg Phe Ser Phe Cys Cys Ser Pro Glu
 15 20 25 30
 cct gag gcg gaa gcc gag gct gcg gcg ggt ccg gga ccc tgc gag cgg 147
 Pro Glu Ala Glu Ala Glu Ala Ala Gly Pro Gly Pro Cys Glu Arg
 35 40 45
 ctg ctg agc cgg gtg gcc gcc ctg ttc ccc gcg ctg cgg cct ggc ggc 195
 Leu Leu Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro Gly Gly
 50 55 60
 ttc cag gcg cac tac cgc gat gag gac ggg gac ttg gtt gcc ttt tcc 243
 Phe Gln Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala Phe Ser
 65 70 75
 agt gac gag gaa ttg aca atg gcc atg tcc tac gtg aag gat gac atc 291
 Ser Asp Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp Asp Ile
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 Phe Arg Ile Tyr Ile Lys Glu Lys
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 Ala Glu Ala Glu Ala Ala Ala Gly Pro Gly Pro Cys Glu Arg Leu Leu
 35 40 45
 Ser Arg Val Ala Ala Leu Phe Pro Ala Leu Arg Pro Gly Gly Phe Gln
 50 55 60
 Ala His Tyr Arg Asp Glu Asp Gly Asp Leu Val Ala Phe Ser Ser Asp
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 Glu Glu Leu Thr Met Ala Met Ser Tyr Val Lys Asp Asp Ile Phe Arg
 85 90 95
 Ile Tyr Ile Lys Glu Lys
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gag ggc acc gtg aac aac cac cac ttc aag tgc aca tcc gag ggc gaa      96
Glu Gly Thr Val Asn Asn His His Phe Lys Cys Thr Ser Glu Gly Glu
20      25      30
ggc aag ccc tac gag ggc acc cag acc atg aga atc aag gtc gtc gag      144
Gly Lys Pro Tyr Glu Gly Thr Gln Thr Met Arg Ile Lys Val Val Glu
35      40      45
ggc ggc cct ctc ccc ttc gcc ttc gac atc ctg gct acc agc ttc atg      192
Gly Gly Pro Leu Pro Phe Ala Phe Asp Ile Leu Ala Thr Ser Phe Met
50      55      60
tac ggc agc aga acc ttc atc aag cac cct ccg ggc atc ccc gac ttc      240
Tyr Gly Ser Arg Thr Phe Ile Lys His Pro Pro Gly Ile Pro Asp Phe
65      70      75
ttt aag cag tcc ttc cct gag ggc ttc aca tgg gag aga gtc acc aca      288
Phe Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Val Thr Thr
85      90      95
tac gaa gac ggg ggc gtg ctg acc gct acc cag gac acc agc ctc cag      336
Tyr Glu Asp Gly Gly Val Leu Thr Ala Thr Gln Asp Thr Ser Leu Gln
100      105      110
gac ggc tgc ctc atc tac aac gtc aag gtt aga ggg gtg aac ttc cca      384
Asp Gly Cys Leu Ile Tyr Asn Val Lys Val Arg Gly Val Asn Phe Pro
115      120      125
gcc aac ggc cct gtg atg cag aag aaa aca ctc ggc tgg gag gcc tcc      432
Ala Asn Gly Pro Val Met Gln Lys Lys Thr Leu Trp Glu Ala Ser
130      135      140
acc gag acg atg tac ccc gct gac ggc ggc ctg gaa ggc gca tgt gac      480
Thr Glu Thr Met Tyr Pro Ala Asp Gly Gly Leu Glu Gly Ala Cys Asp
145      150      155
atg gcc ctg aag ctc gtg ggc ggc ggc cac ctg atc tgc aac ctt gag      528
Met Ala Leu Lys Leu Val Gly Gly Gly His Leu Ile Cys Asn Leu Glu
165      170      175
acc aca tac aga tcc aag aaa ccc gct acg aac ctc aag atg ccc ggc      576
Thr Thr Tyr Arg Ser Lys Lys Pro Ala Thr Asn Leu Lys Met Pro Gly
180      185      190
gtc tac aac gtg gac cac aga ctg gaa aga atc aag gag gcc gac gat      624
Val Tyr Asn Val Asp His Arg Leu Glu Arg Ile Lys Glu Ala Asp Asp
195      200      205
gag acc tac gtc gag cag cac gag gtg gct gtg gcc aga tac tct act      672
Glu Thr Tyr Val Glu Gln His Glu Val Ala Val Ala Arg Tyr Ser Thr
210      215      220
ggt ggc gct ggt gat gga ggt aaa ggt gga gga ggt      708
Gly Gly Ala Gly Asp Gly Lys Gly Gly Gly Gly
225      230      235

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1      5      10      15
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20      25      30

