

Table 2. List of proteins with Helix-hairpin-helix motif(s) located either at the N- or C termini of a protein

Proteins are represented using the Simple Modular Architecture Research Tool SMART (<http://smart.embl-heidelberg.de>)

Protein Q93H64

Description PUTATIVE BIFUNCTIONAL PROTEIN.

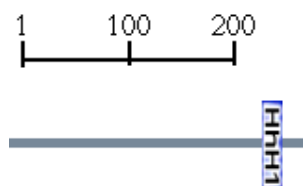
Species Streptomyces avermitilis



Protein Q9CEH6

Description HYPOTHETICAL PROTEIN YTDC.

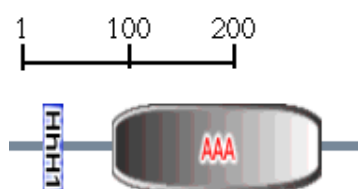
Species Lactococcus lactis



Protein O00847

Description RAD51 HOMOLOGUE.

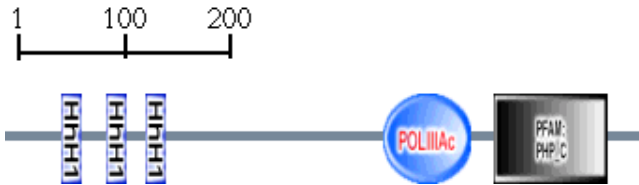
Species Trypanosoma brucei



Protein Q8Y7P2

Description HYPOTHETICAL PROTEIN LMO1231.

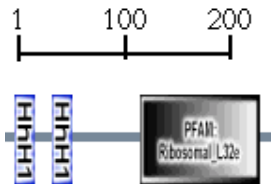
Species Listeria monocytogenes



Protein RL32_HALN1

Description 50S ribosomal protein L32E.

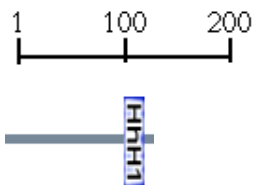
Species Halobacterium



Protein Q99YR8

Description HYPOTHETICAL PROTEIN SPY1571.

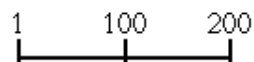
Species Streptococcus pyogenes



Protein Q55769

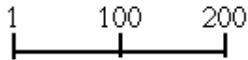
Description COME ORF1.

Species Synechocystis

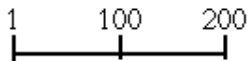




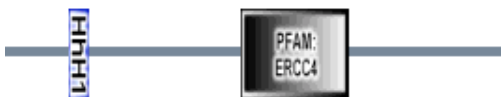
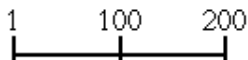
Protein YACK_BACSU
Description Hypothetical protein yacK.
Species Bacillus subtilis



Protein Q91VP3
Description SIMILAR TO EXCISION REPAIR 1.
Species Mus musculus



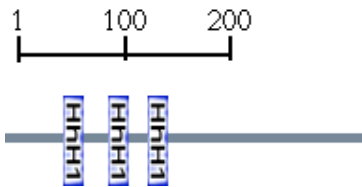
Protein P91153
Description CODED FOR BY C. ELEGANS CDNA CEESQ34R.
Species Caenorhabditis elegans



Protein P77987
Description DNA POLYMERASE FAMILY X (EC 2.7.7.7)
 (DNA-DIRECTED DNA POLYMERASE)(DNA

Description NUCLEOTIDYLTRANSFERASE (DNA-DIRECTED).

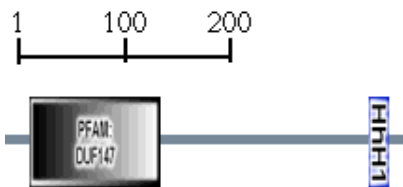
Species *Thermus aquaticus*



Protein Q9KGG0

Description BH0105 PROTEIN.

Species *Bacillus halodurans*



Protein AAM31590

Description DNA POLYMERASE BETA (EC 2.7.7.7).

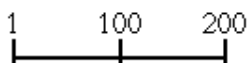
Species *Methanosarcina mazei goe1*

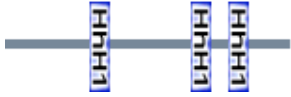


Protein Q9APN0

Description NUSA PROTEIN (FRAGMENT).

