

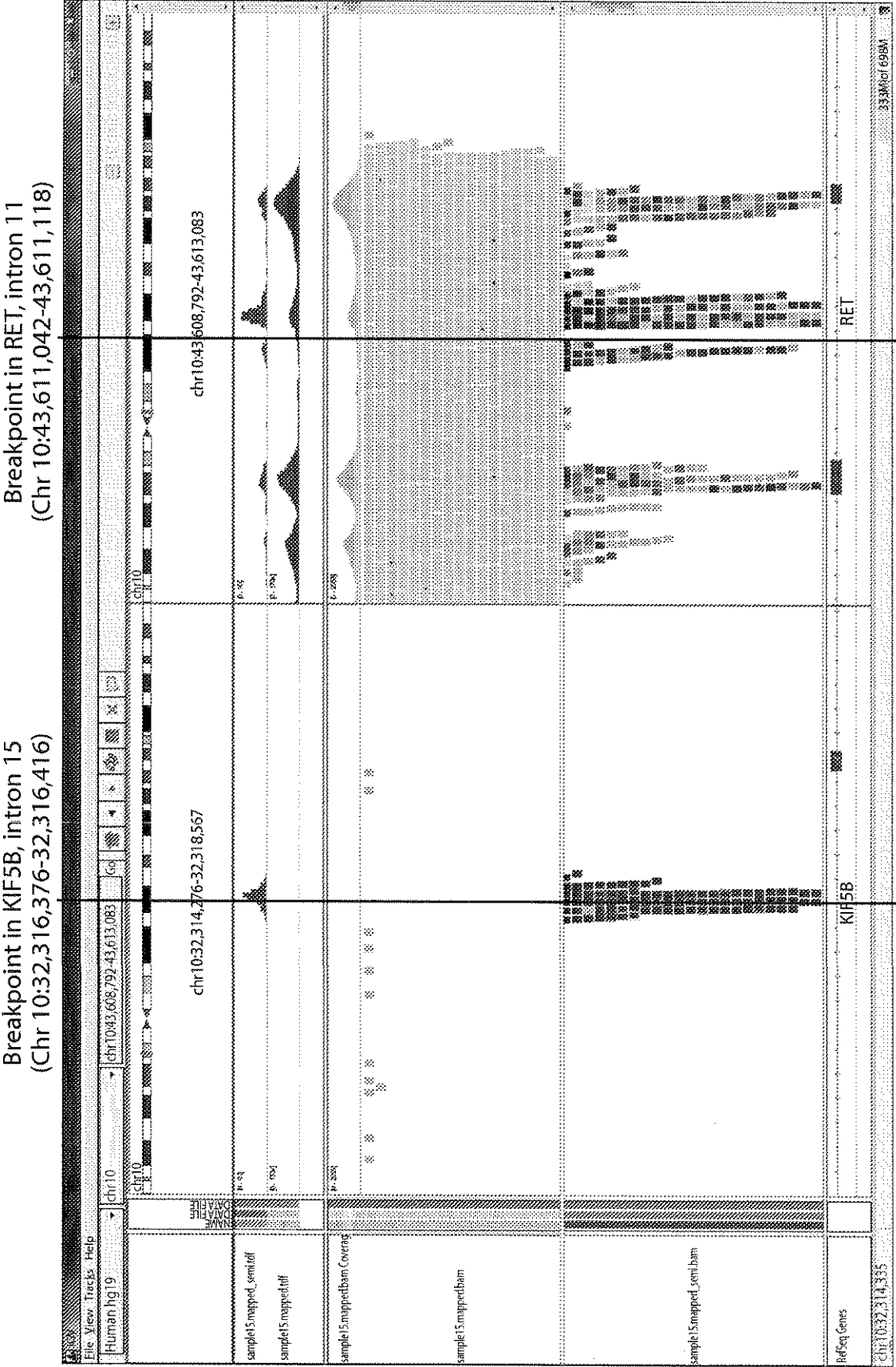


Fig. 1

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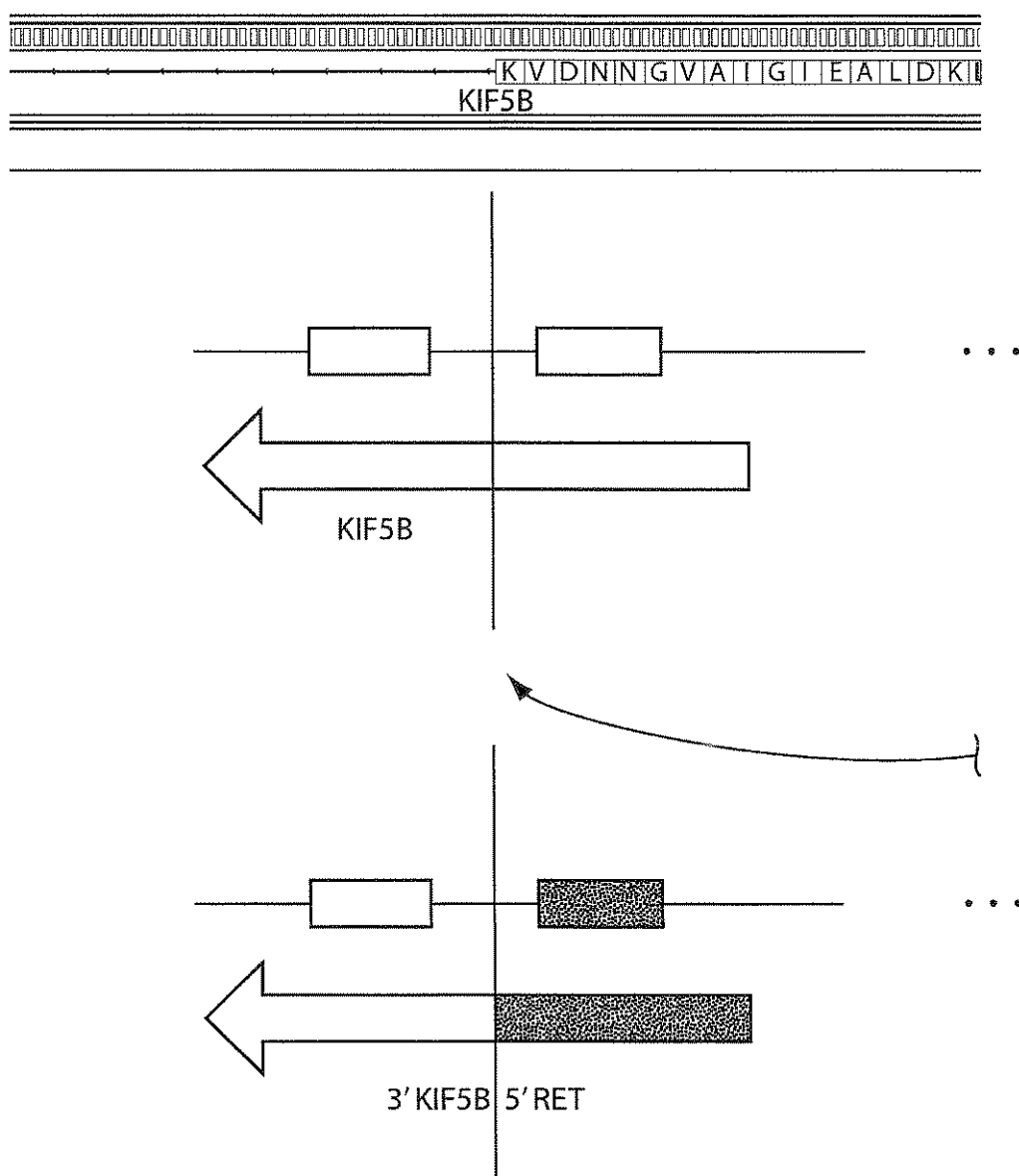


