

1 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160

FADS9-1 ATGGCAACTCCTCT CCCCCTCCTT CTGCTCCC GCGACACAGACGGAAACCCGAGAGATCCTCTCCAGACAGGAACTGCCCTCTT TCCCCGAGAAAATCACCATT TCAACATCTGGAGATATCTTGACTACAAGCATGTTT TGGTCTGGG

AF085500 ATGGCAACTCCTCT CCCCCTCCTT CTGCTCCC GCGACACAGACGGAAACCCGAGAGATCCTCTCCAGACAGGAACTGCCCTCTT TCCCCGAGAAAATCACCATT TCAACATCTGGAGATATCTTGACTACAAGCATGTTT TGGTCTGGG

AB015611 ATGGCAACTCCTCT CCCCCTCCTT CTGCTCCC GCGACACAGACGGAAACCCGAGAGATCCTCTCCAGACAGGAACTGCCCTCTT TCCCCGAGAAAATCACCATT TCAACATCTGGAGATATCTTGACTACAAGCATGTTT TGGTCTGGG

M A T P L P P S F V V P A T Q T E T R R D P L Q H E E L P P L F P E K I T I I F N I W R Y L D Y K H V L G L G
M A T P L P P S F V V P A T Q T E T R R D P L Q H E E L P P L F P E K I T I I Y N I W R Y L D Y K H V F G L G
M A T P L P P S F V V P A T Q T E T R R D P L Q H E E L P P L F P E K I T I I Y N I W R Y L D Y K H V Y G L G

170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320

CTGAC CTTTGTGATCGG CTCTA GGG CT TTTGACGACCGAGATCCAGACGAAGAC CTGATCTGGTCCATCATCTACTA TATGCTACGGG CTTGG ATCACAGCAGGTTA CATCGACTCTGGGCCATCGTGC TTACAACGAGGACC GCCATGAGC
CTGAC CTTTGTGATCGG CTCTA GGG CT TTTGACGACCGAGATCCAGACGAAGAC CTGATCTGGTCCATCATCTACTA TATGCTACGGG CTTGG ATCACAGCAGGTTA CATCGACTCTGGGCCATCGTGC TTACAACGAGGACC GCCATGAGC
CTGAC CTTTGTGATCGG CTCTA GGG CT TTTGACGACCGAGATCCAGACGAAGAC CTGATCTGGTCCATCATCTACTA TATGCTACGGG CTTGG ATCACAGCAGGTTA CATCGACTCTGGGCCATCGTGC TTACAACGAGGACC GCCATGAGC

L T P L I A L Y G L L T T E I Q T K T L I W S I I Y Y Y A T G L G I T A G Y H R L W A H R A Y N A G P A M S
L T P L I A L Y G L L T T E I Q T K T L I W S I I Y Y Y A T G L G I T A G Y H R L W A H R A Y N A G P A M S
L T P L I A L Y G L L T T E I Q T K T L I W S I I Y Y Y A T G L G I T A G Y H R L W A H R A Y N A G P A M S

330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480

TTCTG CTGCACCTGCTGGCC GGTGC GTTGAAGGATCTATCAAGTGGTGGTCCCGCGGCCACCGTGTCTACCACCG TGGAC GACAC GAGAAGGA CCCTA AGCGCTCACCG GGACT TTTTCTCGCACATTTGGCTGGATG TGAACAAGCG
TTCTG CTGCACCTGCTGGCC GGTGC GTTGAAGGATCTATCAAGTGGTGGTCCCGCGGCCACCGTGTCTACCACCG TGGAC GACAC GAGAAGGA CCCTA AGCGCTCACCG GGACT TTTTCTCGCACATTTGGCTGGATG TGAACAAGCG
TTCTG CTGCACCTGCTGGCC GGTGC GTTGAAGGATCTATCAAGTGGTGGTCCCGCGGCCACCGTGTCTACCACCG TGGAC GACAC GAGAAGGA CCCTA AGCGCTCACCG GGACT TTTTCTCGCACATTTGGCTGGATG TGAACAAGCG

