

Original Article

Genome-wide ChIP-seq analysis of TCF4 binding regions in colorectal cancer cells

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Abstract: Objective: TCF4 (transcriptional factor 4) forms a complex with its transcriptional coactivator β -catenin and the coactivator carries the final signal output from the canonical Wnt signaling pathway, which is essential for the growth of normal epithelium and also plays important roles in carcinogenesis of colon epithelium. We aimed to gain a better understanding of the genes bound by TCF4 in colorectal cancer cells. Methods: SW620 human colorectal cancer cells were cultured. The TCF4 antibody of this study was confirmed in SW620 cells by Western Blot. A ChIP-seq based genome-wide analysis of TCF4 chromatin occupancy in colorectal cancer cells was conducted and 1506 high confidence TCF4 binding sites were identified. Results: Sequence analysis revealed that the binding sites harbor a consensus sequence of C-G/C-A-G-C-T/C-C-T-T-C. Gene ontology and pathway analysis showed that TCF4 regulated 18 genes in Wnt signaling pathway and 97 other transcription factors. Conclusion: Our results suggest TCF4 binding regions were enriched with a motif of C-G/C-A-G-C-T/C-C-T-T-C. The gene regulation of TCF4 may be conserved in colorectal cancer and glioma cells. TCF4 may be involved in a series of important biological processes such as regulation of metabolic and biosynthetic (GO: 0010604, GO: 0031328, GO: 0009891, GO: 0051173, GO: 0010557, GO: 0045935), adhesion (GO: 0007155, GO: 0022610), apoptosis (GO: 0042981, GO: 0043067, GO: 0010941), and important signaling pathways (Wnt, Chemokine, Calcium, GnRH).

Keywords: TCF4, ChIP-seq, colorectal cancer, Wnt signaling pathway

Introduction

TCF4 (also known as Tcf7L2), which is expressed in the colon epithelium, is an important transcription factor of the Tcf/Lef family [1]. It plays a significant role in Wnt signaling pathway with the N-terminal β -catenin binding domain and the C-terminal DNA binding domain (HMG box) [2]. β -catenin/TCF4 complexes accumulate in the nucleus and promote a series of target genes when the Wnt signaling pathway is activated [3, 4]. The lack of Wnt signaling causes TCF4 to bind several transcription repressors, thus, displaying the opposite function [5].

Many previous studies have shown that TCF4 is related to the occurrence and development of colorectal cancer [6-8]. Different kinds of oncogenes, including proliferation promoters (c-Myc, c-Jun, cyclinD1), apoptosis regulator (survivin), migration factor (uPA, MMPs, CD-44), and cell differentiation associated genes (FGF2, PPAR-

d, BMP-4, c-Ret), were directly regulated by TCF4 [6, 9-12]. A systematic and genome-wide identification of all TCF4 regulated genes would be necessary to understand the role of TCF4 in cancers. Zhang et al. recently identified 1250 overlapping putative target genes that were co-regulated by TCF4 and STAT3 in gliomas using the ChIP-seq (chromatin immunoprecipitation-sequencing) approach [13]. However, global analysis of TCF4 regulated genes in colorectal cancers has not been conducted to date. Therefore, we conducted a ChIP-seq analysis of TCF4 bound genes in colorectal cancers and reported our dataset in this paper.

Materials and methods

Cell culture

SW620 human colorectal cancer cells (ATCC number CCL-227) were provided by the Second Affiliated Hospital, Zhejiang University School of

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Table 1. Primers for validation of ChIP-target genes

| Gene | Forward primer | Reverse primer |
|----------|----------------------|----------------------|
| H2AFY | GAGTGCCAGGTTGTTTGTT | ATGCCTGAGTAGCCCTAGCA |
| PLD1 | CATTCGAGCTGAGGAGGAAC | CATCCCAGGAAGTCACTGT |
| FLJ20294 | CCCAGGAAATGCTCAACAAT | TGATGGCACACTCTCAAAGG |
| ZBTB16 | CTATGGGCGAGAGGAGAGTG | TCAATACAGCGTCAGCCTTG |
| HIPK2 | CACTGTGCAGTCTCCCTCAA | TGAGGCCTGGACTAAGCTGT |
| BRE | AAGTGGCCTTGAACCGAATA | GGGTTTCTGTGGCAGTCAAT |
| BCL2 | TGATGTGAGTCTGGGCTGAG | GAACGCTTTGTCCAGAGGAG |
| PTEN | TTCTCTCTCTCGGAAGCTG | AGAGGCTGCACGGTTAGAAA |
| AIFM1 | TCATGCCCACTGTCTGTAA | TCGGGGAAGAGTTGAATCAC |
| PAX7 | GTTTGCCCCACAGACAAGAT | CTGGTGTGGTCAAGGAAGGT |

Medicine, Hangzhou, China. Cells were maintained in L-15 medium (Invitrogen, Grand Island, NY) with 10% fetal bovine serum and penicillin/streptomycin (100 µg/ml) and cultured at 37°C and 5% CO₂.