Fig. 2A

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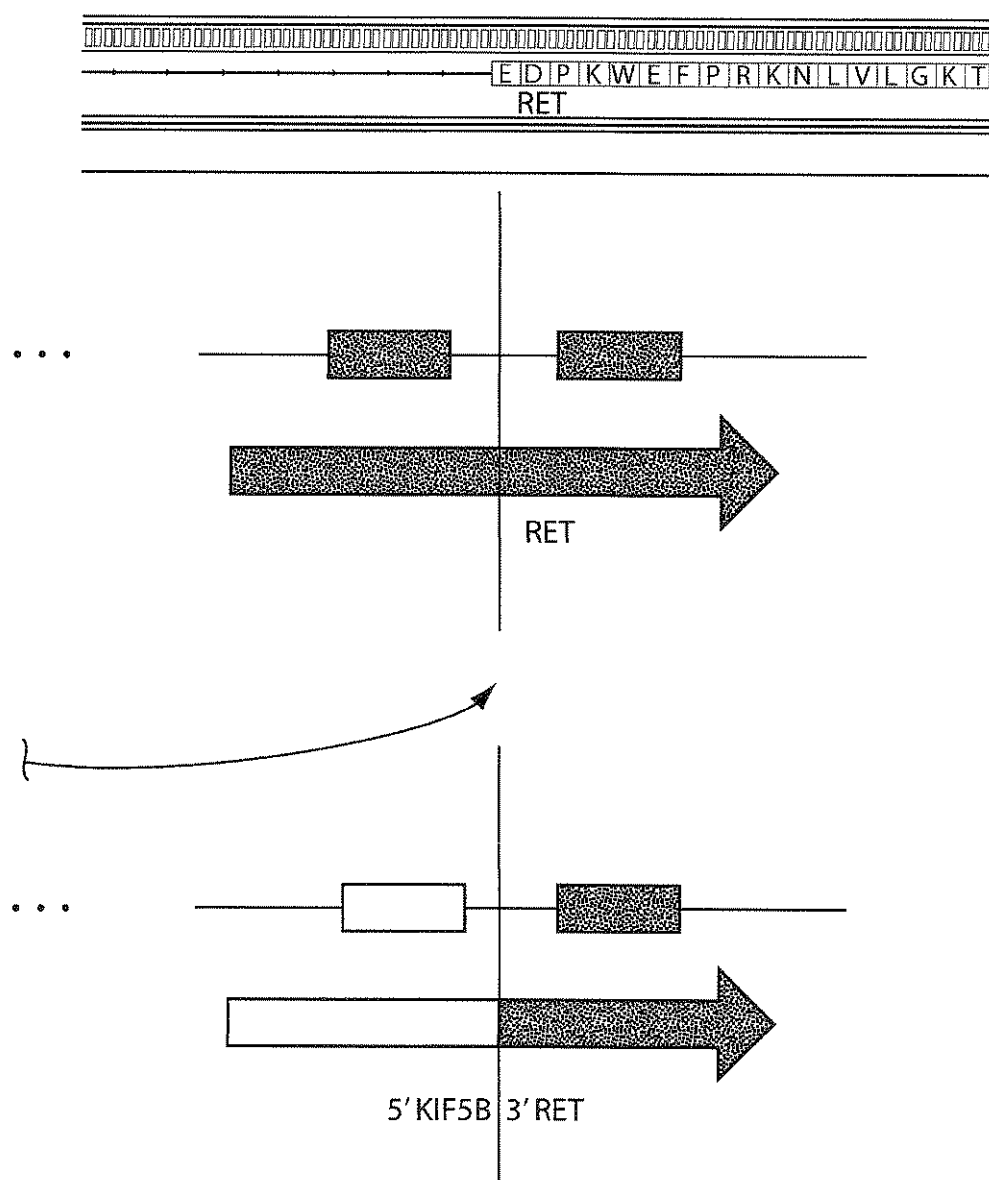


Fig. 2B

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atg gcg gac ctg gcc gag tgc aac atc aaa gtg atg tgt cgc ttc aga cct ctc aac gag	60
M A D L A E C N I K V M C R F R P L N E	20
tct gaa gtg aac cgc ggc gac aag tac atc gcc aag ttt cag gga gaa gac acg gtc gtg	120
S E V N R G D K Y I A K F Q G E D T V V	40
atc gcg tcc aag cct tat gca ttt gat cgg gtg ttc cag tca agc aca tct caa gag caa	180
I A S K P Y A F D R V F Q S S T S Q E Q	60
gtg tat aat gac tgt gca aag aag att gtt aaa gat gta ctt gaa gga tat aat gga aca	240
V Y N D C A K K I V K D V L E G Y N G T	80
ata ttt gca tat gga caa aca tcc tct ggg aag aca cac aca atg gag ggt aaa ctt cat	300
I F A Y G Q T S S G K T H T M E G K L H	100
gat cca gaa ggc atg gga att att cca aga ata gtg caa gat att ttt aat tat att tac	360
D P E G M G I I P R I V Q D I F N Y I Y	120
tcc atg gat gaa aat ttg gaa ttt cat att aag gtt tca tat ttt gaa ata tat ttg gat	420
S M D E N L E F H I K V S Y F E I Y L D	140
aag ata agg gac ctg tta gat gtt tca aag acc aac ctt tca gtt cat gaa gac aaa aac	480
K I R D L L D V S K T N L S V H E D K N	160
cga gtt ccc tat gta aag ggg tgc aca gag cgt ttt gta tgt agt cca gat gaa gtt atg	540
R V P Y V K G C T E R F V C S P D E V M	180
gat acc ata gat gaa gga aaa tcc aac aga cat gta gca gtt aca aat atg aat gaa cat	600
D T I D E G K S N R H V A V T N M N E H	200
agc tct agg agt cac agt ata ttt ctt att aat gtc aaa caa gag aac aca caa acg gaa	660
S S R S H S I F L I N V K Q E N T Q T E	220
caa aag ctg agt gga aaa ctt tat ctg gtt gat tta gct ggt agt gaa aag gtt agt aaa	720
Q K L S G K L Y L V D L A G S E K V S K	240
act gga gct gaa ggt gct gtg ctg gat gaa gct aaa aac atc aac aag tca ctt tot gct	780
T G A E G A V L D E A K N I N K S L S A	260
ctt gga aat gtt att tot gct ttg gct gag ggt agt aca tat gtt cca tat cga gat agt	840
L G N V I S A L A E G S T Y V P Y R D S	280