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IBPF15-520WO-E(seq)fin

Gly	Lys	Pro	Tyr	Glu	Gly	Thr	Gln	Thr	Met	Arg	Ile	Lys	Val	Val	Glu
		35					40					45			
Gly	Gly	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	Ala	Thr	Ser	Phe	Met
	50					55					60				
Tyr	Gly	Ser	Arg	Thr	Phe	Ile	Lys	His	Pro	Pro	Gly	Ile	Pro	Asp	Phe
65					70				75					80	
Phe	Lys	Gln	Ser	Phe	Pro	Glu	Gly	Phe	Thr	Trp	Glu	Arg	Val	Thr	Thr
			85					90					95		
Tyr	Glu	Asp	Gly	Gly	Val	Leu	Thr	Ala	Thr	Gln	Asp	Thr	Ser	Leu	Gln
			100					105					110		
Asp	Gly	Cys	Leu	Ile	Tyr	Asn	Val	Lys	Val	Arg	Gly	Val	Asn	Phe	Pro
		115					120					125			
Ala	Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Gly	Trp	Glu	Ala	Ser
	130					135					140				
Thr	Glu	Thr	Met	Tyr	Pro	Ala	Asp	Gly	Gly	Leu	Glu	Gly	Ala	Cys	Asp
145					150					155				160	
Met	Ala	Leu	Lys	Leu	Val	Gly	Gly	Gly	His	Leu	Ile	Cys	Asn	Leu	Glu
				165					170					175	
Thr	Thr	Tyr	Arg	Ser	Lys	Lys	Pro	Ala	Thr	Asn	Leu	Lys	Met	Pro	Gly
			180					185					190		
Val	Tyr	Asn	Val	Asp	His	Arg	Leu	Glu	Arg	Ile	Lys	Glu	Ala	Asp	Asp
		195					200					205			
Glu	Thr	Tyr	Val	Glu	Gln	His	Glu	Val	Ala	Val	Ala	Arg	Tyr	Ser	Thr
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 <212> PRT
 <213> Homo sapiens
 <400> 41

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Glu	Arg	Asn	Val	Lys	Gly	Met	Phe	Glu	Val	Leu	Glu	Pro	Leu	His	Ala
			20					25				30			
Met	Met	Glu	Arg	Gly	Pro	Gln	Thr	Leu	Lys	Glu	Thr	Ser	Phe	Asn	Gln
		35					40					45			
Ala	Tyr	Gly	Arg	Asp	Leu	Met	Glu	Ala	Gln	Glu	Trp	Cys	Arg	Lys	Tyr
	50					55				60					
Met	Lys	Ser	Gly	Asn	Val	Lys	Asp	Leu	Thr	Gln	Ala	Trp	Asp	Leu	Tyr
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Tyr	His	Val	Phe	Arg	Arg	Ile	Ser	Lys	Gln						
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 <400> 42

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1				5					10					15		
cct	cag	gct	act	gta	gtg	agt	gcc	tct	ctg	atc	tca	cca	gca	tcc	acc	96
Pro	Gln	Ala	Thr	Val	Val	Ser	Ala	Ser	Leu	Ile	Ser	Pro	Ala	Ser	Thr	
			20					25				30				
ccc	tcc	tgc	ctc	tcg	gct	gcc	agc	agc	ata	gac	aac	ctc	act	ggc	cct	144
Pro	Ser	Cys	Leu	Ser	Ala	Ala	Ser	Ser	Ile	Asp	Asn	Leu	Thr	Gly	Pro	
		35					40					45				
tta	gca	gag	ttg	gcc	gta	gga	gga	gcc	tcc	aat	gca	ggg	gat	ggc	gcc	192
Leu	Ala	Glu	Leu	Ala	Val	Gly	Gly	Ala	Ser	Asn	Ala	Gly	Asp	Gly	Ala	
	50					55					60					
gcg	gga	aca	gaa	agg	aag	gaa	gga	gaa	gtt	gct	ggg	ctt	gac	atg	aat	240

