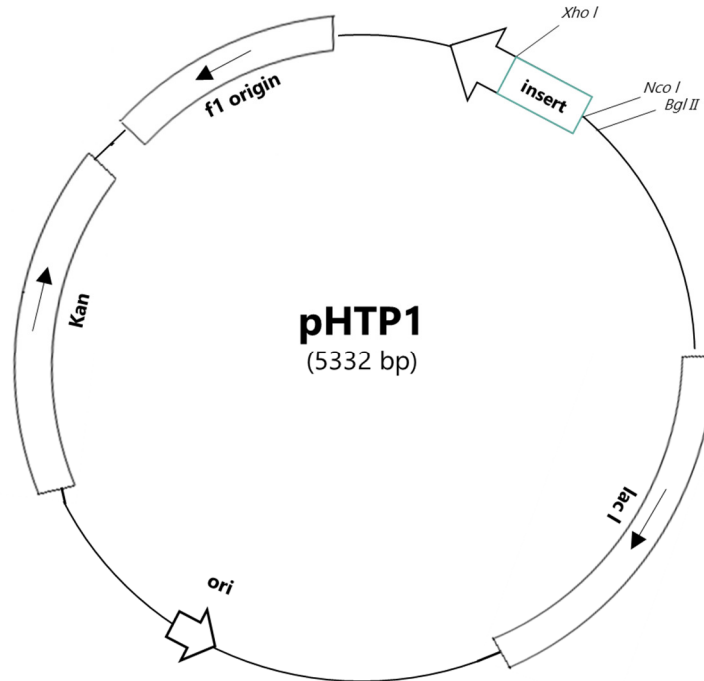


## pHTP1 Vector

pHTP1 was designed for the cloning and expression of high-levels of recombinant proteins in *Escherichia coli*. This vector, included in the portfolio of NZYTech pHTP expression vectors, is part of the NZYEasy Cloning & Expression System. pHTP1, contains two poly-histidine (6xHis) sequences (N- and C-terminal) which allow subsequent recombinant protein purification by immobilized metal ion affinity chromatography (IMAC).

### 1. Vector Map



#### pHTP1 Cloning/Expression Region

<i>Nco I</i>	<b>His-Tag</b>	
<b>CCATGGG</b>	<b>CAGCAGCCATCATCATCATCACAGCAGCGGCCCTCAGCAAGGGCTGAGG</b>	/>/ CCTCAGCTTCCGCTGAGGTCCGTCGACAAGCTTGCGGCC
	<b>MetGlySerSerHisHisHisHisHisHisSerSerGlyProGlnGlnGlyLeuArg</b>	/>/ ProGlnLeuProLeuArgSerValAspLysLeuAlaAla
<i>Xho I</i>	<b>His-Tag</b>	<b>STOP</b>
<b>GCACTCGAGCACCACCACCACCAC</b>	<b>TGAGATCCGGCTGCTAACAAAGCCCGAAAGGAAGCTGAGTTGGCTGCTGCCACCGCTGAGCAATAACTAGCATAACCC</b>	
	<b>AlaLeuGluHisHisHisHisHisHis*</b>	

> Represents the site where the gene will be inserted.

**Note:** For correct expression, inserted gene needs to be in frame with pHTP1 5' gene sequence. Inserts correctly cloned into pHTP1 will maintain reading frames starting on the ATG codon.