Fig. 3A

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aaa atg aca aga atc ctt caa gat tca tta ggt ggc aac tgt aga acc act att gta att	900
K M T R I L Q D S L G G N C R T T I V I	300
tgc tgc tct cca tca tca tac aat gag tct gaa aca aaa tct aca ctc tta ttt ggc caa	960
C C S P S S Y N E S E T K S T L L F G Q	320
agg gcc aaa aca att aag aac aca gtt tgt gtc aat gtg gag tta act gca gaa cag tgg	1020
R A K T I K N T V C V N V E L T A E Q W	340
aaa aag aag tat gaa aaa gaa aaa gaa aaa aat aag atc ctg cgg aac act att cag tgg	1080
K K K Y E K E K E K N K I L R N T I Q W	360
ctt gaa aat gag ctc aac aga tgg cgt aat ggg gag acg gtg cct att gat gaa cag ttt	1140
L E N E L N R W R N G E T V P I D E Q F	380
gac aaa gag aaa gcc aac ttg gaa gct ttc aca gtg gat aaa gat att act ctt acc aat	1200
D K E K A N L E A F T V D K D I T L T N	400
gat aaa cca gca acc gca att gga gtt ata gga aat ttt act gat gct gaa aga aga aag	1260
D K P A T A I G V I G N F T D A E R R K	420
tgt gaa gaa gaa att gct aaa tta tac aaa cag ctt gat gac aag gat gaa gaa att aac	1320
C E E E I A K L Y K Q L D D K D E E I N	440
cag caa agt caa ctg gta gag aaa ctg aag acg caa atg ttg gat cag gag gag ctt ttg	1380
Q Q S Q L V E K L K T Q M L D Q E E L L	460
gca tct acc aga agg gat caa gac aat atg caa gct gag ctg aat cgc ctt caa gca gaa	1440
A S T R R D Q D N M Q A E L N R L Q A E	480
aat gat gcc tct aaa gaa gaa gtg aaa gaa gtt tta cag gcc cta gaa gaa ctt gct gtc	1500
N D A S K E E V K E V L Q A L E E L A V	500
aat tat gat cag aag tct cag gaa gtt gaa gac aaa act aag gaa tat gaa ttg ctt agt	1560
N Y D Q K S Q E V E D K T K E Y E L L S	520
gat gaa ttg aat cag aaa tcg gca act tta gcg agt ata gat gct gag ctt cag aaa ctt	1620
D E L N Q K S A T L A S I D A E L Q K L	540
aag gaa atg acc aac cac cag aaa aaa cga gca gct gag atg atg gca tct tta cta aaa	1680
K E M T N H Q K K R A A E M M A S L L K	560
gac ctt gca gaa ata gga att gct gtg gga aat aat gat gta aag gag gat cca aag tgg	1740
D L A E I G I A V G N N D V K E D P K W	580

Fig. 3B

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gaa ttc cct cgg aag aac ttg gtt ctt gga aaa act cta gga gaa ggc gaa ttt gga aaa	1800
E F P R K N L V L G K T L G E G E F G K	600
gtg gtc aag gca acg gcc ttc cat ctg aaa ggc aga gca ggg tac acc acg gtg gcc gtg	1860
V V K A T A F H L K G R A G Y T T V A V	620
aag atg ctg aaa gag aac gcc tcc ccg agt gag ctg cga gac ctg ctg tca gag ttc aac	1920
K M L K E N A S P S E L R D L L S E F N	640
gtc ctg aag cag gtc aac cac cca cat gtc atc aaa ttg tat ggg gcc tgc agc cag gat	1980
V L K Q V N H P H V I K L Y G A C S Q D	660
ggc ccg ctc ctc ctc atc gtg gag tac gcc aaa tac ggc tcc ctg cgg ggc ttc ctc cgc	2040
G P L L L I V E Y A K Y G S L R G F L R	680
gag agc cgc aaa gtg ggg cct ggc tac ctg ggc agt gga ggc agc cgc aac tcc agc tcc	2100
E S R K V G P G Y L G S G G S R N S S S	700
ctg gac cac ccg gat gag cgg gcc ctc acc atg ggc gac ctc atc tca ttt gcc tgg cag	2160
L D H P D E R A L T M G D L I S F A W Q	720
atc tca cag ggg atg cag tat ctg gcc gag atg aag ctc gtt cat cgg gac ttg gca gcc	2220
I S Q G M Q Y L A E M K L V H R D L A A	740
aga aac atc ctg gta gct gag ggg cgg aag atg aag att tcg gat ttc ggc ttg tcc cga	2280
R N I L V A E G R K M K I S D F G L S R	760
gat gtt tat gaa gag gat tcc tac gtg aag agg agc cag ggt cgg att cca gtt aaa tgg	2340
D V Y E E D S Y V K R S Q G R I P V K W	780
atg gca att gaa tcc ctt ttt gat cat atc tac acc acg caa agt gat gta tgg tot ttt	2400
M A I E S L F D H I Y T T Q S D V W S F	800
ggt gtc ctg ctg tgg gag atc gtg acc cta ggg gga aac ccc tat cct ggg att cct cct	2460
G V L L W E I V T L G G N P Y P G I P P	820
gag cgg ctc ttc aac ctt ctg aag acc ggc cac cgg atg gag agg cca gac aac tgc agc	2520
E R L F N L L K T G H R M E R P D N C S	840
gag gag atg tac cgc ctg atg ctg caa tgc tgg aag cag gag ccg gac aaa agg ccg gtg	2580
E E M Y R L M L Q C W K Q E P D K R P V	860
ttt gcg gac atc agc aaa gac ctg gag aag atg atg gtt aag agg aga gac tac ttg gac	2640
F A D I S K D L E K M M V K R R D Y L D	880