IBPF15-520WO-E(seq)fin																
Ala 65	Gly	Thr	Glu	Arg	Lys 70	Glu	Gly	Glu	Val	Ala 75	Gly	Leu	Asp	Met	Asn 80	
atc	agc	caa	ttt	cta	aaa	agc	ctt	ggc	ctt	gaa	cac	ctt	cgg	gat	atc	288
Ile	Ser	Gln	Phe	Leu 85	Lys	Ser	Leu	Gly	Leu 90	Glu	His	Leu	Arg	Asp 95	Ile	
ttt	gaa	aca	gaa	cag	att	aca	cta	gat	gtg	ttg	gct	gat	atg	ggg	cat	336
Phe	Glu	Thr	Glu 100	Gln	Ile	Thr	Leu	Asp 105	Val	Leu	Ala	Asp	Met 110	Gly	His	
gaa	gag	ttg	aaa	gaa	ata	ggc	atc	aat	gca	tat	ggg	cac	cgc	cac	aaa	384
Glu	Glu	Leu 115	Lys	Glu	Ile	Gly	Ile 120	Asn	Ala	Tyr	Gly	His 125	Arg	His	Lys	
tta	atc	aaa	gga	gta	gaa	aga	ctc	tta	ggg	gga	caa	caa	ggc	acc	aat	432
Leu	Ile 130	Lys	Gly	Val	Glu	Arg 135	Leu	Leu	Gly	Gly	Gln 140	Gln	Gly	Thr	Asn	
cct	tat	ttg	act	ttt	cac	tgt	gtt	aat	cag	gga	acg	att	ttg	ctg	gat	480
Pro 145	Tyr	Leu	Thr	Phe	His 150	Cys	Val	Asn	Gln	Gly 155	Thr	Ile	Leu	Leu	Asp 160	
ctt	gct	cca	gaa	gat	aaa	gaa	tat	cag	tca	gtg	gaa	gaa	gag	atg	caa	528
Leu	Ala	Pro	Glu	Asp 165	Lys	Glu	Tyr	Gln	Ser 170	Val	Glu	Glu	Glu	Met 175	Gln	
agt	act	att	cga	gaa	cac	aga	gat	ggg	ggg	aat	gct	ggc	ggc	atc	ttc	576
Ser	Thr	Ile	Arg 180	Glu	His	Arg	Asp	Gly 185	Gly	Asn	Ala	Gly	Gly 190	Ile	Phe	
aac	aga	tac	aat	gtc	att	cga	att	acc	ggg	aac	tcc	gct	gac	ggg	ggc	624
Asn	Arg	Tyr 195	Asn	Val	Ile	Arg	Ile 200	Thr	Gly	Asn	Ser	Ala 205	Asp	Gly	Gly	
gga	gga	tcg	ggg	gga	agt	ggg	ggg	tca	gga	gga	gga	tcg	acc	caa	gga	672
Gly	Gly 210	Ser	Gly	Gly	Ser	Gly 215	Gly	Ser	Gly	Gly	Gly 220	Ser	Thr	Gln	Gly	
act	agt	atg	gtg	agc	gtg	atc	aag	ccc	gag	atg	aag	atc	aag	ctg	tgc	720
Thr 225	Ser	Met	Val	Ser	Val 230	Ile	Lys	Pro	Glu	Met 235	Lys	Ile	Lys	Leu	Cys 240	
atg	agg	ggc	acc	gtg	aac	ggc	cac	aac	ttc	gtg	atc	gag	ggc	gag	ggc	768
Met	Arg	Gly	Thr 245	Val	Asn	Gly	His	Asn	Phe 250	Val	Ile	Glu	Gly	Glu	Gly	
aag	ggc	aac	ccc	tac	gag	ggc	acc	cag	atc	ctg	gac	ctg	aac	gtg	acc	816
Lys	Gly	Asn	Pro 260	Tyr	Glu	Gly	Thr	Gln 265	Ile	Leu	Asp	Leu	Asn	Val	Thr	
gag	ggc	gcc	cct	ctg	ccc	ttc	gcc	tac	gac	atc	ctg	acc	acc	gtg	ttc	864
Glu	Gly 275	Ala	Pro	Leu	Pro	Phe	Ala 280	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	
cag	tac	ggc	aac	agg	gcc	ttc	acc	aag	tac	cct	gcc	gac	atc	cag	gac	912
Gln	Tyr 290	Gly	Asn	Arg	Ala	Phe 295	Thr	Lys	Tyr	Pro	Ala 300	Asp	Ile	Gln	Asp	
tac	ttc	aag	cag	acc	ttc	ccc	gag	ggc	tac	cac	tgg	gag	agg	agc	atg	960
Tyr 305	Phe	Lys	Gln	Thr	Phe 310	Pro	Glu	Gly	Tyr	His 315	Trp	Glu	Arg	Ser	Met 320	
acc	tac	gag	gac	cag	ggc	atc	tgc	acc	gcc	acc	agc	aac	atc	agc	atg	1008
Thr	Tyr	Glu	Asp	Gln 325	Gly	Ile	Cys	Thr	Ala 330	Thr	Ser	Asn	Ile	Ser	Met 335	
agg	gga	gac	tgc	ttc	ttc	tac	gac	atc	agg	ttc	gac	ggc	acc	aac	ttc	1056
Arg	Gly	Asp	Cys 340	Phe	Phe	Tyr	Asp	Ile 345	Arg	Phe	Asp	Gly	Thr	Asn	Phe	
cct	ccc	aac	ggc	cca	gtg	atg	cag	aag	aag	act	ctg	aag	tgg	gag	cct	1104
Pro	Pro	Asn 355	Gly	Pro	Val	Met	Gln 360	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	
agc	acc	gag	aag	atg	tac	gtg	gag	gac	ggc	gtg	ctg	aag	ggc	gac	gtg	1152
Ser	Thr 370	Glu	Lys	Met	Tyr	Val 375	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	
aac	atg	agg	ctg	ctg	ctg	gag	gga	ggc	ggc	cac	tac	agg	tgc	gac	ttc	1200
Asn 385	Met	Arg	Leu	Leu	Leu 390	Glu	Gly	Gly	Gly	His 395	Tyr	Arg	Cys	Asp	Phe	
aag	acc	acc	tac	aag	gcc	aag	aag	gag	gtg	agg	ctg	ccc	gac	gcc	cac	1248
Lys	Thr	Thr	Tyr	Lys 405	Ala	Lys	Lys	Glu	Val 410	Arg	Leu	Pro	Asp	Ala	His	
aag	atc	gac	cac	agg	atc	gag	atc	ctg	aag	cac	gac	aag	gac	tac	aac	1296
Lys	Ile	Asp	His 420	Arg	Ile	Glu	Ile	Leu 425	Lys	His	Asp	Lys	Asp	Tyr	Asn	

