

# EML4 ALK

Echinoderm microtubule-associated protein-like 4 anaplastic lymphoma kinase fusionprotein

Recombinant Human Active Protein Kinase

HGNC Symbol: n/a

Synonyms: n/a

Product No.: 1246-0000-1

Lot: 003

**Description:** Human pathological fusionprotein EML4 ALK, full length, amino acids M<sub>1</sub>-P<sub>1059</sub> (as in NCBI/Protein entry BAF73611.1), N-terminal GST-HIS<sub>6</sub> fusion protein with a 3C cleavage site, expressed in Sf9 insect cells

**Product identity:** EML4 ALK Lot 003, was confirmed as EML4 ALK by mass spectroscopy LC-ESI-MS/MS

**Theoretical MW<sub>Fusion Protein</sub>:** 145.447 Da

**Expression:** Baculovirus infected Sf9 cells

**Purification:** GST-Affinity Chromatography

**Activation:** This kinase was not activated by special procedures

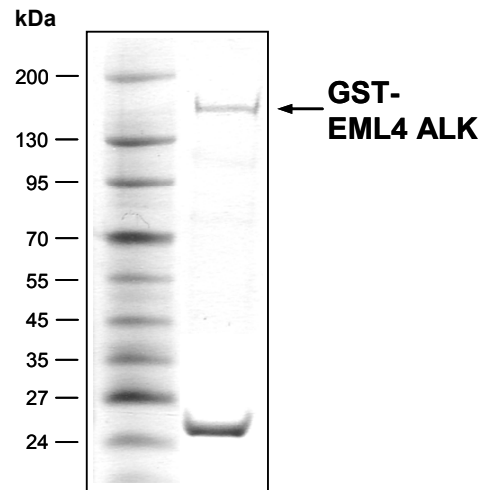
**Storage buffer:** 50 mM HEPES pH 7.5, 100 mM NaCl, 5 mM DTT, 15 mM reduced glutathione, 20% glycerol

**Storage temperature:** -80°C  
Avoid repeated freeze-thaw cycles!

**Protein concentration:** 0.095 µg/µl  
(Bradford method using BSA [Sigma, cat# A-7638, Lot 79H7641] as standard protein)

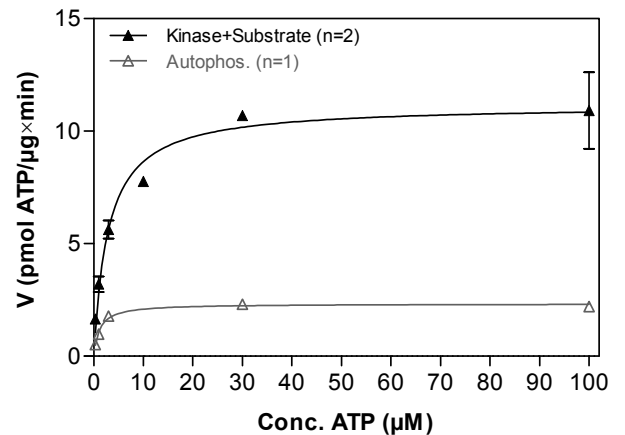
**Biochemical Parameters:**  
Specific activity: 11 pmol/µg×min  
ATP-K<sub>M</sub>: 2.9 µM

**EML4 ALK Lot 003:  
Coomassie stain**



2.0 µg GST-EML4 ALK

**EML4 ALK Lot 003:  
Determination of V<sub>max</sub> and K<sub>M</sub> value for ATP**



**Determination of K<sub>M</sub> value & Specific activity:**

- Assay conditions:
  - 60 mM HEPES-NaOH, pH 7.5
  - 3 mM MgCl<sub>2</sub>
  - 3 mM MnCl<sub>2</sub>
  - 3 µM Na-orthovanadate
  - 1.2 mM DTT
  - 50 µg / ml PEG<sub>20,000</sub>
  - ATP (variable)
  - Substrate: TRK-C derived peptide
  - EML4 ALK: 2.0 µg / ml
- Filter binding assay
  - MSPH membrane (Millipore)

**Additional assay technology:** EML4 ALK Lot 003

was also successfully tested by ProQinase for the use with the ADP-Glo™ Kinase assay from Promega