Fig. 3C

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ctt gcg gcg tcc act cca tct gac tcc ctg att tat gac gac ggc ctc tca gag gag gag 2700
  L  A  A  S  T  P  S  D  S  L  I  Y  D  D  G  L  S  E  E  E 900

aca ccg ctg gtg gac tgt aat aat gcc ccc ctc cct cga gcc ctc cct tcc aca tgg att 2760
  T  P  L  V  D  C  N  N  A  P  L  P  R  A  L  P  S  T  W  I 920

gaa aac aaa ctc tat ggc atg tca gac ccg aac tgg cct gga gag agt cct gta cca ctc 2820
  E  N  K  L  Y  G  M  S  D  P  N  W  P  G  E  S  P  V  P  L 940

acg aga gct gat ggc act aac act ggg ttt cca aga tat cca aat gat agt gta tat gct 2880
  T  R  A  D  G  T  N  T  G  F  P  R  Y  P  N  D  S  V  Y  A 960

aac tgg atg ctt tca ccc tca gcg gca aaa tta atg gac acg ttt gat agt taa 2934
  N  W  M  L  S  P  S  A  A  K  L  M  D  T  F  D  S  * 977
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cDNA = SEQ ID NO:1

protein = SEQ ID NO:2

Fig. 3D

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atg gcg aag gcg acg tcc ggt gcc gcg ggg ctg cgt ctg ctg ttg ctg ctg ctg ccg 60
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ctg cta ggc aaa gtg gca ttg ggc ctc tac ttc tcg agg gat gct tac tgg gag aag ctg 120
  L  L  G  K  V  A  L  G  L  Y  F  S  R  D  A  Y  W  E  K  L 40

tat gtg gac cag gca gcc ggc acg ccc ttg ctg tac gtc cat gcc ctg cgg gac gcc cct 180
  Y  V  D  Q  A  A  G  T  P  L  L  Y  V  H  A  L  R  D  A  P 60

gag gag gtg ccc agc ttc cgc ctg ggc cag cat ctc tac ggc acg tac cgc aca cgg ctg 240
  E  E  V  P  S  F  R  L  G  Q  H  L  Y  G  T  Y  R  T  R  L 80

cat gag aac aac tgg atc tgc atc cag gag gac acc ggc ctc ctc tac ctt aac cgg agc 300
  H  E  N  N  W  I  C  I  Q  E  D  T  G  L  L  Y  L  N  R  S 100

ctg gac cat agc tcc tgg gag aag ctc agt gtc cgc aac cgc ggc ttt ccc ctg ctc acc 360
  L  D  H  S  S  W  E  K  L  S  V  R  N  R  G  F  P  L  L  T 120

gtc tac ctc aag gtc ttc ctg tca ccc aca tcc ctt cgt gag ggc gag tgc cag tgg cca 420
  V  Y  L  K  V  F  L  S  P  T  S  L  R  E  G  E  C  Q  W  P 140

ggc tgt gcc cgc gta tac ttc tcc ttc ttc aac acc tcc ttt cca gcc tgc agc tcc ctc 480
  G  C  A  R  V  Y  F  S  F  F  N  T  S  F  P  A  C  S  S  L 160

aag ccc cgg gag ctc tgc ttc cca gag aca agg ccc tcc ttc cgc att cgg gag aac cga 540
  K  P  R  E  L  C  F  P  E  T  R  P  S  F  R  I  R  E  N  R 180

ccc cca ggc acc ttc cac cag ttc cgc ctg ctg cct gtg cag ttc ttg tgc ccc aac atc 600
  P  P  G  T  F  H  Q  F  R  L  L  P  V  Q  F  L  C  P  N  I 200

agc gtg gcc tac agg ctc ctg gag ggt gag ggt ctg ccc ttc cgc tgc gcc ccg gac agc 660
  S  V  A  Y  R  L  L  E  G  E  G  L  P  F  R  C  A  P  D  S 220

ctg gag gtg agc acg cgc tgg gcc ctg gac cgc gag cag cgg gag aag tac gag ctg gtg 720
  L  E  V  S  T  R  W  A  L  D  R  E  Q  R  E  K  Y  E  L  V 240

gcc gtg tgc acc gtg cac gcc ggc gcg cgc gag gag gtg gtg atg gtg ccc ttc ccg gtg 780
  A  V  C  T  V  H  A  G  A  R  E  E  V  V  M  V  P  F  P  V 260

acc gtg tac gac gag gac gac tcg gcg ccc acc ttc ccc gcg ggc gtc gac acc gcc agc 840
  T  V  Y  D  E  D  D  S  A  P  T  F  P  A  G  V  D  T  A  S 280

gcc gtg gtg gag ttc aag cgg aag gag gac acc gtg gtg gcc acg ctg cgt gtc ttc gat 900
  A  V  V  E  F  K  R  K  E  D  T  V  V  A  T  L  R  V  F  D 300

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Fig. 4A

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gca gac gtg gta cct gca tca ggg gag ctg gtg agg cgg tac aca agc acg ctg ctc ccc 960
 A D V V P A S G E L V R R Y T S T L L P 320

ggg gac acc tgg gcc cag cag acc ttc cgg gtg gaa cac tgg ccc aac gag acc tcg gtc 1020
 G D T W A Q Q T F R V E H W P N E T S V 340

cag gcc aac ggc agc ttc gtg cgg gcg acc gta cat gac tat agg ctg gtt ctc aac cgg 1080
 Q A N G S F V R A T V H D Y R L V L N R 360

aac ctc tcc atc tcg gag aac cgc acc atg cag ctg gcg gtg ctg gtc aat gac tca gac 1140
 N L S I S E N R T M Q L A V L V N D S D 380

ttc cag ggc cca gga gcg gcc gtc ctc ttg ctc cac ttc aac gtg tcg gtg ctg ccg gtc 1200
 F Q G P G A G V L L L H F N V S V L P V 400

agc ctg cac ctg ccc agt acc tac tcc ctc tcc gtg agc agg agg gct cgc cga ttt gcc 1260
 S L H L P S T Y S L S V S R R A R R F A 420

cag atc ggg aaa gtc tgt gtg gaa aac tgc cag gca ttc agt ggc atc aac gtc cag tac 1320
 Q I G K V C V E N C Q A F S G I N V Q Y 440

