An official website of the United States government
Here's how you know

Nucleotide

GenBank

Homo sapiens tumor protein p53 (TP53), transcript variant 1, mRNA

NCBI Reference Sequence: NM_000546.6

FASTA Graphics

Go to:

```
LOCUS       NM_000546               2512 bp    mRNA    linear   PRI 14-DEC-2022
DEFINITION  Homo sapiens tumor protein p53 (TP53), transcript variant 1, mRNA.
ACCESSION   NM_000546
VERSION     NM_000546.6
KEYWORDS    RefSeq; MANE Select.
SOURCE      Homo sapiens (human)
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;
            Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 2512)
  AUTHORS   Mirgayazova R, Khadiullina R, Chasov V, Mingaleeva R, Miftakhova R,
            Rizvanov A and Bulatov E.
  TITLE     Therapeutic Editing of the TP53 Gene: Is CRISPR/Cas9 an Option?
  JOURNAL   Genes (Basel) 11 (6), 704 (2020)
   PUBMED   32630614
  REMARK    GeneRIF: Therapeutic Editing of the TP53 Gene: Is CRISPR/Cas9 an
            Option?
            Review article
            Publication Status: Online-Only
REFERENCE   2  (bases 1 to 2512)
  AUTHORS   Flynt E, Bisht K, Sridharan V, Ortiz M, Towfic F and Thakurta A.
  TITLE     Prognosis, Biology, and Targeting of TP53 Dysregulation in Multiple
            Myeloma
  JOURNAL   Cells 9 (2), 287 (2020)
   PUBMED   31991614
  REMARK    Review article
            Publication Status: Online-Only
REFERENCE   3  (bases 1 to 2512)
  AUTHORS   Barnoud T, Parris JLD and Murphy ME.
  TITLE     Common genetic variants in the TP53 pathway and their impact on
            cancer
  JOURNAL   J Mol Cell Biol 11 (7), 578-585 (2019)
   PUBMED   31152665
  REMARK    GeneRIF: Common genetic variants in the TP53 pathway and their
            impact on cancer.
            Review article
REFERENCE   4  (bases 1 to 2512)
  AUTHORS   Hu W, Chen S, Thorne RF and Wu M.
  TITLE     TP53, TP53 Target Genes (DRAM, TIGAR), and Autophagy
  JOURNAL   Adv Exp Med Biol 1206, 127-149 (2019)
   PUBMED   31776983
  REMARK    Review article
REFERENCE   5  (bases 1 to 2512)
  AUTHORS   Baugh EH, Ke H, Levine AJ, Bonneau RA and Chan CS.
  TITLE     Why are there hotspot mutations in the TP53 gene in human cancers?
  JOURNAL   Cell Death Differ 25 (1), 154-160 (2018)
   PUBMED   29099487
  REMARK    GeneRIF: TP53 missense mutant alleles that occur in human cancers
            are discussed in the context of high resolution models of these p53
            mutant protein structures to determine the structural features of
            mutations (review).
            Review article
REFERENCE   6  (bases 1 to 2512)
```


Foresight EX1059
Foresight v Personalis

AUTHORS Aubrey BJ, Strasser A and Kelly GL.
TITLE Tumor-Suppressor Functions of the TP53 Pathway
JOURNAL Cold Spring Harb Perspect Med 6 (5), a026062 (2016)
PUBMED 27141080
REMARK Review article
Publication Status: Online-Only

REFERENCE 7 (bases 1 to 2512)
AUTHORS Soussi T and Wiman KG.
TITLE TP53: an oncogene in disguise
JOURNAL Cell Death Differ 22 (8), 1239-1249 (2015)
PUBMED 26024390
REMARK Review article

REFERENCE 8 (bases 1 to 2512)
AUTHORS Soussi,T.
TITLE The TP53 gene network in a postgenomic era
JOURNAL Hum Mutat 35 (6), 641-642 (2014)
PUBMED 24753184
REMARK GeneRIF: Recommendations and guidelines for reporting and annotating TP53 variants are also provided, to help researchers generate standardized data that are easy to understand, analyze, and exchange across various cancer variant databases
Review article