Species *Myxococcus xanthus*

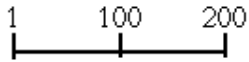




Protein Q8XHQ0

Description HYPOTHETICAL PROTEIN CPE2432.

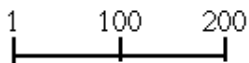
Species Clostridium perfringens



Protein Q9C0F7

Description KIAA1706 PROTEIN (FRAGMENT).

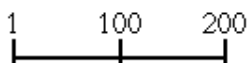
Species Homo sapiens



Protein Q8XGV0

Description PUTATIVE DNA UPTAKE PROTEIN AND RELATED DNA-BINDING PROTEINS (PUTATIVE EXPORTED PROTEIN).

Species Salmonella typhimurium



Protein O26650

Description DNA-DEPENDENT DNA POLYMERASE FAMILY X.

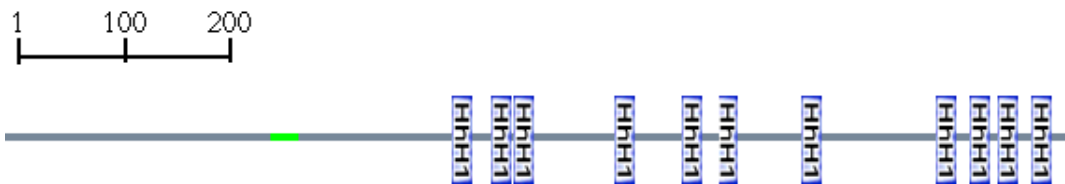
Species *Methanobacterium thermoautotrophicum*



Protein AAM02649

Description TOPOISOMERASE V.

Species *Methanopyrus kandleri av19*



Protein Q9D7J3

Description 2310005P05RIK PROTEIN.

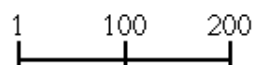
Species *Mus musculus*



Protein AAM38234

Description ATP-DEPENDENT DNA HELICASE.

Species *Xanthomonas axonopodis*

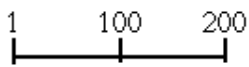




Protein P94624

Description CDU2, CDU1, TCDD, TCDB, TCDE, TCDA, TCDC, CDD1, CDD2, CDD3, AND CDD4GENES (CDD1 PROTEIN).

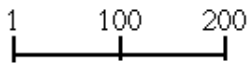
Species Clostridium difficile



Protein O74103

Description 90AA LONG HYPOTHETICAL DNA EXCISION REPAIR PROTEIN.

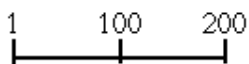
Species Pyrococcus horikoshii



Protein AAK99660

Description COMPETENCE PROTEIN.

Species Streptococcus pneumoniae r6



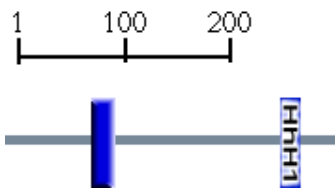
Protein AAM02248
Description LHR-LIKE SUPERFAMILY II HELICASE.
Species Methanopyrus kandleri av19



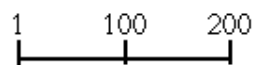
Protein AAH28155
Description KINESIN-LIKE 4.
Species Homo sapiens

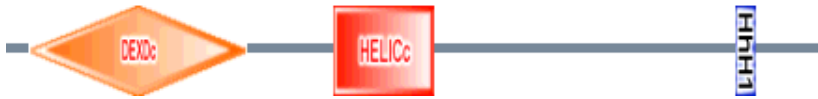


Protein P71728
Description HYPOTHETICAL 30.5 KDA PROTEIN.
Species Mycobacterium tuberculosis



Protein AAM06574
Description HELICASE.
Species Methanosarcina acetivorans str

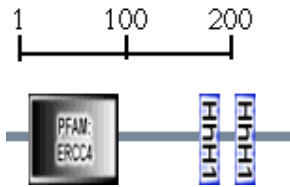




Protein Q9YC15

Description HYPOTHETICAL 28.7 KDA PROTEIN APE1436.