aag ctg cat tcc tct ggt gcc aac tgc agc acg cta ggg gtg gtc acc tca gcc gag gac 1380
 K L H S S G A N C S T L G V V T S A E D 460

acc tcg ggg atc ctg ttt gtg aat gac acc aag gcc ctg cgg cgg ccc aag tgt gcc gaa 1440
 T S G I L F V N D T K A L R R P K C A E 480

ctt cac tac atg gtg gtg gcc acc gac cag cag acc tct agg cag gcc cag gcc cag ctg 1500
 L H Y M V V A T D Q Q T S R Q A Q A Q L 500

ctt gta aca gtg gag ggg tca tat gtg gcc gag gag gcg gcc tgc ccc ctg tcc tgt gca 1560
 L V T V E G S Y V A E E A G C P L S C A 520

gtc agc aag aga cgg ctg gag tgt gag gag tgt gcc gcc ctg gcc tcc cca aca gcc agg 1620
 V S K R R L E C E E C G G L G S P T G R 540

tgt gag tgg agg caa gga gat gcc aaa ggg atc acc agg aac ttc tcc acc tgc tct ccc 1680
 C E W R Q G D G K G I T R N F S T C S P 560

agc acc aag acc tgc ccc gac gcc cac tgc gat gtt gtg gag acc caa gac atc aac att 1740
 S T K T C P D G H C D V V E T Q D I N I 580

tgc cct cag gac tgc ctc cgg gcc agc att gtt ggg gga cac gag cct ggg gag ccc cgg 1800
 C P Q D C L R G S I V G G H E P G E P R 600

Fig. 4B

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ggg att aaa gct ggc tat ggc acc tgc aac tgc ttc cct gag gag gag aag tgc ttc tgc 1860
 G I K A G Y G T C N C F P E E E K C F C 620

gag ccc gaa gac atc cag gat cca ctg tgc gac gag ctg tgc cgc acg gtg atc gca gcc 1920
 E P E D I Q D P L C D E L C R T V I A A 640

gct gtc ctc ttc tcc ttc atc gtc tcg gtg ctg ctg tct gcc ttc tgc atc cac tgc tac 1980
 A V L F S F I V S V L L S A F C I H C Y 660

cac aag ttt gcc cac aag cca ccc atc tcc tca gct gag atg acc ttc cgg agg ccc gcc 2040
 H K F A H K P P I S S A E M T F R R P A 680

cag gcc ttc ccg gtc agc tac tcc tct tcc ggt gcc cgc cgg ccc tcg ctg gac tcc atg 2100
 Q A F P V S Y S S S G A R R P S L D S M 700

gag aac cag gtc tcc gtg gat gcc ttc aag atc ctg cag cct gag gga act ggc atg ata 2160
 E N Q V S V D A F K I L Q P E G T G M I 720

gat gaa gag ttc act gtt gca aga ctc tac att agc aaa atg aag tca gaa gta aaa acc 2220
 D E E F T V A R L Y I S K M K S E V K T 740

atg gtg aaa cgt tgc aag cag tta gaa agc aca caa act gag agc aac aaa aaa atg gaa 2280
 M V K R C K Q L E S T Q T E S N K K M E 760

gaa aat gaa aag gag tta gca gca tgt cag ctt cgt atc tct caa cat gaa gcc aaa atc 2340
 E N E K E L A A C Q L R I S Q H E A K I 780

aag tca ttg act gaa tac ctt caa aat gtg gaa caa aag aaa aga cag ttg gag gaa tct 2400
 K S L T E Y L Q N V E Q K K R Q L E E S 800

gtc gat gcc ctc agt gaa gaa cta gtc cag ctt cga gca caa gag aaa gtc cat gaa atg 2460
 V D A L S E E L V Q L R A Q E K V H E M 820

gaa aag gag cac tta aat aag gtt cag act gca aat gaa gtt aag caa gct gtt gaa cag 2520
 E K E H L N K V Q T A N E V K Q A V E Q 840

cag atc cag agc cat aga gaa act cat caa aaa cag atc agt agt ttg aga gat gaa gta 2580
 Q I Q S H R E T H Q K Q I S S L R D E V 860

gaa gca aaa gca aaa ctt att act gat ctt caa gac caa aac cag aaa atg atg tta gag 2640
 E A K A K L I T D L Q D Q N Q K M M L E 880

Fig. 4C

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cag gaa cgt cta aga gta gaa cat gag aag ttg aaa gcc aca gat cag gaa aag agc aga	2700
Q E R L R V E H E K L K A T D Q E K S R	900
aaa cta cat gaa ctt acg gtt atg caa gat aga cga gaa caa gca aga caa gac ttg aag	2760
K L H E L T V M Q D R R E Q A R Q D L K	920
ggt ttg gaa gag aca gtg gca aaa gaa ctt cag act tta cac aac ctg cgc aaa ctc ttt	2820
G L E E T V A K E L Q T L H N L R K L F	940
gtt cag gac ctg gct aca aga gtt aaa aag agt gct gag att gat tct gat gac acc gga	2880
V Q D L A T R V K K S A E I D S D D T G	960
ggc agc gct gct cag aag caa aaa atc tcc ttt ctt gaa aat aat ctt gaa cag ctc act	2940
G S A A Q K Q K I S F L E N N L E Q L T	980
aaa gtg cac aaa cag ttg gta cgt gat aat gca gat ctc cgc tgt gaa ctt cct aag ttg	3000
K V H K Q L V R D N A D L R C E L P K L	1000
gaa aag cga ctt cga gct aca gct gag aga gtg aaa gct ttg gaa tca gca ctg aaa gaa	3060
E K R L R A T A E R V K A L E S A L K E	1020
gct aaa gaa aat gca tct cgt gat cgc aaa cgc tat cag caa gaa gta gat cgc ata aag	3120
A K E N A S R D R K R Y Q Q E V D R I K	1040
gaa gca gtc agg tca aag aat atg gcc aga aga ggg cat tct gca cag att gct aaa cct	3180
E A V R S K N M A R R G H S A Q I A K P	1060
att cgt ccc ggg caa cat cca gca gct tct cca act cac cca agt gca att cgt gga gga	3240
I R P G Q H P A A S P T H P S A I R G G	1080
ggt gca ttt gtt cag aac agc cag cca gtg gca gtg cga ggt gga gga ggc aaa caa gtg	3300
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taa 3360 SEQ ID NO:3
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Fig. 4D