IBPF15-520WO-E(seq)fin

aag	gtg	aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	tcc	atg	ctg	ccc	1344
Lys	Val	Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	
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agc	cag	gcc	aag													1356
Ser	Gln	Ala	Lys													
		450														

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 <400> 43

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			20					25					30			
Pro	Ser	Cys	Leu	Ser	Ala	Ala	Ser	Ile	Asp	Asn	Leu	Thr	Gly	Pro		
		35					40				45					
Leu	Ala	Glu	Leu	Ala	Val	Gly	Gly	Ala	Ser	Asn	Ala	Gly	Asp	Gly	Ala	
	50					55					60					
Ala	Gly	Thr	Glu	Arg	Lys	Glu	Gly	Glu	Val	Ala	Gly	Leu	Asp	Met	Asn	
65					70				75						80	
Ile	Ser	Gln	Phe	Leu	Lys	Ser	Leu	Gly	Leu	Glu	His	Leu	Arg	Asp	Ile	
				85					90					95		
Phe	Glu	Thr	Glu	Gln	Ile	Thr	Leu	Asp	Val	Leu	Ala	Asp	Met	Gly	His	
			100					105					110			
Glu	Glu	Leu	Lys	Glu	Ile	Gly	Ile	Asn	Ala	Tyr	Gly	His	Arg	His	Lys	
		115					120					125				
Leu	Ile	Lys	Gly	Val	Glu	Arg	Leu	Gly	Gly	Gln	Gln	Gly	Thr	Asn		
	130					135					140					
Pro	Tyr	Leu	Thr	Phe	His	Cys	Val	Asn	Gln	Gly	Thr	Ile	Leu	Leu	Asp	
145					150				155						160	
Leu	Ala	Pro	Glu	Asp	Lys	Glu	Tyr	Gln	Ser	Val	Glu	Glu	Glu	Met	Gln	
				165					170					175		
Ser	Thr	Ile	Arg	Glu	His	Arg	Asp	Gly	Gly	Asn	Ala	Gly	Gly	Ile	Phe	
			180					185					190			
Asn	Arg	Tyr	Asn	Val	Ile	Arg	Ile	Thr	Gly	Asn	Ser	Ala	Asp	Gly	Gly	
		195					200					205				
Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	
	210					215						220				
Thr	Ser	Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	
225					230					235					240	
Met	Arg	Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	
				245					250					255		
Lys	Gly	Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	
			260					265					270			
Glu	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	
		275					280					285				
Gln	Tyr	Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	
	290					295					300					
Tyr	Phe	Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	
305					310					315					320	
Thr	Tyr	Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	
				325					330					335		
Arg	Gly	Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	
			340					345					350			
Pro	Pro	Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	
		355					360					365				
Ser	Thr	Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	
	370					375					380					
Asn	Met	Arg	Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	
385					390					395					400	
Lys	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	
				405					410					415		
Lys	Ile	Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	
			420					425					430			

IBPF15-520WO-E(seq)fin
 Lys Val Lys Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met Leu Pro
 435 440 445
 Ser Gln Ala Lys
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cat	ttt	gaa	cct	tcc	atc	tcc	ttt	gag	ggc	ctt	tgc	aat	gag	ggt	cga	96
His	Phe	Glu	Pro	Ser	Ile	Ser	Phe	Glu	Gly	Leu	Cys	Asn	Glu	Val	Arg	
			20					25					30			
gac	atg	tgt	tct	ttt	gac	aac	gaa	cag	ctc	ttc	acc	atg	aaa	tgg	ata	144
Asp	Met	Cys	Ser	Phe	Asp	Asn	Glu	Gln	Leu	Phe	Thr	Met	Lys	Trp	Ile	
		35					40					45				
gat	gag	gaa	gga	gac	ccg	tgt	aca	gta	tca	tct	cag	ttg	gag	tta	gaa	192
Asp	Glu	Glu	Gly	Asp	Pro	Cys	Thr	Val	Ser	Ser	Gln	Leu	Glu	Leu	Glu	
	50					55					60					
gaa	gcc	ttt	aga	ctt	tat	gag	cta	aac	aag	gat	tct	gaa	ctc	ttg	att	240
Glu	Ala	Phe	Arg	Leu	Tyr	Glu	Leu	Asn	Lys	Asp	Ser	Glu	Leu	Leu	Ile	
65				70					75					80		
cat	gtg	ttc	cct	tgt	acc	ggg	aac	tcc	gct	gac	ggg	ggc	gga	gga	tcg	288
His	Val	Phe	Pro	Cys	Thr	Gly	Asn	Ser	Ala	Asp	Gly	Gly	Gly	Gly	Ser	
				85					90					95		
ggg	gga	agt	ggg	ggg	tca	gga	gga	gga	tcg	acc	caa	gga	act	agt	atg	336
Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	Thr	Ser	Met	
			100				105						110			
gtg	agc	gtg	atc	aag	ccc	gag	atg	aag	atc	aag	ctg	tgc	atg	agg	ggc	384
Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	Met	Arg	Gly	
		115					120					125				
acc	gtg	aac	ggc	cac	aac	ttc	gtg	atc	gag	ggc	gag	ggc	aag	ggc	aac	432
Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	Lys	Gly	Asn	
	130					135					140					
ccc	tac	gag	ggc	acc	cag	atc	ctg	gac	ctg	aac	gtg	acc	gag	ggc	gcc	480
Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	Glu	Gly	Ala	
145					150					155					160	
cct	ctg	ccc	ttc	gcc	tac	gac	atc	ctg	acc	acc	gtg	ttc	cag	tac	ggc	528
Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	Gln	Tyr	Gly	
				165					170					175		
aac	agg	gcc	ttc	acc	aag	tac	cct	gcc	gac	atc	cag	gac	tac	ttc	aag	576
Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	Tyr	Phe	Lys	
			180					185					190			
cag	acc	ttc	ccc	gag	ggc	tac	cac	tgg	gag	agg	agc	atg	acc	tac	gag	624
Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	Thr	Tyr	Glu	
		195					200					205				
gac	cag	ggc	atc	tgc	acc	gcc	acc	agc	aac	atc	agc	atg	agg	gga	gac	672
Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	Arg	Gly	Asp	
	210					215					220					
tgc	ttc	ttc	tac	gac	atc	agg	ttc	gac	ggc	acc	aac	ttc	cct	ccc	aac	720
Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	Pro	Pro	Asn	
225				230						235					240	
ggc	cca	gtg	atg	cag	aag	act	ctg	aag	tgg	gag	cct	agc	acc	gag		768
Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	Ser	Thr	Glu	
				245				250						255		
aag	atg	tac	gtg	gag	gac	ggc	gtg	ctg	aag	ggc	gac	gtg	aac	atg	agg	816
Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	Asn	Met	Arg	
			260				265						270			
ctg	ctg	ctg	gag	gga	ggc	ggc	cac	tac	agg	tgc	gac	ttc	aag	acc	acc	864
Leu	Leu	Leu	Glu	Gly	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe	Lys	Thr	Thr	