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EML4ALK Recombinant Fusion Protein Amino Acid Sequence							
1	MSPILGYWKI	KGLVQPTRL	LEYLEEKYEE	HLYERDEGDK	WRNKKFELGL	EFPNLPYYID	60
61	GDVKLTQSMA	IIRYIADKHN	MLGGCPKERA	EISMLEGAVL	DIRYGVSRIA	YSKDFETLKV	120
121	DFLSKLPEML	KMFEDRLCHK	TYLNGDHVTH	PDFMLYDALD	VVLYMDPMCL	DAFPKLVCFK	180
181	KRIEAIPOID	KYLKSSKYIA	WPLQGWQATF	GGGDHPPKSD	PMG <b>HHHHHH</b> HG	RDS <b>LEVL</b> FQG	240
241	<b>PLAM</b> DFG <b>FAGS</b>	<b>LDD</b> SISA <b>AST</b>	<b>SDV</b> QDR <b>LSAL</b>	<b>ESR</b> VQ <b>Q</b> Q <b>EDE</b>	<b>ITV</b> LKA <b>ALAD</b>	<b>VLRR</b> LAI <b>SED</b>	300
301	<b>HVA</b> SV <b>K</b> SV <b>S</b>	<b>SKG</b> QPS <b>PRAV</b>	<b>IPM</b> SCIT <b>NGS</b>	<b>GAN</b> RKPS <b>H</b> TS	<b>AVS</b> IAG <b>K</b> ETL	<b>SSA</b> AK <b>S</b> TE <b>K</b>	360
361	<b>KKE</b> K <b>P</b> Q <b>Q</b> RE	<b>KKE</b> ESH <b>S</b> NDQ	<b>SPQ</b> IRAS <b>P</b> SP	<b>QP</b> SS <b>Q</b> PL <b>Q</b> I <b>H</b>	<b>RQ</b> T <b>P</b> ES <b>K</b> NAT	<b>PTK</b> SI <b>K</b> R <b>P</b> SP	420
421	<b>AEK</b> SH <b>N</b> SW <b>EN</b>	<b>SDD</b> SR <b>N</b> KL <b>SK</b>	<b>IP</b> ST <b>P</b> KL <b>IP</b> K	<b>VTK</b> TAD <b>K</b> HKD	<b>VI</b> IN <b>Q</b> E <b>G</b> E <b>Y</b> I	<b>KMF</b> MR <b>G</b> RP <b>IT</b>	480
481	<b>MF</b> IP <b>S</b> DV <b>D</b> NY	<b>DD</b> IR <b>T</b> EL <b>P</b> PE	<b>KL</b> KLE <b>W</b> AY <b>G</b> Y	<b>RG</b> KDC <b>R</b> AN <b>V</b> Y	<b>LL</b> PT <b>G</b> E <b>I</b> V <b>Y</b> F	<b>IAS</b> V <b>V</b> LF <b>N</b> Y	540
541	<b>E</b> ERT <b>Q</b> R <b>H</b> Y <b>L</b> G	<b>HT</b> DC <b>V</b> K <b>C</b> LAI	<b>HP</b> DK <b>I</b> RIAT <b>G</b>	<b>Q</b> IAG <b>V</b> DK <b>D</b> GR	<b>PL</b> Q <b>P</b> H <b>V</b> R <b>V</b> WD	<b>SV</b> TL <b>S</b> T <b>L</b> Q <b>I</b> I	600
601	<b>GL</b> GT <b>F</b> ER <b>G</b> VG	<b>CL</b> DF <b>S</b> K <b>A</b> DS <b>G</b>	<b>VH</b> LC <b>V</b> ID <b>S</b> N	<b>EH</b> ML <b>T</b> V <b>W</b> D <b>W</b> Q	<b>RK</b> AK <b>G</b> AE <b>I</b> KT	<b>TNE</b> V <b>V</b> L <b>A</b> VE <b>F</b>	660
661	<b>HPT</b> DAN <b>T</b> I <b>I</b> IT	<b>CG</b> KSH <b>I</b> FF <b>W</b> T	<b>W</b> S <b>G</b> NS <b>L</b> TR <b>K</b> Q	<b>G</b> IF <b>G</b> K <b>Y</b> E <b>K</b> PK	<b>FV</b> Q <b>C</b> L <b>A</b> FL <b>G</b> N	<b>GD</b> VLT <b>G</b> D <b>S</b> GG	720
721	<b>V</b> ML <b>I</b> W <b>S</b> K <b>T</b> TV	<b>E</b> PT <b>P</b> G <b>K</b> G <b>P</b> KV	<b>Y</b> RR <b>K</b> H <b>Q</b> EL <b>Q</b> A	<b>Q</b> M <b>E</b> L <b>Q</b> S <b>P</b> E <b>Y</b>	<b>K</b> L <b>S</b> K <b>L</b> R <b>T</b> S <b>T</b> I	<b>M</b> T <b>D</b> Y <b>N</b> P <b>N</b> Y <b>C</b> F	780