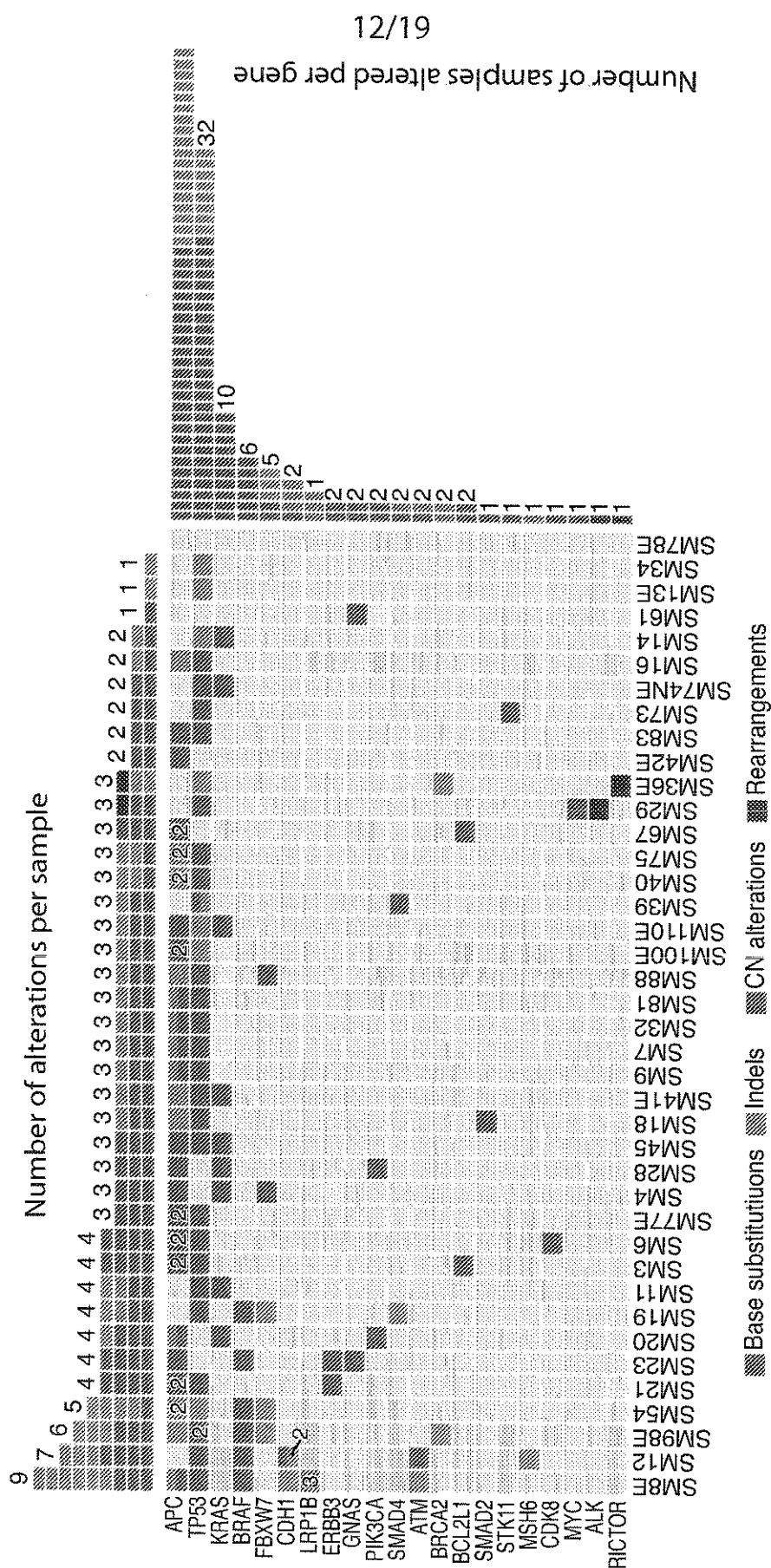


Fig. 5

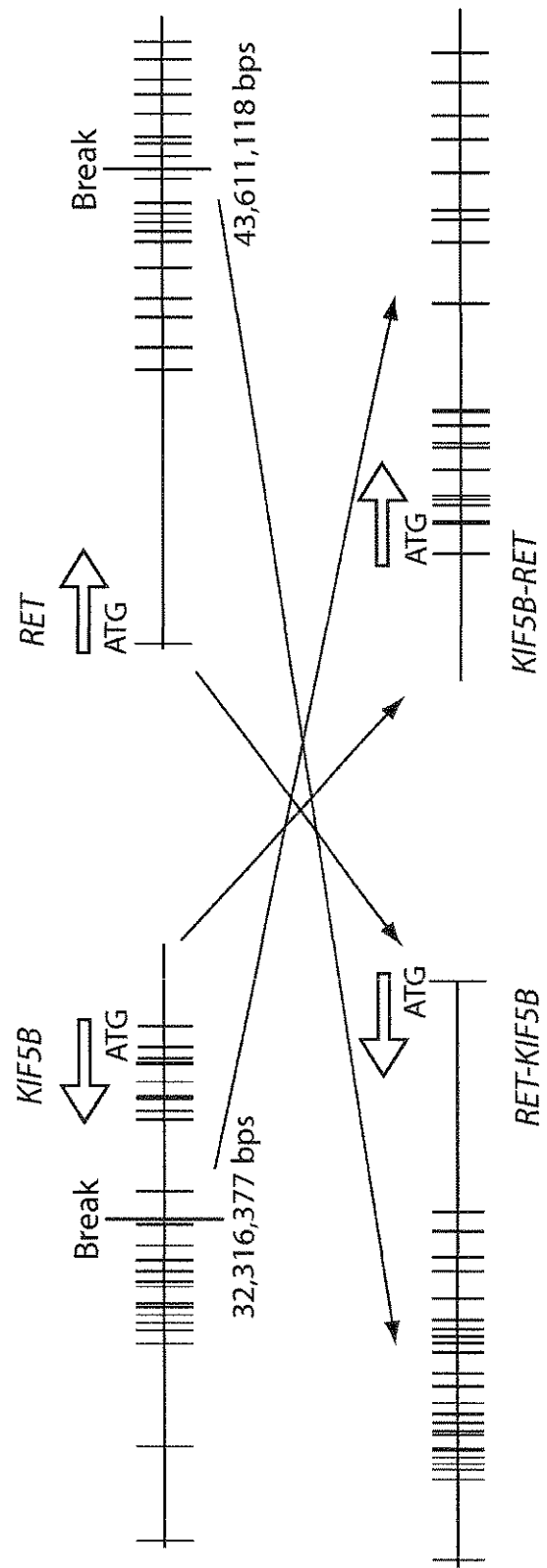
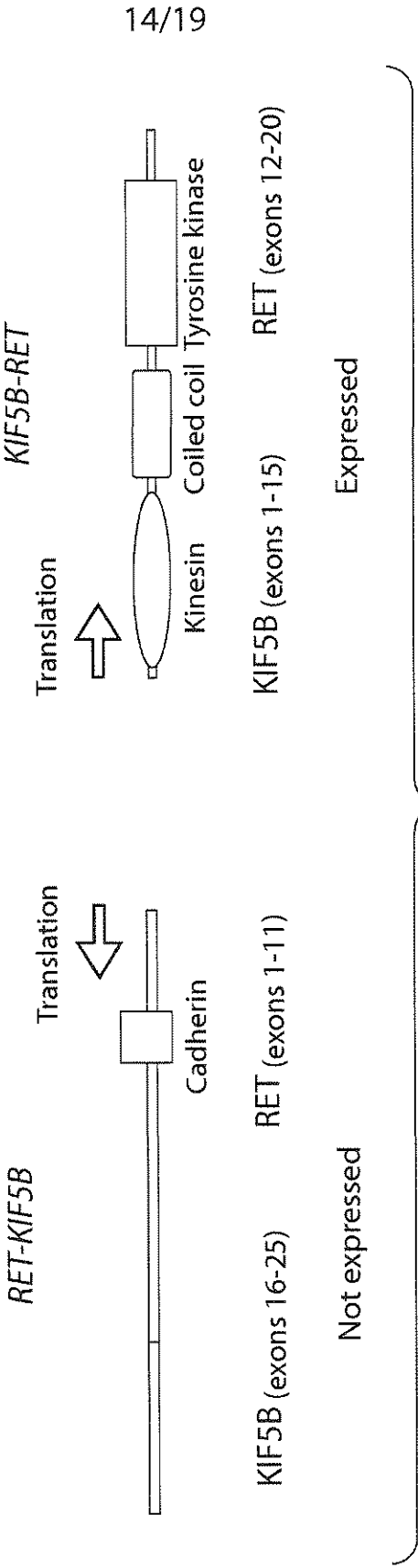