REFERENCE 9 (bases 1 to 2512)
AUTHORS Anczukow O, Ware MD, Buisson M, Zetoune AB, Stoppa-Lyonnet D, Sinilnikova OM and Mazoyer S.
TITLE Does the nonsense-mediated mRNA decay mechanism prevent the synthesis of truncated BRCA1, CHK2, and p53 proteins?
JOURNAL Hum Mutat 29 (1), 65-73 (2008)
PUBMED 17694537
REMARK GeneRIF: the p53 protein encoded by the 770delT allele is as abundant as the wild-type protein, as removal of the C-terminal p53 domain leads to a stabilized mutant protein, whose abundance is markedly increased when NMD is inhibited.

REFERENCE 10 (bases 1 to 2512)
AUTHORS Bourdon JC.
TITLE p53 Family isoforms
JOURNAL Curr Pharm Biotechnol 8 (6), 332-336 (2007)
PUBMED 18289041
REMARK Review article

REFERENCE 11 (bases 1 to 2512)
AUTHORS Candeias MM, Powell DJ, Roubalova E, Apcher S, Bourougaa K, Vojtesek B, Bruzzoni-Giovanelli H and Fahraeus R.
TITLE Expression of p53 and p53/47 are controlled by alternative mechanisms of messenger RNA translation initiation
JOURNAL Oncogene 25 (52), 6936-6947 (2006)
PUBMED 16983332
REMARK GeneRIF: harbouring alternative translation initiation sites, the p53 mRNA gives rise to different levels of the p53 isoforms which help to orchestrate the cell biological outcome of p53 activation

REFERENCE 12 (bases 1 to 2512)
AUTHORS Murray-Zmijewski F, Lane DP and Bourdon JC.
TITLE p53/p63/p73 isoforms: an orchestra of isoforms to harmonise cell differentiation and response to stress
JOURNAL Cell Death Differ 13 (6), 962-972 (2006)
PUBMED 16601753
REMARK Review article

REFERENCE 13 (bases 1 to 2512)
AUTHORS Bourdon JC, Fernandes K, Murray-Zmijewski F, Liu G, Diot A, Xirodimas DP, Saville MK and Lane DP.
TITLE p53 isoforms can regulate p53 transcriptional activity
JOURNAL Genes Dev 19 (18), 2122-2137 (2005)
PUBMED 16131611
REMARK GeneRIF: p53 isoforms can regulate p53 transcriptional activity.

REFERENCE 14 (bases 1 to 2512)
AUTHORS Ghosh A, Stewart D and Matlashewski G.
TITLE Regulation of human p53 activity and cell localization by alternative splicing
JOURNAL Mol Cell Biol 24 (18), 7987-7997 (2004)
PUBMED 15340061
REMARK GeneRIF: mechanism of p53 regulation originating through alternative splicing of the human p53 gene resulting in the expression of a novel p53 mRNA

REFERENCE 15 (bases 1 to 2512)
AUTHORS Flaman JM, Waridel F, Estreicher A, Vannier A, Limacher JM, Gilbert D, Iggo R and Frebourg T.
TITLE The human tumour suppressor gene p53 is alternatively spliced in