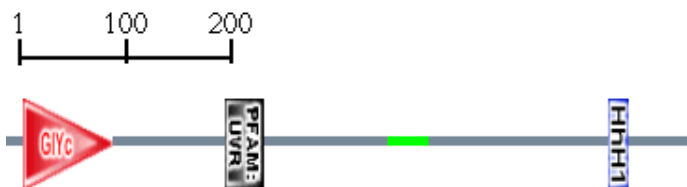
Species Aeropyrum pernix



Protein AAK99347

Description EXONUCLEASE ABC-SUBUNIT C.

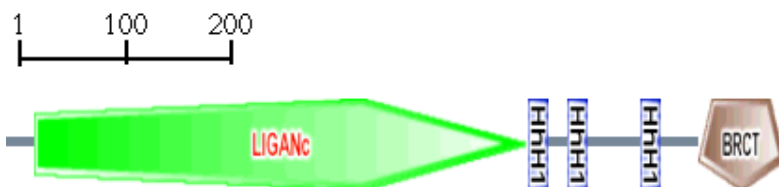
Species Streptococcus pneumoniae r6



Protein AAL93832

Description NAD-DEPENDENT DNA LIGASE (EC 6.5.1.2).

Species nucleatum

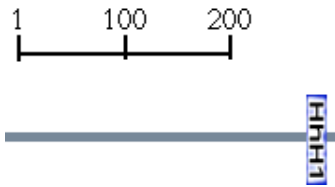


Protein AAH08930

**EXCISION REPAIR CROSS-COMPLEMENTING
RODENT REPAIR**

Description DEFICIENCY, COMPLEMENTATION GROUP 1
(INCLUDES OVERLAPPING ANTISENSE
SEQUENCE).

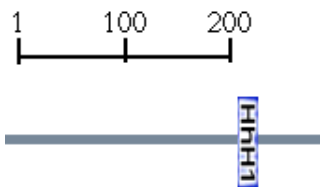
Species Homo sapiens



Protein EX9_ECOLI

Description Exodeoxyribonuclease IX (EC 3.1.11.-) (Exonuclease IX) (Exo IX).

Species Escherichia coli



Protein AAL81517

Description HYPOTHETICAL 74.5 KDA PROTEIN.

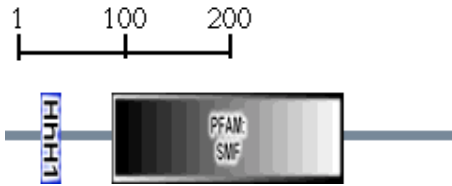
Species Pyrococcus furiosus dsm 3638



Protein Q8Y3B2

Description PROBABLE SMF PROTEIN.

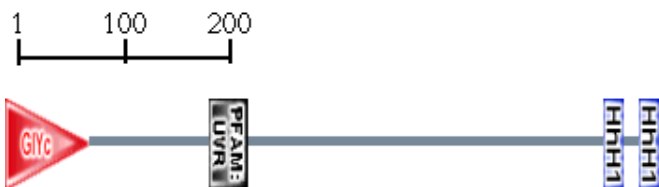
Species Ralstonia solanacearum



Protein Q8XBD5

Description EXCINUCLEASE ABC, SUBUNIT C, REPAIR OF UV DAMAGE TO DNA.

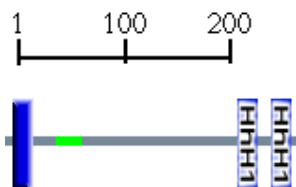
Species Escherichia coli o157:h7



Protein Q8XIJ9

Description COME OPERON PROTEIN.

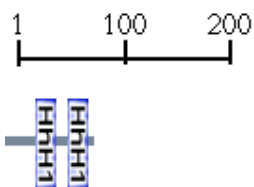
Species Clostridium perfringens



Protein Q9PJA0

Description PUTATIVE NON-SPECIFIC DNA BINDING PROTEIN.

Species Campylobacter jejuni



Protein Q9RA49
Description DNA-3-METHYLADENINE GLYCOSIDASE
(FRAGMENT).
Species *Thermus aquaticus*

1 100 200



Protein AAM25145
Description NUCLEASE SUBUNIT OF THE EXCINUCLEASE
COMPLEX.
Species *Thermoanaerobacter tengcongensis*

1 100 200



Protein BAB95406
Description MW1541 PROTEIN.
Species *Staphylococcus aureus*

1 100 200



Protein AAM01328
Description PREDICTED SUPERFAMILY II HELICASE.
Species *Methanopyrus kandleri av19*



Protein AAM25645

Description DNA POLYMERASE IV (FAMILY X).