## 2. Vector Sequence (5332 bp)

```
TGGCGAATGGGACGCGCCCTGTAGCGCGCATTAAAGCGCGGCGGGTGTGGTGGTTACGCGCAGCGGTGACCGCTACACTTGCAGCGCCCTAGCGCCCGCTCCTTTTCGCTTTCCTCCCT
TCCTTTTCGCGCACGTTTCGCGCGCTTTCCTCCGTCGCTAAATCGGGGGCTCCCTTAGGGTTCGATTAGTGTCTTACGGCACCTCGACCCCAAAAAAATTGATTAGGGTGTAGT
GTTCCACGTAGTGGCCCATCGCCCTGATAGACGGTTTTTCGCGCCTTTGACGTGGAGTCCAGCTTCTTAATAGTGGACTCTTGTCCAAAACGGAAACACATCAACCCATATCTCGGT
CTATTTCTTTGATTATAAGGGATTGCGCGATTTCGGCCTATTTGGTAAAAAATGAGCTGATTAAACAAAAATTAACCGGAATTTTAACAAAAATATTAACGTTTACAATTTACAGG
GGCACTTTTCGGGGAATGTGCGCGGAAACCCCTATTGTTTATTTTCTAAATACATTCATAATATGATCCGCTCATGAATTAATTTCTAGAAAAACTCATCGAGCATCAAAATGAAAC
TGCAATTTATTCATATCAGGATTATCAATACCATATTTTAAAAAGCCGTTTCTGTAAATGAAGGAAAAACTCACCGAGGCAGTTCATAGGATGGCAAGATCCTGGTATCGGCTCG
CGATTCGCGACTCGTCCAACATCAATACAACCTTAATTTCCCTTCGTCAAAAATAAGGTTATCAAGTGAAGAAATCACCATGAGTGGCAGCTGAATCCGCTGAGATGGCAAAAAGTTT
ATGCATTTCTTTCCAGACTTGTTCACAGGCCAGCCATTACGCTCGTCATCAAAATCACTCGCATCAACCAACCCGTTATTCATTTCGTTGATTCGCGCTGAGCGAGAGCAAAATACCGGA
TCGCTGTAAAAAGGACAATTAACAACAGGAATCGAATGCAACCGGCGCAGGAACACTGCCAGGCATCAACAATATTTTACCTGAATCAGGATATTTCTTAATACCTGGAATGCTG
TTTTCCCGGGGATCGCAGTGGTGAATACCATGCATCATCAGGAGTACGGATAAAAAATGCTTGATGGTGGAAAGAGGCATAAAATCCGTCAGCCAGTTTAGTCTGACCATCTCATCTGT
AACATCTGGCAACCATGTTTTCCTTTCCAGAAAACCTGTAAGCAACCTGTAAGCACCGCTACATACTCGCTCGCTGCTTAATCCGCTTACCGAGTGGCTGTCAGTGGCTGATCCGCTGAGT
TACCCATATAAATCAGCATCCATGTTGAATTTAATCGCGGCTAGAGCAAGACGTTTCCCGTTGAATATGGCTCATAACACCCCTTGTATTACTGTTATGTAAGCAGACAGTTTAA
TTGTTTATGACCAAAATCCCTTAACTGAGTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAAGATCAAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAACTGCTGCTTGC
AAAAAACCACCGCTACCAGCGGTGGTTGTTTGGCGGATCAAGAGCTACCAACTCTTTTCCGAAGGTAACCTGGCTTACGAGAGCGCAGATACCAAACTACTGCTTCTAGT
GTAGCCGTAGTTAGGCAACCATTCAGAACCTGTAAGCACCGCTACATACTCGCTCGCTGCTTAATCCGCTTACCGAGTGGCTGATCCGCTGCGCAGTGGCTGTCAGTGGCTGATCCGCTGAGT
GACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGGTTCGTGCACACAGCCGACTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGC
TATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAAGCGGAGGGTCGAAACAGGAGAGCGCAGAGGGAGCTTCCAGGGGAAACCGCTGGTATCTTTA
TAGTCTGTGCGGGTTTCGCCACCTGACTTGAGCGTCGATTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATGAAAAACCGCAGCAACCGCGCCCTTTTACGGTTCCTGGCCTTT
TGTCGGCTTTTGCTCACATGTTTCTTTCCGCTGATTTCCTGTTAGTTACCGCTGATTCTGTTGGATAACCGCTTACCGCTTACCGCTGAGTGGCTGATCCGCTGCGCAGCAGCCGAGCCGAGG
AGTCAGTGAGCGAGGAAGCGGAAGAGCGCCTGATGCGGTTATTTCTCCTTACGCATCTGTGCGGTTATTCACACCGCATATATGGTGCATCTCAGTACAATCTGCTCTGATGCGCGCA
TAGTTAAGCCAGTATACACTCCGCTATCGCTACGTGACTGGGTGATGGCTGCGCCCGGACACCGCCAAACCCGCTGACCGCCCTGACGGGCTTGTGCTGCCGCGATCCGCTTA
CAGACAAGCTGTGACCGTCTCCGGGAGCTGCATGTGTAGAGTTTTCACCGCTCATACCGAAACCGCGCAGGCGAGCTGCGGTAAGGCTCATCAGCGTGGTCTGAAGCGATTACAG
ATGCTGCGCTGTTTCATCCGCGTCCAGCTCGTTGAGTTTCTCCAGAAGCGTTAATGCTGCTGCTGATAAAGCGGGCCATGTTAAGGGCGGTTTTTCTTGTGGTGGCTGATGCTGCTG
CCGTGTAAGGGGGATTTCTGTTTACGTTAGGTAATGATACCGATGAAACCGAGAGGAGTGTCTACGATACCGGTTACTGATGATGAACATGCCCGGTTACTGGAACGTTGTGAGGGTAA