F V L A L L G A G A V E G S I K W W S R G H R A H H R W T D T E K D P Y S A H R G L F F S H I G W M L I K R
F V L A L L G A G A V E G S I K W W S R G H R A H H R W T D T E K D P Y S A H R G L F F S H I G W M L I K R
F V L A L L G A G A V E G S I K W W S R G H R A H H R W T D T E K D P Y S A H R G L F F S H I G W M L I K R

490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640

CCTGGATGGAAGATTGGCCATGCCGATG TACGACCTCAACAAGAGCAAACTCGTTCAAGTGGGACGACAAAGAACTA CTCTCTTGTCT ATATGGGT TGTCTTCCCACG GTTGTGTGTTGG CTGGCTGGGGCGA TGGCG TGGAGG TACTTC
CCTGGATGGAAGATTGGCCATGCCGATG TACGACCTCAACAAGAGCAAACTCGTTCAAGTGGGACGACAAAGAACTA CTCTCTTGTCT ATATGGGT TGTCTTCCCACG GTTGTGTGTTGG CTGGCTGGGGCGA TGGCG TGGAGG TACTTC
CCTGGATGGAAGATTGGCCATGCCGATG TACGACCTCAACAAGAGCAAACTCGTTCAAGTGGGACGACAAAGAACTA CTCTCTTGTCT ATATGGGT TGTCTTCCCACG GTTGTGTGTTGG CTGGCTGGGGCGA TGGCG TGGAGG TACTTC

P G W K I G H A D V D D L N K S K L V Q W Q H K N Y L P L V L I M G V V F P T V V A G L G W G D W R G G Y F
P G W K I G H A D V D D L N K S K L V Q W Q H K N Y L P L V L I M G V V F P T V V A G L G W G D W R G G Y F
P G W K I G H A D V D D L N K S K L V Q W Q H K N Y L P L V L I M G V V F P T V V A G L G W G D W R G G Y F

650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810

TATGCTGC ATCT CGTCTTGTCTTGT TACCAGCCACCTT TGTGTCAACTCCCTGGC CA TGGCTCGG GATGGACCCCTTGTGATGACCCGCCACT CCCCAGCCACTT ATCACTGCTTTGTCACTTTGGG GAGG TACCACAACCTT CAT
TATGCTGC ATCT CGTCTTGTCTTGT TACCAGCCACCTT TGTGTCAACTCCCTGGC CA TGGCTCGG GATGGACCCCTTGTGATGACCCGCCACT CCCCAGCCACTT ATCACTGCTTTGTCACTTTGGG GAGG TACCACAACCTT CAT
TATGCTGC ATCT CGTCTTGTCTTGT TACCAGCCACCTT TGTGTCAACTCCCTGGC CA TGGCTCGG GATGGACCCCTTGTGATGACCCGCCACT CCCCAGCCACTT ATCACTGCTTTGTCACTTTGGG GAGG TACCACAACCTT CAT

Y A A I L R L V F V H H A T F C V N S L A H W L G D G P P D D R H S P R D H F I T A F V T L G E G Y H N F H
Y A A I L R L V F V H H A T F C V N S L A H W L G D G P P D D R H S P R D H F I T A F V T L G E G Y H N F H
Y A A I L R L V F V H H A T F C V N S L A H W L G D G P P D D R H S P R D H F I T A F V T L G E G Y H N F H

820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970

CACCA TCCCCAGGACTACCGCAACGCTATCCGTTT TACCAGTACGA CTTAC TAAAGTGGTGCAT GCC TCTG GCTTTCTTTGGCTCGCT C CACCT AAGACCTTCCCAGTGAAG GAGT CGCAAGGTCAGCTCCAGATGTTGAGAAGCGT
CACCA TCCCCAGGACTACCGCAACGCTATCCGTTT TACCAGTACGA CTTAC TAAAGTGGTGCAT GCC TCTG GCTTTCTTTGGCTCGCT C CACCT AAGACCTTCCCAGTGAAG GAGT CGCAAGGTCAGCTCCAGATGTTGAGAAGCGT
CACCA TCCCCAGGACTACCGCAACGCTATCCGTTT TACCAGTACGA CTTAC TAAAGTGGTGCAT GCC TCTG GCTTTCTTTGGCTCGCT C CACCT AAGACCTTCCCAGTGAAG GAGT CGCAAGGTCAGCTCCAGATGTTGAGAAGCGT