781	<b>AG</b> K <b>T</b> S <b>S</b> IS <b>D</b> L	<b>KE</b> V <b>P</b> R <b>K</b> N <b>I</b> T <b>L</b>	<b>IR</b> GL <b>G</b> H <b>G</b> A <b>F</b> G	<b>E</b> V <b>Y</b> E <b>G</b> Q <b>V</b> S <b>G</b> M	<b>P</b> N <b>D</b> P <b>S</b> PL <b>Q</b> V <b>A</b>	<b>V</b> K <b>T</b> L <b>P</b> E <b>V</b> C <b>S</b> E	840
841	<b>Q</b> DEL <b>D</b> FL <b>M</b> E <b>A</b>	<b>L</b> I <b>I</b> S <b>K</b> F <b>N</b> H <b>Q</b> N	<b>I</b> V <b>R</b> C <b>I</b> G <b>V</b> S <b>L</b> Q	<b>S</b> L <b>P</b> R <b>F</b> IL <b>L</b> E <b>L</b>	<b>M</b> AG <b>G</b> D <b>L</b> K <b>S</b> F <b>L</b>	<b>R</b> E <b>T</b> R <b>P</b> R <b>P</b> S <b>Q</b> P	900
901	<b>S</b> S <b>L</b> AM <b>L</b> DL <b>L</b> L <b>H</b>	<b>V</b> ARD <b>I</b> AC <b>G</b> C <b>Q</b>	<b>Y</b> LE <b>N</b> H <b>F</b> I <b>H</b> R	<b>D</b> IA <b>A</b> R <b>N</b> CL <b>L</b> T	<b>C</b> P <b>G</b> P <b>G</b> R <b>V</b> AK <b>I</b>	<b>G</b> D <b>F</b> G <b>M</b> ARD <b>I</b> Y	960
961	<b>R</b> AS <b>Y</b> R <b>K</b> GG <b>C</b>	<b>A</b> ML <b>P</b> V <b>K</b> W <b>M</b> P <b>P</b>	<b>E</b> A <b>F</b> M <b>E</b> G <b>I</b> F <b>T</b> S	<b>K</b> T <b>D</b> T <b>W</b> S <b>F</b> G <b>V</b> L	<b>L</b> W <b>E</b> I <b>F</b> S <b>L</b> G <b>Y</b> M	<b>P</b> Y <b>P</b> S <b>K</b> S <b>N</b> Q <b>E</b> V	1020
1021	<b>L</b> E <b>F</b> Y <b>T</b> SG <b>R</b> M	<b>D</b> P <b>P</b> K <b>N</b> C <b>P</b> G <b>P</b> V	<b>Y</b> R <b>I</b> M <b>T</b> Q <b>C</b> W <b>H</b>	<b>Q</b> P <b>E</b> D <b>R</b> P <b>N</b> F <b>A</b> I	<b>I</b> L <b>E</b> R <b>I</b> E <b>Y</b> C <b>T</b> Q	<b>D</b> P <b>D</b> V <b>I</b> N <b>T</b> A <b>L</b> P	1080
1081	<b>A</b> E <b>Y</b> GL <b>V</b> E <b>E</b> E	<b>E</b> K <b>V</b> P <b>V</b> R <b>P</b> K <b>D</b> P	<b>E</b> G <b>V</b> P <b>L</b> L <b>V</b> S <b>Q</b>	<b>Q</b> A <b>K</b> R <b>E</b> E <b>R</b> S <b>P</b>	<b>A</b> A <b>P</b> P <b>L</b> P <b>T</b> T <b>S</b>	<b>S</b> G <b>K</b> A <b>A</b> K <b>P</b> T <b>A</b>	1140
1141	<b>A</b> E <b>V</b> S <b>V</b> R <b>P</b> R <b>G</b>	<b>P</b> A <b>V</b> E <b>G</b> H <b>V</b> N <b>M</b>	<b>A</b> F <b>S</b> Q <b>S</b> N <b>P</b> P <b>S</b> E	<b>L</b> H <b>R</b> V <b>H</b> G <b>S</b> R <b>N</b> K	<b>P</b> T <b>S</b> L <b>W</b> N <b>P</b> T <b>Y</b> G	<b>S</b> W <b>F</b> T <b>E</b> K <b>P</b> T <b>K</b> K	1200
1201	<b>N</b> N <b>P</b> I <b>A</b> K <b>E</b> P <b>H</b>	<b>E</b> R <b>G</b> N <b>L</b> G <b>L</b> E <b>G</b> S	<b>C</b> T <b>V</b> P <b>P</b> N <b>V</b> A <b>T</b> G	<b>R</b> L <b>P</b> G <b>A</b> S <b>L</b> L <b>L</b> E	<b>P</b> S <b>S</b> L <b>T</b> A <b>N</b> M <b>K</b> E	<b>V</b> P <b>L</b> F <b>R</b> L <b>R</b> H <b>F</b> P	1260
1261	<b>C</b> G <b>N</b> V <b>N</b> Y <b>G</b> Y <b>Q</b> Q	<b>Q</b> G <b>L</b> P <b>L</b> E <b>A</b> A <b>T</b> A	<b>P</b> G <b>A</b> G <b>H</b> Y <b>E</b> D <b>T</b> I	<b>L</b> K <b>S</b> K <b>N</b> S <b>M</b> N <b>Q</b> P	<b>G</b> P		1320

