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Certificate of Analysis

Abl (M351T), active

(Recombinant enzyme expressed in Sf21 insect cells)
Item # 14-757, 14-757-K, 14-757M
Parent Lot # 1643914

The data presented in this document apply to the parent lot shown above and to all pack sizes derived from subsequent vialling runs of this parent lot. An alphabetical suffix after the parent lot number is used to denote each vialling run.

Product Description: *N*-terminal 6His-tagged recombinant human Abl, residues 27–end containing the M351T mutation. Expressed by baculovirus in Sf21 insect cells. Purified using Ni^{2+}/NTA agarose.
The Abl tyrosine kinase inhibitor STI571 is an effective therapy for stable-phase chronic myeloid leukaemia patients. Many patients responding to STI571 later relapse due to a reactivation of Bcr-Abl activity. In certain cases this appears to correlate with the presence of the M351T mutation, which confers resistance to drug binding (Shah et al., (2002), Cancer Cell 2, 117-125).
Purity 40% by SDS-PAGE and Coomassie staining. MW = 121.4kDa.

Specific Activity (Parent lot# 1643914): 899U/mg, where one unit of Abl (M351T) activity is defined as 1nmol phosphate incorporated into 50µM Abltide (EAIYAAPFAKKK) per minute at 30°C with a final ATP concentration of 100µM.

Formulation: 0.783mg/ml of enzyme in 50mM Tris/HCl pH7.5, 150mM NaCl, 270mM sucrose, 1mM benzamidine, 0.2mM PMSF, 0.1mM EGTA, 0.1% 2-mercaptoethanol, 0.03% Brij-35. Frozen solution.

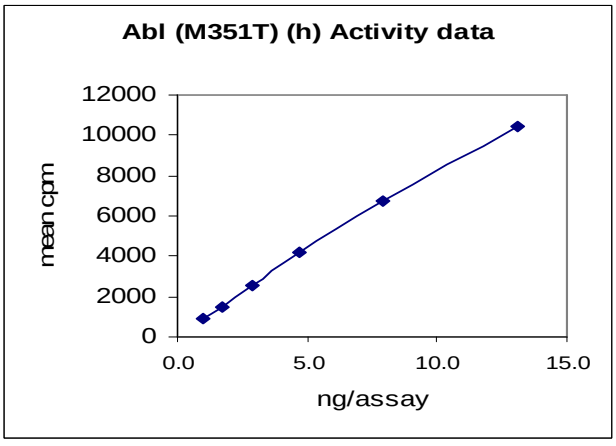
Storage and Stability: On receipt of material store at -70°C. Unopened reagent is stable for a minimum of 1 year from date of shipment when stored at recommended storage temperature. Avoid repeat freeze/thaw cycles. For maximum recovery of product, centrifuge original vial prior to removing the cap.

Handling Recommendations: Rapidly thaw the vial under cold water and immediately place on ice. Aliquot unused material into pre-chilled microcentrifuge tubes and immediately snap-freeze the vials in liquid nitrogen prior to re-storage at -70°C.

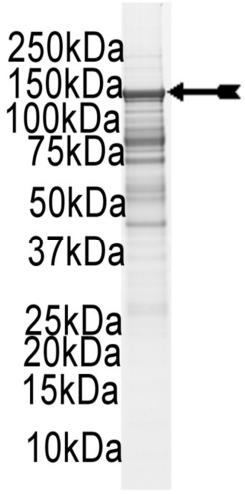
FOR IN VITRO RESEARCH USE ONLY
NOT FOR USE IN HUMANS OR ANIMALS

Quality Control Testing

Kinase Assay: 1.0–13.1ng of this lot of enzyme phosphorylated 50µM Abltide (EAIYAAPFAKKK) in the assay described on page two. Assay background was subtracted from the actual counts to yield the results shown below.



MS Tryptic Fingerprint: Confirmed product identity as Abl (M351T) with the translated sequence listed on page three.



SDS-PAGE and Coomassie Stain: Purity was assessed by SDS-PAGE and Coomassie blue staining using 3µg of Abl (M351T), active.

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Kinase Assay Protocol

Stock Solutions:

1. **5 x Reaction Buffer:** 40mM MOPS/NaOH pH7.0, 1mM EDTA.
2. **Abltide (EAIYAAPFAKKK):** Use at a final assay concentration of 50µM. Prepare a 500µM stock and add 2.5µl of stock per assay point.
3. **Abl (M351T), active:** Dilute with 20mM MOPS/NaOH pH7.0, 1mM EDTA, 0.01% Brij-35, 5% glycerol, 0.1% 2-mercaptoethanol, 1mg/ml BSA. Use 1.0–13.1ng per assay point.
4. **[γ-^{33}P]ATP:** 2.5 x magnesium acetate/[γ-^{33}P]ATP cocktail: 25mM MgAc and 0.25mM ATP to which is added [γ-^{33}P]ATP (specific activity approximately 500 - 800cpm/pmol as required.)