[illegible]

$\langle 210 \rangle$	46
$\langle 211 \rangle$	1020

IBPF15-520WO-E(seq)fin

<212> DNA
 <213> Artificial Sequence
 <220>
 <223> TEL-hmAG1
 <220>
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 <222> (1)..(1020)
 <400> 46

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cac ctg cgc ttg cag cca att tac tgg agc agg gat gac gta gcc cag	96
His Leu Arg Leu Gln Pro Ile Tyr Trp Ser Arg Asp Asp Val Ala Gln	
20 25 30	
tgg ctc aag tgg gct gaa aat gag ttt tct tta agg cca att gac agc	144
Trp Leu Lys Trp Ala Glu Asn Glu Phe Ser Leu Arg Pro Ile Asp Ser	
35 40 45	
aac acg ttt gaa atg aat ggc aaa gct ctc ctg ctg ctg acc aaa gag	192
Asn Thr Phe Glu Met Asn Glu Lys Ala Leu Leu Leu Thr Lys Glu	
50 55 60	
gac ttt cgc tat cga tct cct cat tca ggt gat gtg ctc tat gaa ctc	240
Asp Phe Arg Tyr Arg Ser Pro His Ser Gly Asp Val Leu Tyr Glu Leu	
65 70 75 80	
ctt cag cat att ctg aag cag agg acc ggg aac tcc gct gac ggt ggc	288
Leu Gln His Ile Leu Lys Gln Arg Thr Gly Asn Ser Ala Asp Gly Gly	
85 90 95	
gga gga tcg ggt gga agt ggt ggt tca gga gga gga tcg acc caa gga	336
Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Thr Gln Gly	
100 105 110	
act agt atg gtg agc gtg atc aag ccc gag atg aag atc aag ctg tgc	384
Thr Ser Met Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys Leu Cys	
115 120 125	
atg agg ggc acc gtg aac ggc cac aac ttc gtg atc gag ggc gag ggc	432
Met Arg Gly Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly	
130 135 140	
aag ggc aac ccc tac gag ggc acc cag atc ctg gac ctg aac gtg acc	480
Lys Gly Asn Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr	
145 150 155 160	
gag ggc gcc cct ctg ccc ttc gcc tac gac atc ctg acc acc gtg ttc	528
Glu Gly Ala Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe	
165 170 175	
cag tac ggc aac agg gcc ttc acc aag tac cct gcc gac atc cag gac	576
Gln Tyr Gly Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp	
180 185 190	
tac ttc aag cag acc ttc ccc gag ggc tac cac tgg gag agg agc atg	624
Tyr Phe Lys Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met	
195 200 205	
acc tac gag gac cag ggc atc tgc acc gcc acc agc aac atc agc atg	672
Thr Tyr Glu Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met	
210 215 220	
agg gga gac tgc ttc ttc tac gac atc agg ttc gac ggc acc aac ttc	720
Arg Gly Asp Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe	
225 230 235 240	
cct ccc aac ggc cca gtg atg cag aag aag act ctg aag tgg gag cct	768
Pro Pro Asn Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro	
245 250 255	
agc acc gag aag atg tac gtg gag gac ggc gtg ctg aag ggc gac gtg	816
Ser Thr Glu Lys Met Tyr Val Glu Asp Gly Val Leu Lys Gly Asp Val	
260 265 270	
aac atg agg ctg ctg ctg gag gga ggc ggc cac tac agg tgc gac ttc	864
Asn Met Arg Leu Leu Leu Glu Gly Gly His Tyr Arg Cys Asp Phe	
275 280 285	
aag acc acc tac aag gcc aag aag gag gtg agg ctg ccc gac gcc cac	912
Lys Thr Thr Tyr Lys Ala Lys Lys Glu Val Arg Leu Pro Asp Ala His	
290 295 300 305	
aag atc gac cac agg atc gag atc ctg aag cac gac aag gac tac aac	960
Lys Ile Asp His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn	
310 315 320	