1-218: GST    Red: HIS6-tag    Green: 3C    blue:EML4ALK

EML4ALK wt <sup>1</sup> amino acid sequence							
1	<b>MD</b> G <b>F</b> AG <b>S</b> L <b>D</b> D	<b>S</b> I <b>S</b> A <b>A</b> S <b>T</b> S <b>D</b> V	<b>Q</b> D <b>R</b> L <b>S</b> A <b>L</b> E <b>S</b> R	<b>V</b> Q <b>Q</b> Q <b>E</b> D <b>E</b> I <b>T</b> V	<b>L</b> K <b>A</b> A <b>L</b> A <b>D</b> V <b>L</b> R	<b>R</b> L <b>A</b> I <b>S</b> E <b>D</b> H <b>V</b> A	60
61	<b>S</b> V <b>K</b> K <b>S</b> V <b>S</b> S <b>K</b> G	<b>Q</b> P <b>S</b> P <b>R</b> A <b>V</b> I <b>P</b> M	<b>S</b> C <b>I</b> T <b>N</b> G <b>S</b> G <b>A</b> N	<b>R</b> K <b>P</b> S <b>H</b> T <b>S</b> A <b>V</b> S	<b>I</b> A <b>G</b> K <b>E</b> T <b>L</b> S <b>S</b> A	<b>A</b> K <b>S</b> G <b>T</b> E <b>K</b> K <b>K</b> E	120
121	<b>K</b> P <b>Q</b> Q <b>R</b> E <b>K</b> K <b>E</b>	<b>E</b> S <b>H</b> S <b>N</b> D <b>Q</b> S <b>P</b> Q	<b>I</b> R <b>A</b> S <b>P</b> S <b>P</b> Q <b>S</b>	<b>S</b> Q <b>L</b> Q <b>I</b> H <b>R</b> Q <b>T</b>	<b>P</b> E <b>S</b> K <b>N</b> A <b>T</b> P <b>T</b> K	<b>S</b> I <b>K</b> R <b>P</b> S <b>P</b> A <b>E</b> K	180
181	<b>S</b> H <b>N</b> S <b>W</b> E <b>N</b> S <b>D</b> D	<b>S</b> R <b>N</b> K <b>L</b> S <b>K</b> I <b>P</b> S	<b>T</b> P <b>K</b> L <b>I</b> P <b>K</b> V <b>T</b> K	<b>T</b> A <b>D</b> K <b>H</b> K <b>D</b> V <b>I</b> I	<b>N</b> Q <b>E</b> G <b>E</b> Y <b>I</b> K <b>M</b> F	<b>M</b> R <b>G</b> R <b>P</b> I <b>T</b> M <b>F</b> I	240
241	<b>P</b> S <b>D</b> V <b>D</b> N <b>Y</b> D <b>D</b> I	<b>R</b> T <b>E</b> L <b>P</b> P <b>E</b> K <b>L</b> K	<b>L</b> E <b>W</b> A <b>G</b> Y <b>G</b> R <b>G</b> K	<b>D</b> C <b>R</b> A <b>N</b> V <b>L</b> L <b>P</b>	<b>T</b> G <b>E</b> I <b>V</b> Y <b>F</b> I <b>A</b> S	<b>V</b> V <b>V</b> L <b>F</b> N <b>Y</b> E <b>E</b> R	300
301	<b>T</b> Q <b>R</b> H <b>Y</b> L <b>G</b> H <b>T</b> D	<b>C</b> V <b>K</b> C <b>L</b> A <b>I</b> H <b>P</b> D	<b>K</b> I <b>R</b> I <b>A</b> T <b>G</b> Q <b>I</b> A	<b>G</b> V <b>D</b> K <b>D</b> G <b>R</b> P <b>L</b> Q	<b>P</b> H <b>V</b> R <b>V</b> D <b>S</b> V <b>T</b>	<b>L</b> S <b>T</b> L <b>Q</b> I <b>I</b> G <b>L</b> G	360