H Q F P Q D Y R N A I R F Y Q Y D P T K W V I A L C A F F G L A S H L K T F P E N E V R K G Q L Q M I E K R
H Q F P Q D Y R N A I R F Y Q Y D P T K W V I A L C A F F G L A S H L K T F P E N E V R K G Q L Q M I E K R
H Q F P Q D Y R N A I R F Y Q Y D P T K W V I A L C A F F G L A S H L K T F P E N E V R K G Q L Q M I E K R

980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130

GTC TGGAGAAGAAGACCAAGCT CAGTGGGGCAC CCAATTGCCGATCTGCCATTTCTGAGCTTTGAGACT CCAGCATGC TTGCAA AACGACAACAAGAAGTGGAT CTTTGGAGGG GTCGT TACGA GTTGC GACTT ATG C GAGACCCCT
GTC TGGAGAAGAAGACCAAGCT CAGTGGGGCAC CCAATTGCCGATCTGCCATTTCTGAGCTTTGAGACT CCAGCATGC TTGCAA AACGACAACAAGAAGTGGAT CTTTGGAGGG GTCGT TACGA GTTGC GACTT ATG C GAGACCCCT
GTC TGGAGAAGAAGACCAAGCT CAGTGGGGCAC CCAATTGCCGATCTGCCATTTCTGAGCTTTGAGACT CCAGCATGC TTGCAA AACGACAACAAGAAGTGGAT CTTTGGAGGG GTCGT TACGA GTTGC GACTT ATG C GAGACCCCT

V L E K K T K L Q W G T P I A D L P I L S F E D P Q H A C K N D N K K W I L L E G V V Y D V A D F M H E H P
V L E K K T K L Q W G T P I A D L P I L S F E D P Q H A C K N D N K K W I L L E G V V Y D V A D F M H E H P
V L E K K T K L Q W G T P I A D L P I L S F E D P Q H A C K N D N K K W I L L E G V V Y D V A D F M H E H P

1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290

GG TGGAGAAGTAC TCAAGATGGGCGT GGGCAAGGACATGAC GCAGC TTCAACGGCGG ATGTACGATCACAGCAA GCCCGCCGCAAC TGCTGAGCTTGATGCCGCT GCCGCTGTTGAGTATGGTGGTGA GT GAGGC CAGAAGAAGAACCCCT
GG TGGAGAAGTAC TCAAGATGGGCGT GGGCAAGGACATGAC GCAGC TTCAACGGCGG ATGTACGATCACAGCAA GCCCGCCGCAAC TGCTGAGCTTGATGCCGCT GCCGCTGTTGAGTATGGTGGTGA GT GAGGC CAGAAGAAGAACCCCT
GG TGGAGAAGTAC TCAAGATGGGCGT GGGCAAGGACATGAC GCAGC TTCAACGGCGG ATGTACGATCACAGCAA GCCCGCCGCAAC TGCTGAGCTTGATGCCGCT GCCGCTGTTGAGTATGGTGGTGA GT GAGGC CAGAAGAAGAACCCCT

G G E K Y L K M G V G K D M T A A F N G G M Y D H S N A A R N L L S L M R V A V V E Y G G E V E A Q K K N P
G G E K Y L K M G V G K D M T A A F N G G M Y D H S N A A R N L L S L M R V A V V E Y G G E V E A Q K K N P
G G E K Y L K M G V G K D M T A A F N G G M Y D H S N A A R N L L S L M R V A V V E Y G G E V E A Q K K N P

1300 1310 1320 1330 1338

TCGATGCCCATCTACGGCACTGACCACG CAAGGCCGAATA
TCGATGCCCATCTACGGCACTGACCACG CAAGGCCGAATA
TCGATGCCCATCTACGGCACTGACCACG CAAGGCCGAATA

S M P I Y G T D H V K A E
S M P I Y G T D H V K A E
S M P I Y G T D H A K A E

Figure S3