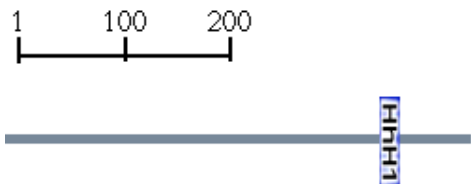
Species Thermoanaerobacter tengcongensis



Protein AAL95150

Description HYPOTHETICAL CYTOSOLIC PROTEIN.

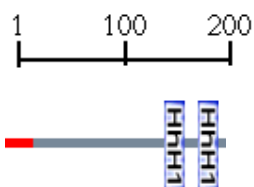
Species nucleatum



Protein Q8VQ77

Description LATE COMPETENCE PROTEIN COMEA.

Species Bacillus licheniformis



Protein HELS_METJA

Putative ski2-type helicase (EC 3.6.1.-) [Contains:

Description Endonuclease PI-MjaHel (EC 3.1.-.-) (Mja Hel intein)
(Mja Pep3 intein)].

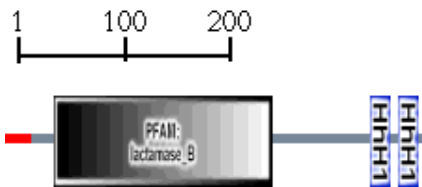
Species Methanococcus jannaschii



Protein Q92D76

Description LIN0944 PROTEIN.

Species Listeria innocua



Protein AAL95286

Description EXCINUCLEASE ABC SUBUNIT C.

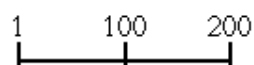
Species nucleatum



Protein Q8XBL5

Description DNA LIGASE.

Species Escherichia coli o157:h7

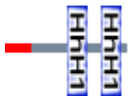
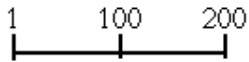




Protein Q9HZ87

Description HYPOTHETICAL PROTEIN PA3140.

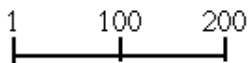
Species Pseudomonas aeruginosa



Protein Q9GRA1

Description DMC1 HOMOLOGUE CNDMC1 (FRAGMENT).

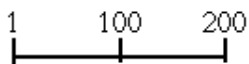
Species Hydra oligactis



Protein Q98AC3

Description TRANSPOSASE.

Species Rhizobium loti

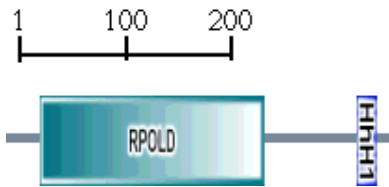


Protein RPOA_SPIMX

Description DNA-directed RNA polymerase alpha chain (EC 2.7.7.6) (Transcriptase alpha chain) (RNA

polymerase alpha subunit).

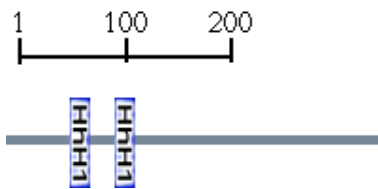
Species Spirogyra maxima



Protein AAL91594

Description DNA POLYMERASE BETA.

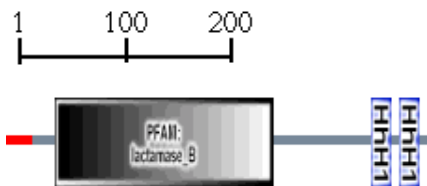
Species Homo sapiens



Protein Q8Y8F9

Description HYPOTHETICAL PROTEIN LMO0945.

Species Listeria monocytogenes



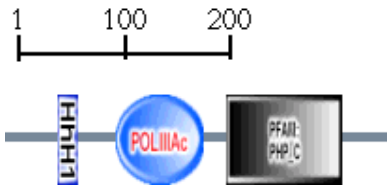
Protein Q99LC7

Description SIMILAR TO KINESIN-LIKE 4.