Foresight EX1059
Foresight v Personalis

```
            normal cells
  JOURNAL   Oncogene 12 (4), 813-818 (1996)
   PUBMED   8632903
REFERENCE   16 (bases 1 to 2512)
  AUTHORS   Schneider,K., Zelley,K., Nichols,K.E. and Garber,J.
  TITLE     Li-Fraumeni Syndrome
  JOURNAL   (in) Adam MP, Everman DB, Mirzaa GM, Pagon RA, Wallace SE, Bean
            LJH, Gripp KW and Amemiya A (Eds.);
            GENEREVIEWS(R);
            (1993)
   PUBMED   20301488
REFERENCE   17 (bases 1 to 2512)
  AUTHORS   Turner,J.T., Brzezinski,J. and Dome,J.S.
  TITLE     Wilms Tumor Predisposition
  JOURNAL   (in) Adam MP, Everman DB, Mirzaa GM, Pagon RA, Wallace SE, Bean
            LJH, Gripp KW and Amemiya A (Eds.);
            GENEREVIEWS(R);
            (1993)
   PUBMED   20301471
REFERENCE   18 (bases 1 to 2512)
  AUTHORS   Lamb,P. and Crawford,L.
  TITLE     Characterization of the human p53 gene
  JOURNAL   Mol Cell Biol 6 (5), 1379-1385 (1986)
   PUBMED   2946935
REFERENCE   19 (bases 1 to 2512)
  AUTHORS   Isobe,M., Emanuel,B.S., Givol,D., Oren,M. and Croce,C.M.
  TITLE     Localization of gene for human p53 tumour antigen to band 17p13
  JOURNAL   Nature 320 (6057), 84-85 (1986)
   PUBMED   3456488
REFERENCE   20 (bases 1 to 2512)
  AUTHORS   Benchimol,S., Lamb,P., Crawford,L.V., Sheer,D., Shows,T.B.,
            Bruns,G.A. and Peacock,J.
  TITLE     Transformation associated p53 protein is encoded by a gene on human
            chromosome 17
  JOURNAL   Somat Cell Mol Genet 11 (5), 505-510 (1985)
   PUBMED   2994241
REFERENCE   21 (bases 1 to 2512)
  AUTHORS   Harlow,E., Williamson,N.M., Ralston,R., Helfman,D.M. and Adams,T.E.
  TITLE     Molecular cloning and in vitro expression of a cDNA clone for human
            cellular tumor antigen p53
  JOURNAL   Mol Cell Biol 5 (7), 1601-1610 (1985)
   PUBMED   3894933
REFERENCE   22 (bases 1 to 2512)
  AUTHORS   Zakut-Houri,R., Bienz-Tadmor,B., Givol,D. and Oren,M.
  TITLE     Human p53 cellular tumor antigen: cDNA sequence and expression in
            COS cells
  JOURNAL   EMBO J 4 (5), 1251-1255 (1985)
   PUBMED   4006916
REFERENCE   23 (bases 1 to 2512)
  AUTHORS   Matlashewski,G., Lamb,P., Pim,D., Peacock,J., Crawford,L. and
            Benchimol,S.
  TITLE     Isolation and characterization of a human p53 cDNA clone:
            expression of the human p53 gene
  JOURNAL   EMBO J 3 (13), 3257-3262 (1984)
   PUBMED   6396087
COMMENT     REVIEWED REFSEQ: This record has been curated by NCBI staff. The
            reference sequence was derived from DA453049.1, X02469.1 and
            AK223026.1.

            On Feb 13, 2020 this sequence version replaced NM_000546.5.

            Summary: This gene encodes a tumor suppressor protein containing
            transcriptional activation, DNA binding, and oligomerization
            domains. The encoded protein responds to diverse cellular stresses
            to regulate expression of target genes, thereby inducing cell cycle
            arrest, apoptosis, senescence, DNA repair, or changes in
            metabolism. Mutations in this gene are associated with a variety of
            human cancers, including hereditary cancers such as Li-Fraumeni
            syndrome. Alternative splicing of this gene and the use of
            alternate promoters result in multiple transcript variants and
            isoforms. Additional isoforms have also been shown to result from
            the use of alternate translation initiation codons from identical
            transcript variants (PMIDs: 12032546, 20937277). [provided by
            RefSeq, Dec 2016].

            Transcript Variant: This variant (1) can initiate translation from
```