Assay Procedure (96 well plate format):

1. Add 5µl of 5 x reaction buffer per assay to wells.
2. Add 2.5µl of **Abltide**.
3. Add **2.5µl (1.0–13.1ng Abl (M351T), active**.
4. Add 5µl of dH_2O.
5. Add 10µl of diluted [γ-^{33}P]ATP mixture.
6. Incubate for 10 minutes at 30°C.
7. Stop the reaction by adding 5µl of 3% phosphoric acid.
8. Transfer a 10µl aliquot onto the appropriate area of a **P30 Filtermat**.
9. Wash the filtermat three times for 5 minutes with 75mM phosphoric acid.
10. Wash the filtermat once for 2 minutes with methanol.
11. Transfer the filtermat to a sealable plastic bag and add 4ml of scintillation cocktail.
12. Read in a scintillation counter. Compare cpm of enzyme samples with cpm of control samples that contain all assay components plus 1µl of 30% phosphoric acid.

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Abl (M351T) Sequence Information

Protein	Human Abl (27–end, M351T)
Tags	*N*-terminal 6His
Native sequence	E10 of recombinant sequence is equivalent to E27 of native human Abl
Accession number	GenBank U07563

Recombinant Abl (M351T) amino acid sequence:

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   1 MHHHHHHEFE ALQRPVASDF EPQGLSEAAR WNSKENLLAG PSENDPNLFV ALYDFVASGD
  61 NTLSITKGEK LRVLGYNHNG EWCEAQTKNG QGWVPSNYIT PVNSLEKHSW YHGPVSRNAA
 121 EYLLSSGING SFLVRESESS PGQRSISLRY EGRVYHYRIN TASDGKLYVS SESRFNTLAE
 181 LVHHHSTVAD GLITTLHYPA PKRNKPTVYG VSPNYDKWEM ERTDITMKHK LGGGQYGEVY
 241 EGVWKKYSLT VAVKTLKEDT MEVEEFLKEA AVMKEIKHPN LVQLLGVCTR EPPFYIITEF
 301 MTYGNLLDYL RECNRQEVNA VVLLYMATQI SSATEYLEKK NFIHRDLAAR NCLVGENHLV
 361 KVADFGLSRL MTGDTYTAHA GAKFPIKWTA PESLAYNKFS IKSDVWAFGV LLWEIATYGM
 421 SPYPGIDLSQ VYELLEKDYR MERPEGCPEK VYELMRACWQ WNPSDRPSFA EIHQAFETMF
 481 QESSISDEVE KELGKQGVRG AVSTLLQAPE LPTKTRTSRR AAEHRDTTDV PEMPHSKGQG
 541 ESDPLDHEPA VSPLLPRKER GPPEGGLNED ERLLPKDKKT NLFSALIKKK KKTAPTPPKR
 601 SSSFREMDGQ PERRGAGEEE GRDISNGALA FTPLDTADPA KSPKPSNGAG VPNGALRESG
 661 GSGFRSPHLW KKSSTLTSSR LATGEEEGGG SSSKRFLRSC SASCVPHGAK DTEWRSVTLP
 721 RDLQSTGRQF DSSTFGGHKS EKPALPRKRA GENRSDQVTR GTVTPPPRLV KKNEEAADEV
 781 FKDIMESSPG SSPPNLTPKP LRRQVTVAPA SGLPHKEEAG KGSALGTPAA AEPVTPTSKA
 841 GSGAPGGTSK GPAEESRVRR HKHSSESPGR DKGKLSRLKP APPPPPAASA GKAGGKPSQS
 901 PSQEAAGEAV LGAKTKATSL VDAVNSDAAK PSQPGEGLKK PVLPATPKPQ SAKPSGTPIS
 961 PAPVPSTLPS ASSALAGDQP SSTAFIPLIS TRVSLRKTRQ PPERIASGAI TKGVVLDSTE
1021 ALCLAISRNS EQMASHSAVL EAGKNLYTFC VSYVDSIQQM RNKFAFREAI NKLENNLREL
1081 QICPATAGSG PAATQDFSKL LSSVKEISDI VQR
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Recombinant Abl (M351T) nucleotide sequence:

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   1 atgcatcatc accatcacca tgaattcgaa gcccttcagc ggccagtagc atctgacttt
  61 gagcctcagg gtctgagtga agccgctcgt tggaactcca aggaaaacct tctcgctgga
 121 cccagtgaaa atgaccccaa ccttttcgtt gcactgtatg attttgtggc cagtggagat
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 241 gaatggtgtg aagcccaaac caaaaatggc caaggctggg tcccaagcaa ctacatcacg
 301 ccagtcaaca gtctggagaa acactcctgg taccatgggc ctgtgtcccg caatgccgct
 361 gagtatctgc tgagcagcgg gatcaatggc agcttcttgg tgcgtgagag tgagagcagt
 421 cctggccaga ggtccatctc gctgagatac gaagggaggg tgtaccatta caggatcaac
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 541 ttggttcatc atcattcaac ggtggccgac gggctcatca ccacgctcca ttatccagcc
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 721 gagggcgtgt ggaagaaata cagcctgacg gtggccgtga agaccttgaa ggaggacacc
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Reviewed and approved by site quality representative.