Fig. 6A



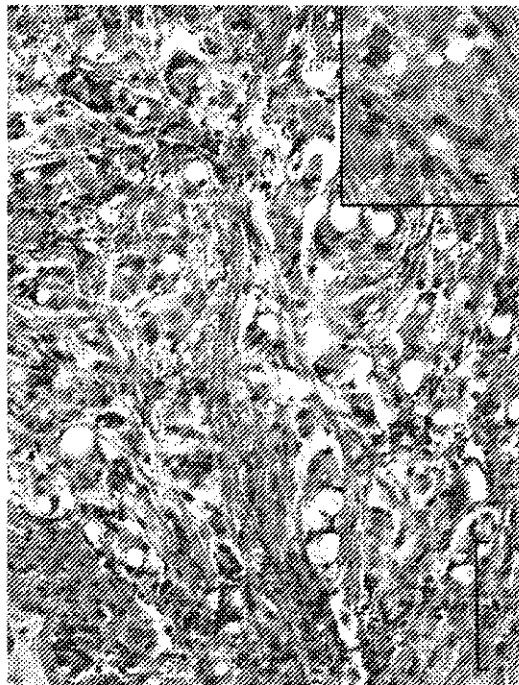


Fig. 6C

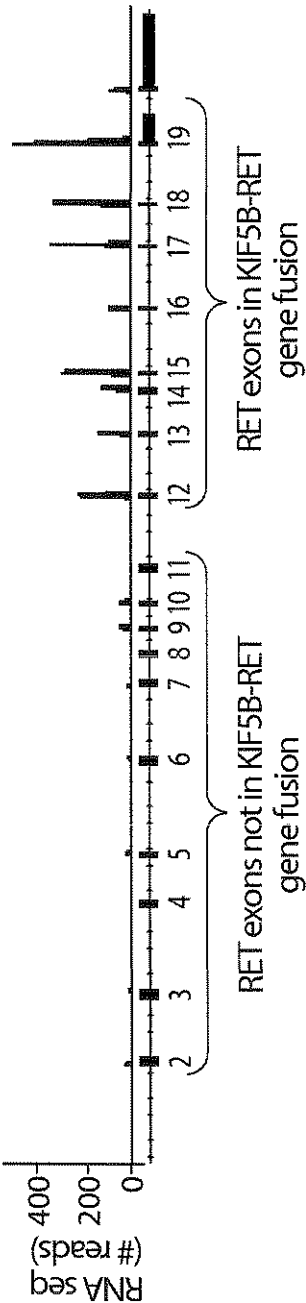


Fig. 6D

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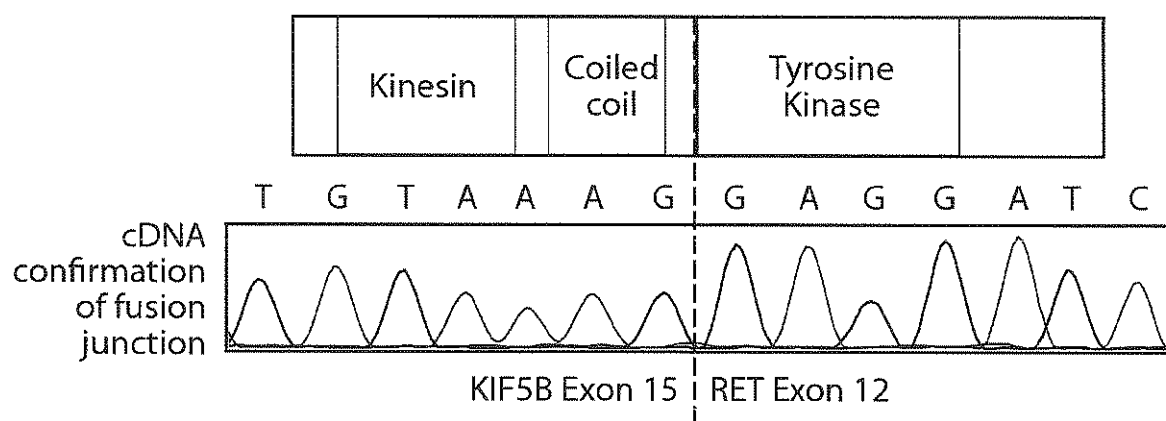