Foresight EX1059
Foresight v Personalis

```
            two in-frame AUG start codons. The isoform represented in this
            variant (a, also known as p53alpha) results from translation
            initiation at the upstream start codon. Both variants 1 and 2
            encode isoform a, which is the longest isoform.

            Publication Note:  This RefSeq record includes a subset of the
            publications that are available for this gene. Please see the Gene
            record to access additional publications.

            ##Evidence-Data-START##
            Transcript exon combination :: BC003596.1, AF307851.1 [ECO:0000332]
            RNAseq introns              :: mixed sample support SAMEA1965299,
                                           SAMEA1966682 [ECO:0006172]
            ##Evidence-Data-END##

            ##RefSeq-Attributes-START##
            MANE Ensembl match     :: ENST00000269305.9/ ENSP00000269305.4
            RefSeq Select criteria :: based on manual assertion, conservation,
                                      expression, longest protein
            ##RefSeq-Attributes-END##
            COMPLETENESS: full length.
PRIMARY     REFSEQ_SPAN         PRIMARY_IDENTIFIER PRIMARY_SPAN        COMP
            1-7                 DA453049.1         61-67
            8-1324              X02469.1           1-1317
            1325-2512           AK223026.1         478-1665
FEATURES             Location/Qualifiers
     source          1..2512
                     /organism="Homo sapiens"
                     /mol_type="mRNA"
                     /db_xref="taxon:9606"
                     /chromosome="17"
                     /map="17p13.1"
     gene            1..2512
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="tumor protein p53"
                     /db_xref="GeneID:7157"
                     /db_xref="HGNC:HGNC:11998"
                     /db_xref="MIM:191170"
     exon            1..114
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     misc_feature    35..37
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="upstream in-frame stop codon"
     exon            115..216
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     CDS             143..1324
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="isoform a is encoded by transcript variant 1; tumor
                     protein 53; mutant tumor protein 53; cellular tumor
                     antigen p53; phosphoprotein p53; transformation-related
                     protein 53; antigen NY-CO-13; tumor supressor p53"
                     /codon_start=1
                     /product="cellular tumor antigen p53 isoform a"
                     /protein_id="NP_000537.3"
                     /db_xref="CCDS:CCDS11118.1"
                     /db_xref="GeneID:7157"
                     /db_xref="HGNC:HGNC:11998"
                     /db_xref="MIM:191170"
                     /translation="MEEPQSDPSVEPPLSQETFSDLWKLLPENNVLSPLPSQAMDDLM
                     LSPDDIEQWFTEDPGPDEAPRMPEAAPPVAPAPAAPTPAAPAPAPSWPLSSSVPSQKT
                     YQGSYGFRLGFLHSGTAKSVTCTYSPALNKMFCQLAKTCPVQLWVDSTPPPGTRVRAM
                     AIYKQSQHMTEVVRRCPHHERCSDSDGLAPPQHLIRVEGNLRVEYLDDRNTFRHSVVV
                     PYEPPEVGSDCTTIHYNYMCNSSCMGGMNRRPILTIITLEDSSGNLLGRNSFEVRVCA
                     CPGRDRRTEEENLRKKGEPHHELPPGSTKRALPNNTSSSPQPKKKPLDGEYFTLQIRG
                     RERFEMFRELNEALELKDAQAGKEPGGSRAHSSHLKSKKGQSTSRHKKLMFKTEGPDS
                     D"
     misc_feature    143..1102
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
```


Foresight EX1059
Foresight v Personalis

```
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with CCAR2.
                     /evidence=ECO:0000269|PubMed:25732823"
     misc_feature    143..391
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with HRMT1L2.
                     /evidence=ECO:0000269|PubMed:15186775"
     misc_feature    143..274
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Transcription activation (acidic)"
     misc_feature    167..169
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by HIPK4.
                     /evidence=ECO:0000269|PubMed:18022393; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    185..187
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by CDK5, PRPK, AMPK, NUAK1 and ATM.
                     /evidence=ECO:0000269|PubMed:10570149,
                     ECO:0000269|PubMed:11554766, ECO:0000269|PubMed:15866171,
                     ECO:0000269|PubMed:17108107, ECO:0000269|PubMed:17591690,
                     ECO:0000269|PubMed:17967874, ECO:0000269|PubMed:21317932,
                     ECO:0000269|PubMed:28842590; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    191..217
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: TADI"
     misc_feature    194..196
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphothreonine, by CK1, VRK1 and VRK2.
                     /evidence=ECO:0000269|PubMed:10606744,
                     ECO:0000269|PubMed:10951572, ECO:0000269|PubMed:16704422;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     phosphorylation site"
     misc_feature    200..202
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by CHEK2, CK1 and PLK3.
                     /evidence=ECO:0000269|PubMed:10570149,
                     ECO:0000269|PubMed:11447225, ECO:0000269|PubMed:11551930,
                     ECO:0000269|PubMed:12810724, ECO:0000269|PubMed:20041275;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     phosphorylation site"
     misc_feature    239..241
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by CDK5 and CDK7.
                     /evidence=ECO:0000269|PubMed:17591690,
                     ECO:0000269|PubMed:9372954; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    251..253
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by MAPKAPK5.
                     /evidence=ECO:0000269|PubMed:17254968; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    260..262
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="delta40p53alpha; Region: alternative start codon"
     misc_feature    278..280
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by CDK5, DYRK2, HIPK2 and PKC/PRKCG.
                     /evidence=ECO:0000269|PubMed:11740489,
                     ECO:0000269|PubMed:11780126, ECO:0000269|PubMed:16377624,
                     ECO:0000269|PubMed:17349958, ECO:0000269|PubMed:17591690;
```