Western blotting analysis

SW620 cells were lysed in RIPA cell lysis buffer (25 mmol/L Tris-HCl (pH 7.6), 150 mmol/L NaCl, 0.01 g/ml NP-40, 0.01 g/ml sodium deoxycholate, 1 g/L sodium dodecyl sulfate (SDS)) containing protease inhibitor cocktail kit (Pierce, Rockford, IL, USA). Protein concentrations were estimated using Pierce BCA protein Assay Kit (Thermo SCIENTIFIC). Approximately 20 mg of protein was denatured at 95°C with loading buffer for 5 min and separated by electrophoresis in 12% SDS-PAGE gels. The proteins were transferred onto a PVDF membrane and blocked for 2 hours in 5% skim milk in TBST buffer. Primary antibodies were diluted and incubated with the PVDF membrane for 3 hours at 37°C. The TCF4 (#2569) antibody was purchased from Cell Signaling Technology.

ChIP-seq analysis

The above-mentioned anti-TCF4 antibody and normal IgG were applied for immunoprecipitation. 10 million SW620 cells were fixed with 1% fresh formaldehyde and then were broken down in lysis buffer according to the ChIP-seq protocol [14]. The cell nucleus was re-suspended and sonicated on ice to DNA fragments of 200-500 bp. A total of 50 µl of Dynal protein G beads, 5 µg of antibody, and the sonicated DNA were incubated at 4°C overnight with rotation. Then, the precipitated immunocomplex was treated with proteinase K at 65°C for 2 h, and

ChIP DNA were purified with QIAquick polymerase chain reaction (PCR) purification kit (Qiagen, USA). The DNA fragments were amplified by PCR, ligated with adaptors, and repaired at the double-strand end. The 150 bp ChIP DNA fragments were isolated by agarose gel electrophoresis and sequenced by Illumina Genome Analyzer II System.

Identification of binding sites

The Solexa pipeline analysis was performed as indicated by the operation manual [15]. The 36 nucleotide sequence tags were mapped to the human genome with two mismatches allowed with the SOAP program [16, 17]. The enriched peaks of the TCF4 binding sites were identified by CisGenome program with an IgG-ChIP group as control [18]. The program was executed with the default parameters (window 100, step 25, PO=0.599).

The CisGenome program was also applied to annotate the datasets with the UCSC human genome HG18 database. The annotation regions of these peaks covered 50 kb upstream of the transcription start site to 50 kb downstream the transcription termination site.

ChIP-PCR validation

10 genes of the binding targets were selected randomly to validate the TCF4 ChIP sequencing data by PCR. The genes and PCR primers are listed in **Table 1**. Each PCR reaction was performed in a total volume of 25 µl containing 10 ng DNA template, 5 U/ul TaKaRa Ex Taq, 1 X TAKARA Ex Taq Buffer (Mg2+Plus), 1 µl of dNTP Mixture (2.5 mM), and 1 µl of each primer (20 µM). The PCR results were analyzed by 1.5% agarose gel electrophoresis. Furthermore, 18 genes in the TCF4 binding region that associated with Wnt signaling pathways were confirmed by PCR. The genes and PCR primers are listed in [Table S1](#).

Analysis of distance to transcription start site

The annotations of HG18 database was used to calculate the distance from the binding sites to the transcription start sites (TSSs). The distance number was negative when the binding site was located upstream of the TSS, and it