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aag	gtg	aag	ctg	tac	gag	aac	gcc	gtg	gcc	agg	tac	tcc	atg	ctg	ccc	1008
Lys	Val	Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	
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agc	cag	gcc	aag													1020
Ser	Gln	Ala	Lys													
			340													

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His	Leu	Arg	Leu	Gln	Pro	Ile	Tyr	Trp	Ser	Arg	Asp	Asp	Val	Ala	Gln	
			20					25					30			
Trp	Leu	Lys	Trp	Ala	Glu	Asn	Glu	Phe	Ser	Leu	Arg	Pro	Ile	Asp	Ser	
		35					40					45				
Asn	Thr	Phe	Glu	Met	Asn	Gly	Lys	Ala	Leu	Leu	Leu	Leu	Thr	Lys	Glu	
	50					55					60					
Asp	Phe	Arg	Tyr	Arg	Ser	Pro	His	Ser	Gly	Asp	Val	Leu	Tyr	Glu	Leu	
65					70				75					80		
Leu	Gln	His	Ile	Leu	Lys	Gln	Arg	Thr	Gly	Asn	Ser	Ala	Asp	Gly	Gly	
				85					90					95		
Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Ser	Gly	Gly	Gly	Ser	Thr	Gln	Gly	
			100					105					110			
Thr	Ser	Met	Val	Ser	Val	Ile	Lys	Pro	Glu	Met	Lys	Ile	Lys	Leu	Cys	
		115					120					125				
Met	Arg	Gly	Thr	Val	Asn	Gly	His	Asn	Phe	Val	Ile	Glu	Gly	Glu	Gly	
	130					135					140					
Lys	Gly	Asn	Pro	Tyr	Glu	Gly	Thr	Gln	Ile	Leu	Asp	Leu	Asn	Val	Thr	
145					150					155					160	
Glu	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Tyr	Asp	Ile	Leu	Thr	Thr	Val	Phe	
				165					170					175		
Gln	Tyr	Gly	Asn	Arg	Ala	Phe	Thr	Lys	Tyr	Pro	Ala	Asp	Ile	Gln	Asp	
			180					185					190			
Tyr	Phe	Lys	Gln	Thr	Phe	Pro	Glu	Gly	Tyr	His	Trp	Glu	Arg	Ser	Met	
		195					200					205				
Thr	Tyr	Glu	Asp	Gln	Gly	Ile	Cys	Thr	Ala	Thr	Ser	Asn	Ile	Ser	Met	
	210					215					220					
Arg	Gly	Asp	Cys	Phe	Phe	Tyr	Asp	Ile	Arg	Phe	Asp	Gly	Thr	Asn	Phe	
225					230					235					240	
Pro	Pro	Asn	Gly	Pro	Val	Met	Gln	Lys	Lys	Thr	Leu	Lys	Trp	Glu	Pro	
				245					250					255		
Ser	Thr	Glu	Lys	Met	Tyr	Val	Glu	Asp	Gly	Val	Leu	Lys	Gly	Asp	Val	
			260					265					270			
Asn	Met	Arg	Leu	Leu	Leu	Glu	Gly	Gly	His	Tyr	Arg	Cys	Asp	Phe		
		275					280				285					
Lys	Thr	Thr	Tyr	Lys	Ala	Lys	Lys	Glu	Val	Arg	Leu	Pro	Asp	Ala	His	
	290					295					300					
Lys	Ile	Asp	His	Arg	Ile	Glu	Ile	Leu	Lys	His	Asp	Lys	Asp	Tyr	Asn	
305					310					315					320	
Lys	Val	Lys	Leu	Tyr	Glu	Asn	Ala	Val	Ala	Arg	Tyr	Ser	Met	Leu	Pro	
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Ser	Gln	Ala	Lys													
			340													

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 <222> (1)..(963)