Foresight EX1059
Foresight v Personalis

```
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     phosphorylation site"
     misc_feature    284..310
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: TADII"
     misc_feature    290..430
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Disordered. /evidence=ECO:0000256|SAM:MobiDB-lite"
     misc_feature    305..307
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphothreonine, by TAF1 and GRK5.
                     /evidence=ECO:0000269|PubMed:15053879,
                     ECO:0000269|PubMed:20124405; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    338..472
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with WWOX"
     misc_feature    440..1252
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with HIPK1. /evidence=ECO:0000250"
     misc_feature    440..1042
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Required for interaction with ZNF385A.
                     /evidence=ECO:0000269|PubMed:17719541"
     misc_feature    479..850
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Required for interaction with FBXO42.
                     /evidence=ECO:0000269|PubMed:19509332"
     misc_feature    488..1018
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with AXIN1. /evidence=ECO:0000250"
     misc_feature    500..502
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Interaction with DNA.
                     /evidence=ECO:0000269|PubMed:16793544,
                     ECO:0000269|PubMed:18996393, ECO:0000269|PubMed:20364130;
                     propagated from UniProtKB/Swiss-Prot (P04637.4); other
                     site"
     misc_feature    500..502
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine, by KAT6A.
                     /evidence=ECO:0000269|PubMed:23431171; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); acetylation site"
     misc_feature    689..691
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by AURKB.
                     /evidence=ECO:0000269|PubMed:20959462; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    863..886
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with the 53BP2 SH3 domain"
     misc_feature    908..1024
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with E4F1.
```


Foresight EX1059
Foresight v Personalis

```
                     /evidence=ECO:0000269|PubMed:10644996"
     misc_feature    947..949
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by AURKB.
                     /evidence=ECO:0000269|PubMed:20959462; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    959..982
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with DNA"
     misc_feature    986..1117
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Disordered. /evidence=ECO:0000256|SAM:MobiDB-lite"
     misc_feature    992..994
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphothreonine, by AURKB.
                     /evidence=ECO:0000269|PubMed:20959462; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    1040..1321
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with CARM1.
                     /evidence=ECO:0000269|PubMed:15186775"
     misc_feature    1055..1105
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Bipartite nuclear localization signal"
     misc_feature    1055..1057
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine.
                     /evidence=ECO:0000269|PubMed:12724314; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); acetylation site"
     misc_feature    1085..1087
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by AURKA, CDK1 and CDK2.
                     /evidence=ECO:0000269|PubMed:10884347,
                     ECO:0000269|PubMed:14702041; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); phosphorylation site"
     misc_feature    1097..1222
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with HIPK2"
     misc_feature    1103..1105
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine.
                     /evidence=ECO:0000250|UniProtKB:P02340; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); acetylation site"
     misc_feature    1115..1210
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Oligomerization"
     misc_feature    1139..1141
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Omega-N-methylarginine, by PRMT5.
                     /evidence=ECO:0000269|PubMed:19011621; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); methylation site"
     misc_feature    1145..1147
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Symmetric dimethylarginine, by PRMT5.
                     /evidence=ECO:0000269|PubMed:19011621; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); methylation site"
     misc_feature    1151..1153
```