Fig. 7A

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1 MADLAECNIKVMCRFRPLNESEVNRGDKYIAKFQGEDTVVIAASKPYAFDRVFQSSTSQEQ
61 VYNDCAKKIVKDVLEGYNGTIFAYGQTSSGKTHMEGKLHDPEGMGIIIPRIVQDIFNYIY
121 SMDENLEFFHIKVSFFEIYLDKIRDLLDVSKTNLSVHEDKNRVPYVKGCTERFVCSPEVM
181 DTIDEGKSNRHHVAVTNMNEHSSRSHSIFLINVKQENTQTEQKLSGKLYLVDLAGSEKVS
241 TGAEGAVLDEAKNINKSLSALGNVISALAEGSTYVPYRDSKMTIRILQDSLGNCRITII
301 CCSPSSYNESETKSTLLFGQRAKTIKNTVCVNVVELTAEQWKKKYEKEKKNKILRNTIQW
361 LENELNRWRNGETVPIDEQFDKEKANLEAFTVDKDI TLTNDKPATAIGVIGNFTDAERRK
421 CEEETAKLYKQLDDKDEEINQSQSLVEKLKTQMLDQEEELLASTRRDQDNMQAELNRLQAE
481 NDASKEEVKEVLQALEELAVNYDQKSQEVEDKTKEYELLSDLELNQKSATLASIDAELQKL
541 KEMTNHQKRAAEMMASLLKDLAEIGIAVGNNNDVKEDPKWEFFPRKKNLVLGKTLGEGEFGK
601 VVKATAFHLKGRAGYTTVAVKMLKENASPSSELRDLLSEFNVLKQVNHHPHVIKLYGACSQD
661 GPLLLIVEYAKYGSLLRGFLRESRKVGPYLGSGGSRNSSSLDHPDERALTMGDLISFAWQ
721 ISQGMQYLAEMKLVHRDLAARNILVAEGRKMKISDFGLSRDVYEEDSYVKRSQGRIPVKW
781 MAIESLFDHIYTTQSDVWSFGVLLWEIVTLGGNPYPGIPPERLFNLKTGHRMERPDNCS
841 EEMYRLMLQCWKQEPDKRPVFADISKDLEKMMVKRRDYLDLAASTPSDSL IYDDGLSEEE
901 TPLVDCNNAPLPRALPSTWIENKLYGMSDPNWPGESPVPLTRADGTNTGFPRYPNDSVYA
961 NWMLSPSAAKLMDTFDS

Fig. 7B

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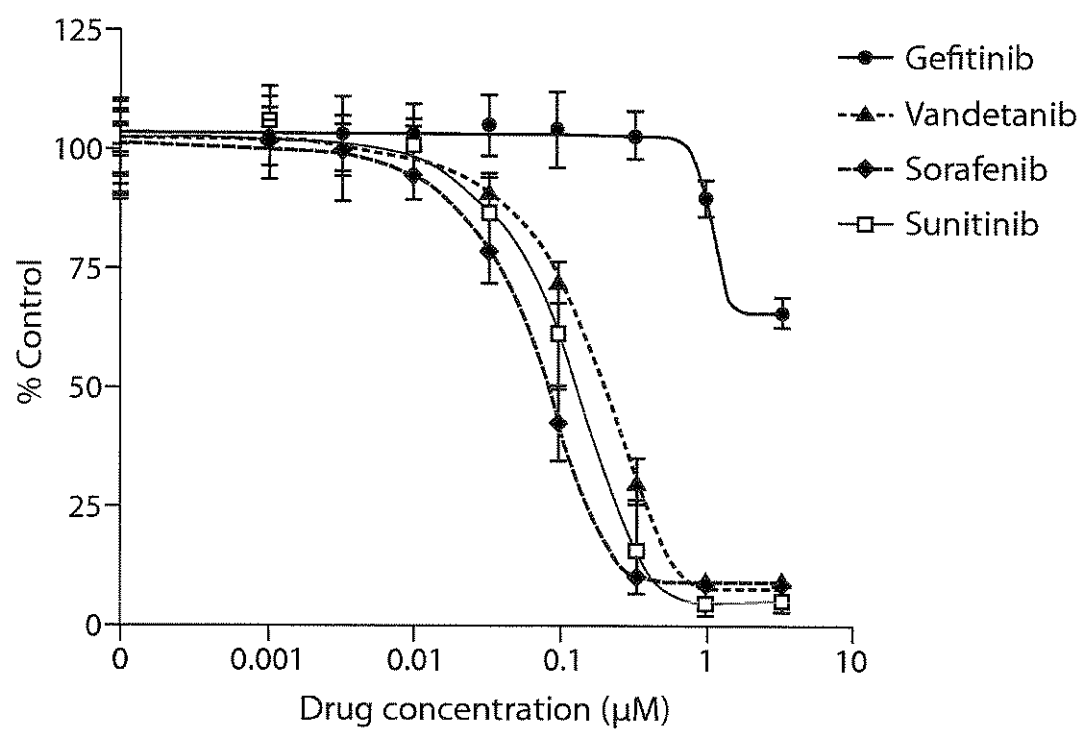


Fig. 8

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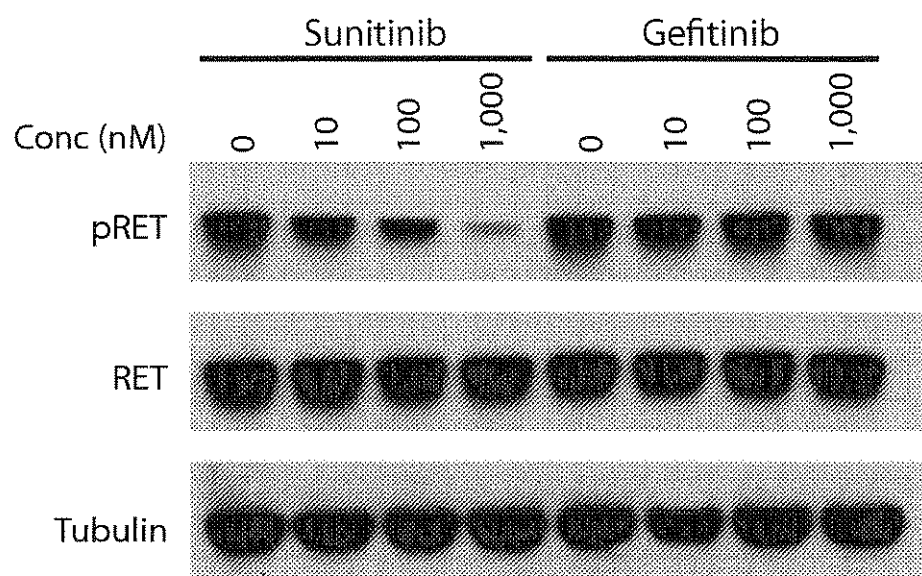


Fig. 9