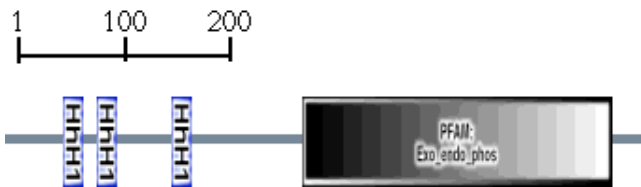
Species Mus musculus



Protein P72464
Description ORF1.
Species Streptomyces lividans



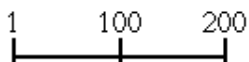
Protein Q96K64
Description CDNA FLJ14480 FIS, CLONE MAMMA1002215.
Species Homo sapiens



Protein Q974S1
Description PUTATIVE HELICASE.
Species Sulfolobus tokodaii



Protein Q9HMU5
Description EXCISION NUCLEASE CHAIN C.
Species Halobacterium

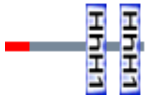
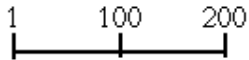




Protein Q8XE54

Description ORF, HYPOTHETICAL PROTEIN.

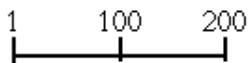
Species Escherichia coli o157:h7



Protein Q96NY9

Description MUS81 ENDONUCLEASE.

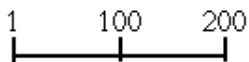
Species Homo sapiens



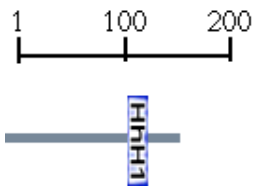
Protein AAM34796

Description EXCISION REPAIR CROSS-COMPLEMENTING RODENT REPAIR DEFICIENCY, COMPLEMENTATION GROUP 1 (INCLUDES OVERLAPPING ANTISENSE SEQUENCE).

Species Homo sapiens



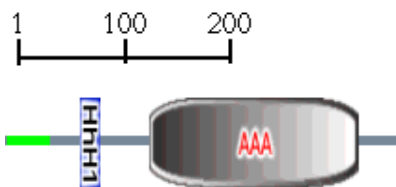
Protein AAL98145
Description HYPOTHETICAL 14.3 KDA PROTEIN.
Species Streptococcus pyogenes mgas8232



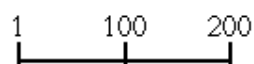
Protein O27790
Description DNA MISMATCH RECOGNITION PROTEIN MUTS.
Species Methanobacterium thermoautotrophicum



Protein AAL92998
Description DNA REPAIR PROTEIN RHP51.
Species Dictyostelium discoideum



Protein AAM05700
Description PREDICTED PROTEIN.
Species Methanosarcina acetivorans str

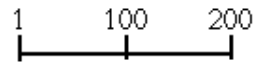




Protein RADA_METMP

Description DNA repair and recombination protein radA.

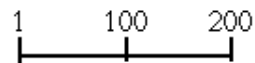
Species Methanococcus maripaludis



Protein AAK99292

Description HYPOTHETICAL PROTEIN.

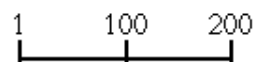
Species Streptococcus pneumoniae r6



Protein AAM04167

Description DNA-DIRECTED DNA POLYMERASE, FAMILY X.

Species Methanosarcina acetivorans str



Protein Q9I869

Description KINESIN (CHROMOKINESIN XKID).

Species *Xenopus laevis*

1 100 200



Protein AAM06907

Description DNA REPAIR PROTEIN.

Species *Methanosarcina acetivorans* str

1 100 200



Protein Q94K65

Description HYPOTHETICAL 17.6 KDA PROTEIN.

Species *Arabidopsis thaliana*

1 100 200

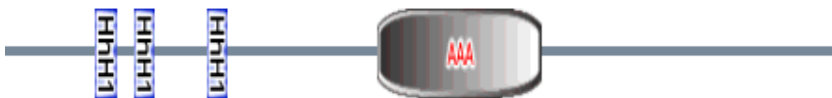


Protein Q8XIE6

Description EXODEOXYRIBONUCLEASE V ALPHA SUBUNIT.