Foresight EX1059
Foresight v Personalis

```
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Symmetric dimethylarginine, by PRMT5.
                     /evidence=ECO:0000269|PubMed:19011621; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); methylation site"
     misc_feature    1157..1192
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Nuclear export signal"
     misc_feature    1193..1321
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Disordered. /evidence=ECO:0000256|SAM:MobiDB-lite"
     misc_feature    1217..1231
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Interaction with USP7"
     misc_feature    1244..1303
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: Basic (repression of DNA-binding)"
     misc_feature    1250..1258
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="propagated from UniProtKB/Swiss-Prot (P04637.4);
                     Region: [KR]-[STA]-K motif"
     misc_feature    1250..1252
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6,N6-dimethyllysine, alternate.
                     /evidence=ECO:0000269|PubMed:17108971,
                     ECO:0000269|PubMed:22864287; N6-methyllysine, by SMYD2,
                     alternate. /evidence=ECO:0000269|PubMed:17108971,
                     ECO:0000269|PubMed:22864287; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); methylation site"
     misc_feature    1256..1258
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-methyllysine, by SETD7.
                     /evidence=ECO:0000269|PubMed:15525938,
                     ECO:0000269|PubMed:16415881; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); methylation site"
     misc_feature    1259..1261
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6,N6-dimethyllysine, by EHMT1 and EHMT2,
                     alternate. /evidence=ECO:0000269|PubMed:20118233;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     methylation site"
     misc_feature    1259..1261
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine, alternate.
                     /evidence=ECO:0000269|PubMed:10656795; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); acetylation site"
     misc_feature    1283..1285
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine.
                     /evidence=ECO:0000269|PubMed:29474172,
                     ECO:0007744|PubMed:19608861; propagated from
                     UniProtKB/Swiss-Prot (P04637.4); acetylation site"
     misc_feature    1286..1288
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6,N6-dimethyllysine, alternate.
                     /evidence=ECO:0000269|PubMed:17707234,
                     ECO:0000269|PubMed:20870725, ECO:0000269|PubMed:22864287;
                     N6-methyllysine, by KMT5A, alternate.
                     /evidence=ECO:0000269|PubMed:17707234,
                     ECO:0000269|PubMed:20870725, ECO:0000269|PubMed:22864287;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
```


Foresight EX1059
Foresight v Personalis

```
                     methylation site"
     misc_feature    1286..1288
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="N6-acetyllysine, by KAT6A, alternate.
                     /evidence=ECO:0000269|PubMed:10656795,
                     ECO:0000269|PubMed:15448695, ECO:0000269|PubMed:20228809,
                     ECO:0000269|PubMed:23431171, ECO:0007744|PubMed:19608861;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     acetylation site"
     misc_feature    1316..1318
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="Phosphoserine, by CK2, CDK2 and NUAK1.
                     /evidence=ECO:0000269|PubMed:10884347,
                     ECO:0000269|PubMed:11239457, ECO:0000269|PubMed:17108107,
                     ECO:0000269|PubMed:21317932, ECO:0000269|PubMed:22214662;
                     propagated from UniProtKB/Swiss-Prot (P04637.4);
                     phosphorylation site"
     exon            217..238
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            239..517
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            518..701
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            702..814
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            815..924
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            925..1061
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            1062..1135
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            1136..1242
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     exon            1243..2512
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /inference="alignment:Splign:2.1.0"
     regulatory      2495..2500
                     /regulatory_class="polyA_signal_sequence"
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="hexamer: AATAAA"
     polyA_site      2512
                     /gene="TP53"
                     /gene_synonym="BCC7; BMFS5; LFS1; P53; TRP53"
                     /note="major polyA site"
ORIGIN
        1 ctcaaaagtc tagagccacc gtccagggag caggtagctg ctgggctccg gggacacttt
       61 gcgttcgggc tgggagcgtg ctttccacga cggtgacacg cttccctgga ttggcagcca
      121 gactgccttc cgggtcactg ccatggagga gccgcagtca gatcctagcg tcgagccccc
      181 tctgagtcag gaaacatttt cagacctatg gaaactactt cctgaaaaca acgttctgtc
      241 ccccttgccg tcccaagcaa tggatgattt gatgctgtcc ccggacgata ttgaacaatg
      301 gttcactgaa gacccaggtc cagatgaagc tcccagaatg ccagaggctg ctccccccgt
      361 ggcccctgca ccagcagctc ctacaccggc ggcccctgca ccagcccccct cctggcccct
      421 gtcatcttct gtcccttccc agaaaaccta ccagggcagc tacggtttcc gtctgggctt
      481 cttgcattct gggacagcca agtctgtgac ttgcacgtac tcccctgccc tcaacaagat
      541 gttttgccaa ctggccaaga cctgccctgt gcagctgtgg gttgattcca cacccccgcc
      601 cggcacccgc gtccgcgcca tggccatcta caagcagtca cagcacatga cggaggttgt
```