IBPF15-520WO-E(seq)fin

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cac His	ctc Leu	agt Ser	ctc Leu 20	tgt Cys	gag Glu	tat Tyr	aag Lys	gac Asp 25	atc Ile	ttc Phe	aca Thr	cgg Arg	cac His 30	gac Asp	atc Ile			96
cgg Arg	ggc Gly	tct Ser 35	gag Glu	ctc Leu	ctg Leu	cac His	ctg Leu 40	gag Glu	cgg Arg	agg Arg	gac Asp	ctc Leu 45	aag Lys	gac Asp	ctg Leu			144
ggc Gly	gtg Val 50	acc Thr	aag Lys	gtg Val	ggc Gly	cac His 55	atg Met	aag Lys	agg Arg	atc Ile	ctg Leu 60	tgt Cys	ggc Gly	atc Ile	aag Lys			192
gag Glu 65	ctg Leu	agc Ser	cgc Arg	agc Ser	acc Thr 70	ggg Gly	aac Asn	tcc Ser	gct Ala	gac Asp 75	ggg Gly	ggc Gly	gga Gly	gga Gly	tcg Ser 80			240
ggg Gly	gga Gly	agt Ser	ggg Gly	ggg Gly 85	tca Ser	gga Gly	gga Gly	gga Gly	tcg Ser 90	acc Thr	caa Gln	gga Gly	act Thr	agt Ser 95	atg Met			288
gtg Val	agc Ser	gtg Val	atc Ile 100	aag Lys	ccc Pro	gag Glu	atg Met	aag Lys 105	atc Ile	aag Lys	ctg Leu	tgc Cys	met Met 110	agg Arg	ggc Gly			336
acc Thr	gtg Val	aac Asn 115	ggc Gly	cac His	aac Asn	ttc Phe	gtg Val 120	atc Ile	gag Glu	ggc Gly	gag Glu	ggc Gly 125	aag Lys	ggc Gly	aac Asn			384
ccc Pro	tac Tyr 130	gag Glu	ggc Gly	acc Thr	cag Gln	atc Ile 135	ctg Leu	gac Asp	ctg Leu	aac Asn	gtg Val 140	acc Thr	gag Glu	ggc Gly	gcc Ala			432
cct Pro 145	ctg Leu	ccc Pro	ttc Phe	gcc Ala	tac Tyr 150	gac Asp	atc Ile	ctg Leu	acc Thr	acc Thr 155	gtg Val	ttc Phe	cag Gln	tac Tyr	ggc Gly 160			480
aac Asn	agg Arg	gcc Ala	ttc Phe	acc Thr 165	aag Lys	tac Tyr	cct Pro	gcc Ala	gac Asp 170	atc Ile	cag Gln	gac Asp	tac Tyr	ttc Phe 175	aag Lys			528
cag Gln	acc Thr	ttc Phe	ccc Pro 180	gag Glu	ggc Gly	tac Tyr	cac His	tgg Trp 185	gag Glu	agg Arg	agc Ser	atg Met	acc Thr 190	tac Tyr	gag Glu			576
gac Asp	cag Gln	ggc Gly 195	atc Ile	tgc Cys	acc Thr	gcc Ala 200	acc Thr	agc Ser	aac Asn	atc Ile	agc Ser	atg Met 205	agg Arg	gga Gly	gac Asp			624
tgc Cys	ttc Phe 210	ttc Phe	tac Tyr	gac Asp	atc Ile	agg Arg 215	ttc Phe	gac Asp	ggc Gly	acc Thr	aac Asn 220	ttc Phe	cct Pro	ccc Pro	aac Asn			672
ggc Gly 225	cca Pro	gtg Val	atg Met	cag Gln	aag Lys 230	aag Lys	act Thr	ctg Leu	aag Lys	tgg Trp 235	gag Glu	cct Pro	agc Ser	acc Thr	gag Glu 240			720
aag Lys	atg Met	tac Tyr	gtg Val	gag Glu 245	gac Asp	ggc Gly	gtg Val	ctg Leu	aag Lys 250	ggc Gly	gac Asp	gtg Val	aac Asn	atg Met 255	agg Arg			768
ctg Leu	ctg Leu	ctg Leu	gag Glu 260	ggc Gly	ggc Gly	cac His	tac Tyr 265	agg Arg 280	ctg Leu	ccc Pro	gac Asp	gcc Ala	cac His 285	aag Lys	gtg Val	aag Lys		816
tac Tyr	aag Lys	gcc Ala 275	aag Lys	aag Lys	gag Glu	gtg Val	agg Arg 280	ctg Leu	ccc Pro	gac Asp	gcc Ala	cac His 285	aag Lys	gtg Val	aag Lys			864
cac His	agg Arg 290	atc Ile	gag Glu	atc Ile	ctg Leu	aag Lys 295	cac His	gac Asp	aag Lys	gac Asp	tac Tyr 300	aac Asn	aag Lys	gtg Val	aag Lys			912
ctg Leu 305	tac Tyr	gag Glu	aac Asn	gcc Ala	gtg Val 310	gcc Ala	agg Arg	tac Tyr	tcc Ser	atg Met 315	ctg Leu	ccc Pro	agc Ser	cag Gln	gcc Ala 320			960
aag Lys																		