361	<b>T</b> F <b>E</b> R <b>V</b> G <b>C</b> L <b>D</b>	<b>F</b> S <b>K</b> A <b>D</b> S <b>G</b> V <b>H</b> L	<b>C</b> V <b>I</b> D <b>D</b> S <b>N</b> E <b>H</b> M	<b>L</b> T <b>V</b> W <b>D</b> W <b>Q</b> K <b>K</b> A	<b>K</b> G <b>A</b> E <b>I</b> K <b>T</b> T <b>N</b> E	<b>V</b> L <b>A</b> D <b>E</b> F <b>H</b> P <b>T</b>	420
421	<b>D</b> A <b>N</b> T <b>I</b> I <b>T</b> C <b>G</b> K	<b>S</b> H <b>I</b> F <b>F</b> W <b>T</b> W <b>S</b> G	<b>N</b> S <b>L</b> T <b>R</b> K <b>Q</b> G <b>I</b> F	<b>G</b> K <b>Y</b> E <b>K</b> P <b>K</b> F <b>V</b> Q	<b>C</b> L <b>A</b> F <b>L</b> G <b>N</b> D <b>V</b>	<b>L</b> T <b>G</b> D <b>S</b> G <b>G</b> V <b>M</b> L	480
481	<b>I</b> W <b>S</b> K <b>T</b> T <b>V</b> E <b>P</b> T	<b>P</b> G <b>K</b> G <b>P</b> K <b>V</b> Y <b>R</b> R	<b>K</b> H <b>Q</b> E <b>L</b> Q <b>A</b> M <b>Q</b> M	<b>E</b> L <b>Q</b> S <b>P</b> E <b>Y</b> K <b>L</b> S	<b>K</b> L <b>R</b> T <b>S</b> T <b>I</b> M <b>T</b> D	<b>Y</b> N <b>P</b> N <b>Y</b> C <b>F</b> A <b>G</b> K	540
541	<b>T</b> S <b>S</b> IS <b>D</b> L <b>K</b> E <b>V</b>	<b>P</b> R <b>K</b> N <b>I</b> T <b>L</b> I <b>R</b> G	<b>L</b> G <b>H</b> G <b>A</b> F <b>G</b> E <b>V</b> Y	<b>E</b> G <b>Q</b> V <b>S</b> G <b>M</b> P <b>N</b> D	<b>P</b> S <b>P</b> L <b>Q</b> V <b>A</b> V <b>K</b> T	<b>L</b> P <b>E</b> V <b>C</b> S <b>E</b> Q <b>D</b> E	600
601	<b>L</b> D <b>F</b> L <b>M</b> E <b>A</b> L <b>I</b> I	<b>S</b> K <b>F</b> N <b>H</b> Q <b>N</b> I <b>V</b> R	<b>C</b> I <b>G</b> V <b>S</b> L <b>Q</b> S <b>L</b> P	<b>R</b> F <b>I</b> L <b>L</b> E <b>L</b> M <b>A</b> G	<b>G</b> D <b>L</b> K <b>S</b> F <b>L</b> R <b>E</b> T	<b>R</b> P <b>R</b> P <b>S</b> Q <b>P</b> S <b>S</b> L	660
661	<b>A</b> M <b>L</b> DL <b>L</b> L <b>H</b> V <b>A</b> R	<b>D</b> I <b>A</b> C <b>G</b> C <b>Q</b> Y <b>L</b> E	<b>E</b> N <b>H</b> F <b>I</b> H <b>R</b> D <b>I</b> A	<b>A</b> R <b>N</b> CL <b>L</b> T <b>C</b> P <b>G</b>	<b>P</b> G <b>R</b> V <b>A</b> K <b>I</b> G <b>D</b> F	<b>G</b> M <b>A</b> R <b>D</b> I <b>Y</b> R <b>A</b> S	720