ACAACGGCGGATGATGATGCGCGGAGCCAGAGAAAAATCACTCAGGGTCAATGCCAGCGCTTCGTTAATACAGATGTAAGTGTTCACAGGGTACCCAGCAGCATCTCGCATGCGAG
ATCCGGAACATAATGTTGCAAGGCGCTGACTTCCGCGTTTCCAGACTTACGAAACAGGAAACCGAAGACCATTCATGTTGTTGCTCAGGTCGAGACGTTTTCAGCAGCAGTCCG
TTCAGTTCGCTCGCGTATCGGTGATTCATTCTGTAAACAGTAAAGCAACCCCGCAGCTAGCCGGGTCTCAACGACAGGACACCATCATCGCCACCCGTGGGCGCCCATGCC
GGCGTAATGGCCCTGCTTCTCGCGAAACGTTTGGTGGCGGACCACTGACGAAAGGCTTGAGCGAGGGCGTGCAAGATTCCGAATACCGCAAGCGACAGGCGCATCATCTGCGGCTC
CAGCGAAAGCGGTCCTCGCGAAATGACCAGAGCGCTGCCGCGCCTGTCTACGAGTTGCATGATAAAGAAGCAGTCATAAGTGCAGCAGCATAGTCAATGCCCGCGCCAC
GGAAGGAGCTGACTGGTTGAAGGCTCTCAAGGCATCGGTCGAGATCCCGGTGCCTAATGAGTGAAGTAACCTTACATTAATGGGTTGCGCTCACTGCCCGCTTCCAGTCGGGAAA
CCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACCGCGGGGAGAGGCGGTTTTGCGTATTTGGGCGCAGGGTGGTTTTTCTTTTACCAGTGAGACGGGCAACAGCTGATTGCCCTT
CACCGCTTGCCCTGAGAGATGTCAGCAAGCGGTTCCACGCTGGTTTTGCCCGCAGCAGGCGAAAAATCCTGTTTATGTTGGTTAACGGCGGGATATAACATGAGCTGCTTCCGTTATCG
TCGATCCCACTACCGAGATATCCGACCAACCGCGCAGCCGACTCGGTAATGGCGCATTGCGCCAGCGCATCTGATCGTTGGCAACCAGCATCGCAGTGGGAACGATGCCCTT
CATTACGATTTGCATGGTTTGTGAAAAACCGGACATGGCACTCCAGTTCGCTTCCGCTTCCGCTATCGGCTGAATTTGATTGCGAGTGAGATATTTATGCCAGCCAGCCAGACGCAG
ACGCGCCGAGACAGAACTTAATGGGCCCGCTAACAGCGGATTTGCTGGTGACCAATGCGACAGATGCTCCACGCCAGTCCGCTACCTTTCATGGGAGAAAAATAACTGTTG
ATGGGTGCTGTTGTCAGAGACATCAAGAAATAACCGCGGAAACATGATGCAAGCAGCTTCCACAGCAATGGCATCCTGGTCATCCAGCGGATAGTTAATGATCAGCCCACTGACCGGTT
GCGCGAGAAGATTGTGACCCGCGCTTTACAGGCTTCGACGCCGCTTCGTTTACCATCGACACCACCAGCTGGCACCAGTTGATCGCGCGAGATTTAATCGCCGCGACAATTTG
CGACGCGCGTGCAGGCGCAGACTGGAGTTGGCAACGCCAATAGCAACGACTGTTTGGCCGCGAGTTGTTGTGCCACGCGGTTGGGAATGTAATTGAGCTCCGCGCATCGCCGCTTCC
ACTTTTTCCCGGTTTTTCGAGAAACGTGGCTGGCTGGTTTACCACCGGGGAAACGGTCTGATAAGAGACACCGGCATCTCTGCGACATCGTATAACGTTACTGGTTTACATTTCA
CCACCTGAATTGACTCTCTCCGGGCGCTATCATGCCATACCGGAAAGGTTTTGCGCCATTCGATGGTGTCCGGGATCTCGACGCTCTCCCTTATGCGACTCGCTGATTAGGAAGC
AGCCAGTAGTAGTTGAGGCGCTTGTAGCACCGCGCCGCAAGGAATGGTGCATGCAAGGAGATGGCGCCAAACAGTCCCGCGCCAGGGGCTGCCACCATACCCAGCCGAAACA
AGCGCTCATGAGCCGAAAGTGGCGAGCCGATCTTCCCATCGGTTGATGTCGCGGATATAGGCGCCAGCAACCCGACCTGTGGCGCGGATGCGCGCCAGTGCCTCGGCGTAG
AGGATCGAGATCTCGATCCCGGAAATTAATACGACTCACTATAGGGGAATGTGAGCGGATAACAATTTCCCTCTAGAAAAATTTGTTAACTTTAAGAAGGAGATATACCATGG
GCAGCAGCATCATCATCATCACAGCAGCGGCGCTCAGCAAGGGCTGAGG/∩/CCTCAGTTCGCTGAGGTCGTCGACAGCTTGGCGCCGCACTCGAGCACCCACCCAC
CACCACTGAGATCCGGTGTCAAAAGCCGAAAGGAGCTGAGTTGGCTGCTGCCACCGCTGAGCAATAACTAGCATAACCCCTTGGGGCTCTAAACGGGCTTGAGGGTTTT
TGCTGAAAGGAGAACTATATCCGGAT
```

### pHP1 sequence landmarks:

- **T7 promoter:** in gray
- **First ATG (methionine):** in yellow
- **His•Tag coding sequences:** in purple
- **Cloning region:** ∩
- **T7 terminator:** in dark gray
- **Sequencing primers (T7 universal and T7 terminator):** underlined
- **BglII, NcoI & XhoI recognition sites:** in bold

### Sequence added to the final recombinant protein (2.11 KDa):

MGSSHHHHHSSGPQQGLR

V1901

For research use only.