$\langle 210 \rangle$	49
$\langle 211 \rangle$	321
$\langle 212 \rangle$	PRT

IBPF15-520WO-E(seq)fin

<213> Artificial Sequence

<220>

<223> DGKdelta-hmAG1

<400> 49

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Arg Gly Ser Glu Leu Leu His Leu Glu Arg Arg Asp Leu Lys Asp Leu
35      40      45
Gly Val Thr Lys Val Gly His Met Lys Arg Ile Leu Cys Gly Ile Lys
50      55      60
Glu Leu Ser Arg Ser Thr Gly Asn Ser Ala Asp Gly Gly Gly Ser
65      70      75      80
Gly Gly Ser Gly Gly Ser Gly Gly Gly Ser Thr Gln Gly Thr Ser Met
85      90      95
Val Ser Val Ile Lys Pro Glu Met Lys Ile Lys Leu Cys Met Arg Gly
100     105     110
Thr Val Asn Gly His Asn Phe Val Ile Glu Gly Glu Gly Lys Gly Asn
115     120     125
Pro Tyr Glu Gly Thr Gln Ile Leu Asp Leu Asn Val Thr Glu Gly Ala
130     135     140
Pro Leu Pro Phe Ala Tyr Asp Ile Leu Thr Thr Val Phe Gln Tyr Gly
145     150     155     160
Asn Arg Ala Phe Thr Lys Tyr Pro Ala Asp Ile Gln Asp Tyr Phe Lys
165     170     175
Gln Thr Phe Pro Glu Gly Tyr His Trp Glu Arg Ser Met Thr Tyr Glu
180     185     190
Asp Gln Gly Ile Cys Thr Ala Thr Ser Asn Ile Ser Met Arg Gly Asp
195     200     205
Cys Phe Phe Tyr Asp Ile Arg Phe Asp Gly Thr Asn Phe Pro Pro Asn
210     215     220
Gly Pro Val Met Gln Lys Lys Thr Leu Lys Trp Glu Pro Ser Thr Glu
225     230     235     240
Lys Met Tyr Val Glu Asp Gly Val Leu Lys Gly Asp Val Asn Met Arg
245     250     255
Leu Leu Leu Glu Gly Gly Gly His Tyr Arg Cys Asp Phe Lys Thr Thr
260     265     270
Tyr Lys Ala Lys Lys Glu Val Arg Leu Pro Asp Ala His Lys Ile Asp
275     280     285
His Arg Ile Glu Ile Leu Lys His Asp Lys Asp Tyr Asn Lys Val Lys
290     295     300
Leu Tyr Glu Asn Ala Val Ala Arg Tyr Ser Met Leu Pro Ser Gln Ala
305     310     315     320
Lys

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<211> 78

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(78)

<223> M13

<400> 50

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Phe Lys Lys Ile Ser Ser Ser Gly Ala Leu
20      25

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48

78

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<211> 26

<212> PRT

<213> Homo sapiens

<223> M13

IBPF15-520WO-E(seq)fin

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 <222> (1)..(441)
 <223> calmodulin
 <400> 52

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 1 5 10 15
 tta ttc gac aag gat ggg gac ggc acc atc acc aca aag gaa ctt ggc 96
 Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu Leu Gly
 20 25 30
 acc gtt atg agg tcg ctt gga caa aac cca acg gaa gca gaa ttg cag 144
 Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln
 35 40 45
 gat atg atc aat gaa gtc gat gct gat ggc aat gga acg att tac ttt 192
 Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Tyr Phe
 50 55 60
 cct gaa ttt ctt act atg atg gct aga aaa atg aag gac aca gac agc 240
 Pro Glu Phe Leu Thr Met Met Ala Arg Lys Met Lys Asp Thr Asp Ser
 65 70 75 80
 gaa gag gaa atc cga gaa gca ttc cgt gtt ttt gac aag gat ggg aac 288
 Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn
 85 90 95
 ggc tac atc agc gct gct gaa tta cgt cac gtc atg aca aac ctc ggg 336
 Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly
 100 105 110
 gag aag tta aca gat gaa gaa gtt gat gaa atg ata agg gaa gca gat 384
 Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp
 115 120 125
 atc gat ggt gat ggc caa gta aac tat gaa gag ttt gta caa atg atg 432
 Ile Asp Gly Asp Gly Gln Val Asn Tyr Glu Glu Phe Val Gln Met Met
 130 135 140
 aca gca aag 441
 Thr Ala Lys
 145

<210> 53
 <211> 147
 <212> PRT
 <213> Homo sapiens
 <223> calmodulin
 <400> 53

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 Leu Phe Asp Lys Asp Gly Asp Gly Thr Ile Thr Thr Lys Glu Leu Gly
 20 25 30
 Thr Val Met Arg Ser Leu Gly Gln Asn Pro Thr Glu Ala Glu Leu Gln
 35 40 45
 Asp Met Ile Asn Glu Val Asp Ala Asp Gly Asn Gly Thr Ile Tyr Phe
 50 55 60
 Pro Glu Phe Leu Thr Met Ala Arg Lys Met Lys Asp Thr Asp Ser
 65 70 75 80
 Glu Glu Glu Ile Arg Glu Ala Phe Arg Val Phe Asp Lys Asp Gly Asn
 85 90 95
 Gly Tyr Ile Ser Ala Ala Glu Leu Arg His Val Met Thr Asn Leu Gly
 100 105 110
 Glu Lys Leu Thr Asp Glu Glu Val Asp Glu Met Ile Arg Glu Ala Asp
 115 120 125

IBPF15-520W0-E(seq)fin

Ile	Asp	Gly	Asp	Gly	Gln	Val	Asn	Tyr	Glu	Glu	Phe	Val	Gln	Met	Met
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Thr	Ala	Lys													
145															