Species *Clostridium perfringens*

1 100 200



Protein **AAH27384**

Description **RAD51 HOMOLOG (S. CEREVISIAE).**

Species **Mus musculus**

1 100 200



Protein **Q97EC6**

Description **PREDICTED NUCLEIC-ACID-BINDING
PROTEIN PROTEIN, CONTAINING HHH
DOMAIN, YACK B.SUBTILIS ORTHOLOG.**

Species **Clostridium acetobutylicum**

1 100 200



Protein **AAM23354**

Description **RECOMBINATIONAL DNA REPAIR PROTEIN.**

Species **Thermoanaerobacter tengcongensis**

1 100 200



Protein **Q9FF89**

Description **GENOMIC DNA, CHROMOSOME 5, P1
CLONE:MRO11.**

Species **Arabidopsis thaliana**



Protein AAM02891

Description ERCC4-LIKE HELICASE-NUCLELEASE.

Species Methanopyrus kandleri av19



Protein HELS_METTH

Description Putative ski2-type helicase (EC 3.6.1.-).

Species Methanobacterium thermoautotrophicum



Protein AAL82139

Description ATP-DEPENDENT RNA HELICASE, PUTATIVE.

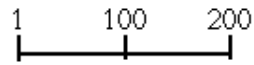
Species Pyrococcus furiosus dsm 3638



Protein O30253

Description DNA REPAIR PROTEIN, PUTATIVE.

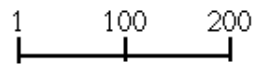
Species Archaeoglobus fulgidus



Protein Q9HSD6

Description VNG0284C.

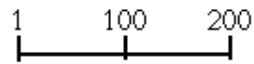
Species Halobacterium



Protein Q9WY43

Description CONSERVED HYPOTHETICAL PROTEIN.

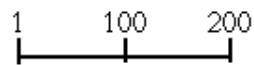
Species Thermotoga maritima



Protein AAK84937

Description SD02282P.

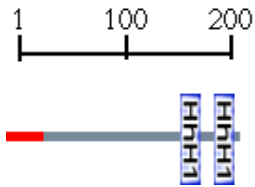
Species Drosophila melanogaster



Protein AAL98006

Description PUTATIVE COMPETENCE PROTEIN.

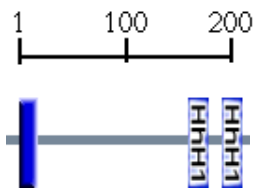
Species *Streptococcus pyogenes* mgas8232



Protein O85197

Description COMPETENCE PROTEIN.

Species *Streptococcus pneumoniae*



Protein AAM31083

Description ATP-DEPENDENT RNA HELICASE, EIF-4A FAMILY.

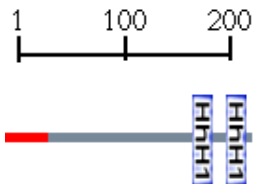
Species *Methanosarcina mazei* goe1



Protein AAM24182

Description DNA UPTAKE PROTEIN AND RELATED DNA-BINDING PROTEINS.

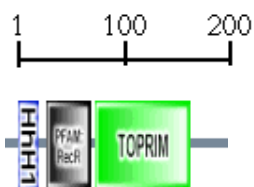
Species *Thermoanaerobacter tengcongensis*



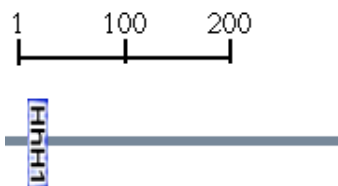
Protein Q9HMW5
Description ATP-DEPENDENT RNA HELICASE HOMOLOG
 EIF-4A.
Species Halobacterium



Protein RECR_BACSU
Description Recombination protein recR.
Species Bacillus subtilis



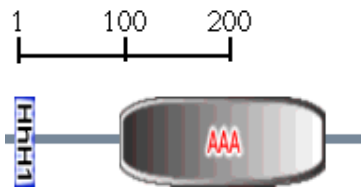
Protein Q9BTN8
Description UNKNOWN (PROTEIN FOR MGC:1149).
Species Homo sapiens



Protein Q8X233

Description **HOMOLOGUE OF THE BACTERIAL RECA AND YEAST RAD51/DMC1.**

Species **Aeropyrum pernix**



Protein **NOD_DROME**

Description **KINESIN-LIKE PROTEIN NOD.**

Species **Drosophila melanogaster**