Foresight EX1059
Foresight v Personalis

```
 661 gaggcgctgc ccccaccatg agcgctgctc agatagcgat ggtctggccc ctcctcagca
 721 tcttatccga gtggaaggaa atttgcgtgt ggagtatttg gatgacagaa acacttttcg
 781 acatagtgtg gtggtgccct atgagccgcc tgaggttggc tctgactgta ccaccatcca
 841 ctacaactac atgtgtaaca gttcctgcat gggcggcatg aaccggaggc ccatcctcac
 901 catcatcaca ctggaagact ccagtggtaa tctactggga cggaacagct ttgaggtgcg
 961 tgtttgtgcc tgtcctggga gagaccggcg cacagaggaa gagaatctcc gcaagaaagg
1021 ggagcctcac cacgagctgc ccccagggag cactaagcga gcactgccca acaacaccag
1081 ctcctctccc cagccaaaga agaaaccact ggatggagaa tatttcaccc ttcagatccg
1141 tgggcgtgag cgcttcgaga tgttccgaga gctgaatgag gccttggaac tcaaggatgc
1201 ccaggctggg aaggagccag gggggagcag ggctcactcc agccacctga agtccaaaaa
1261 gggtcagtct acctcccgcc ataaaaaact catgttcaag acagaagggc ctgactcaga
1321 ctgacattct ccacttcttg ttccccactg acagcctccc acccccatct ctccctcccc
1381 tgccattttg ggttttgggt ctttgaaccc ttgcttgcaa taggtgtgcg tcagaagcac
1441 ccaggacttc catttgcttt gtcccggggc tccactgaac aagttggcct gcactggtgt
1501 tttgttgtgg ggaggaggat ggggagtagg acataccagc ttagatttta aggtttttac
1561 tgtgagggat gtttgggaga tgtaagaaat gttcttgcag ttaagggtta gtttacaatc
1621 agccacattc taggtagggg cccacttcac cgtactaacc agggaagctg tccctcactg
1681 ttgaattttc tctaacttca aggcccatat ctgtgaaatg ctggcatttg cacctacctc
1741 acagagtgca ttgtgagggt taatgaaata atgtacatct ggccttgaaa ccacctttta
1801 ttacatgggg tctagaactt gaccccttg agggtgcttg ttccctctcc ctgttggtcg
1861 gtgggttggt agtttctaca gttgggcagc tggttaggta gagggagttg tcaagtctct
1921 gctggcccag ccaaaccctg tctgacaacc tcttggtgaa ccttagtacc taaaaggaaa
1981 tctcacccca tcccacaccc tggaggattt catctcttgt atatgatgat ctggatccac
2041 caagacttgt tttatgctca gggtcaattt ctttttttctt tttttttttt ttttttcttt
2101 ttctttgaga ctgggtctcg ctttgttgcc caggctggag tggagtggcg tgatcttggc
2161 ttactgcagc ctttgcctcc ccggctcgag cagtcctgcc tcagcctccg gagtagctgg
2221 gaccacaggt tcatgccacc atggccagcc aacttttgca tgttttgtag agatggggtc
2281 tcacagtgtt gcccaggctg gtctcaaact cctgggctca ggcgatccac ctgtctcagc
2341 ctcccagagt gctgggatta caattgtgag ccaccacgtc cagctggaag ggtcaacatc
2401 ttttacattc tgcaagcaca tctgcatttt caccccaccc ttcccctcct tctccctttt
2461 tatatcccat ttttatatcg atctcttatt ttacaataaa actttgctgc ca
//
```


Foresight EX1059
Foresight v Personalis