721	<b>Y</b> Y <b>R</b> K <b>G</b> G <b>C</b> A <b>M</b> L	<b>P</b> V <b>K</b> W <b>M</b> P <b>P</b> E <b>A</b> F	<b>M</b> E <b>G</b> I <b>F</b> T <b>S</b> K <b>T</b> D	<b>T</b> W <b>S</b> F <b>G</b> V <b>L</b> L <b>W</b> E	<b>I</b> F <b>S</b> L <b>G</b> Y <b>M</b> P <b>Y</b> P	<b>S</b> K <b>S</b> N <b>Q</b> E <b>V</b> L <b>E</b> F	780
781	<b>V</b> T <b>S</b> G <b>R</b> M <b>D</b> P <b>P</b>	<b>K</b> N <b>C</b> P <b>G</b> P <b>V</b> Y <b>R</b> I	<b>M</b> T <b>Q</b> C <b>W</b> Q <b>H</b> Q <b>P</b> E	<b>D</b> R <b>P</b> N <b>F</b> A <b>I</b> L <b>E</b>	<b>R</b> I <b>E</b> Y <b>C</b> T <b>Q</b> D <b>P</b> D	<b>V</b> I <b>N</b> T <b>A</b> L <b>P</b> I <b>E</b> Y	840
841	<b>G</b> P <b>L</b> V <b>E</b> E <b>E</b> E <b>K</b> V	<b>P</b> V <b>R</b> P <b>K</b> D <b>P</b> E <b>G</b> V	<b>P</b> P <b>L</b> L <b>V</b> S <b>Q</b> Q <b>A</b> K	<b>R</b> E <b>E</b> E <b>R</b> S <b>P</b> A <b>A</b> P	<b>P</b> P <b>L</b> P <b>T</b> T <b>S</b> S <b>G</b> K	<b>A</b> A <b>K</b> P <b>T</b> A <b>A</b> E <b>V</b>	900
901	<b>S</b> V <b>R</b> V <b>R</b> P <b>R</b> G <b>P</b> A <b>V</b>	<b>E</b> G <b>G</b> H <b>V</b> N <b>M</b> A <b>F</b> S	<b>Q</b> S <b>N</b> P <b>P</b> S <b>E</b> L <b>H</b> R	<b>V</b> H <b>G</b> S <b>R</b> N <b>K</b> P <b>T</b> S	<b>L</b> W <b>N</b> P <b>T</b> Y <b>G</b> S <b>W</b> F	<b>T</b> E <b>K</b> P <b>T</b> K <b>K</b> N <b>N</b> P	960
961	<b>I</b> A <b>K</b> K <b>E</b> P <b>H</b> E <b>R</b> G	<b>N</b> L <b>G</b> L <b>E</b> G <b>S</b> C <b>T</b> V	<b>P</b> P <b>N</b> V <b>A</b> T <b>G</b> R <b>L</b> P	<b>G</b> A <b>S</b> L <b>L</b> L <b>E</b> P <b>S</b> S	<b>L</b> T <b>A</b> N <b>M</b> K <b>E</b> V <b>P</b> L	<b>F</b> R <b>L</b> R <b>H</b> F <b>P</b> C <b>G</b> N	1020
1021	<b>V</b> N <b>Y</b> G <b>Y</b> Q <b>Q</b> Q <b>L</b>	<b>P</b> L <b>E</b> A <b>A</b> T <b>A</b> P <b>G</b> A	<b>G</b> H <b>Y</b> E <b>D</b> T <b>I</b> L <b>K</b> S	<b>K</b> N <b>S</b> M <b>N</b> Q <b>P</b> G <b>P</b>			1080

**bold letters:** expressed part of EML4 (blue) and ALK (green)

<sup>1</sup>NCBI/Protein accession number BAF73611.1