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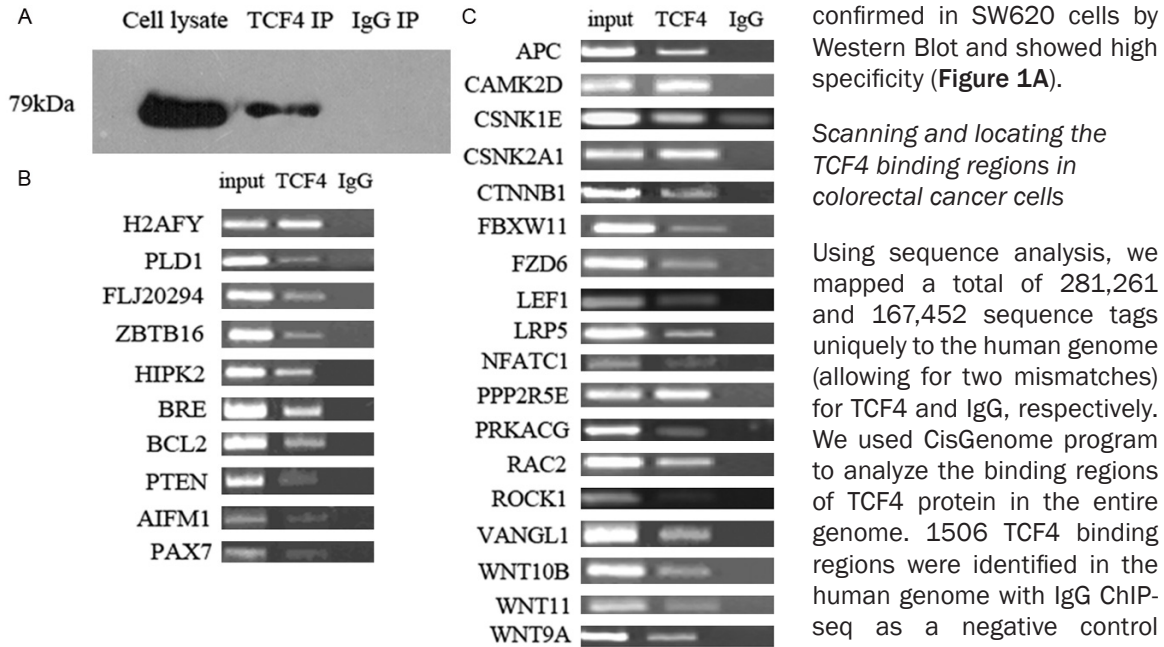


Figure 1. Confirmation of western blot and PCR analysis. A. Western blot validation with TCF4 antibodies and IP products (cell lysate, TCF4IP product, and IgGIP product); B. PCR confirmation of ChIP-seq peaks. The input, TCF4, and IgG DNA samples were extracted from cells, TCF4 IP product, and IgG IP product, respectively; C. PCR confirmation of genes associated with Wnt signaling pathways.

confirmed in SW620 cells by Western Blot and showed high specificity (**Figure 1A**).

Scanning and locating the TCF4 binding regions in colorectal cancer cells

Using sequence analysis, we mapped a total of 281,261 and 167,452 sequence tags uniquely to the human genome (allowing for two mismatches) for TCF4 and IgG, respectively. We used CisGenome program to analyze the binding regions of TCF4 protein in the entire genome. 1506 TCF4 binding regions were identified in the human genome with IgG ChIP-seq as a negative control (P -value < 0.01). In these binding regions, 1013 peaks with a cutoff-value of 50 kb distance contained 940 known gene annotations (**Table S2**). These results suggested that on average there were about 1.1 enriched regions per gene. 10

genes were selected randomly to verify using PCR analysis whether their DNA binding regions existed specially in the TCF4's ChIP compound rather than the IgG's (**Figure 1B**). The results of gel electrophoresis showed that the false positive level of our dataset was ignorable.

To evaluate the distribution of the TCF4-binding sites along the genome, the distance from the binding region to these genes' TSSs were counted. We found that 117 (12.4%) and 272 (28.9%) of 940 binding sites mapped within 2 kb and 10 kb distances, respectively (**Figure 2A**).

Identification of DNA binding consensus sequences

The MEME-ChIP program was utilized to mark the enriched and unique consensus sequences in the binding regions of TCF4 in human colorectal cancer cells. A consensus sequence of C-G/C-A-G-C-T/C-C-T-T-C was identified with a very high score. The sequence's letter-probability matrix is shown in **Table S3**. The 598 instances of this motif in 1506 TCF4 binding regions are listed in **Table S4**. The logo of this motif is shown in **Figure 2B**.

was positive when the binding site was located downstream of the TSS.

Motif searching and identification

We extended the observed TCF4 binding sites to 100 bp at the end of both the 3' and 5' to identify any novel motifs and retrieved the sequences in the FASTA format. We applied the MEME-ChIP program to mark all human repeats in these sequences and searched the up-regulation motifs (default parameters were applied) [19].

Gene ontology analysis

The program named DAVID was applied to statistically research the Gene Ontology (GO) terms (P -value < 0.01) and KEGG annotations (P -value < 0.05) of all evidence levels and categories [13].

Results

Specificity verification of the ChIP antibody

The ChIP antibody's specificity is the premise of ChIP-seq experiments; thus we verified its accuracy. The TCF4 antibody of this study was

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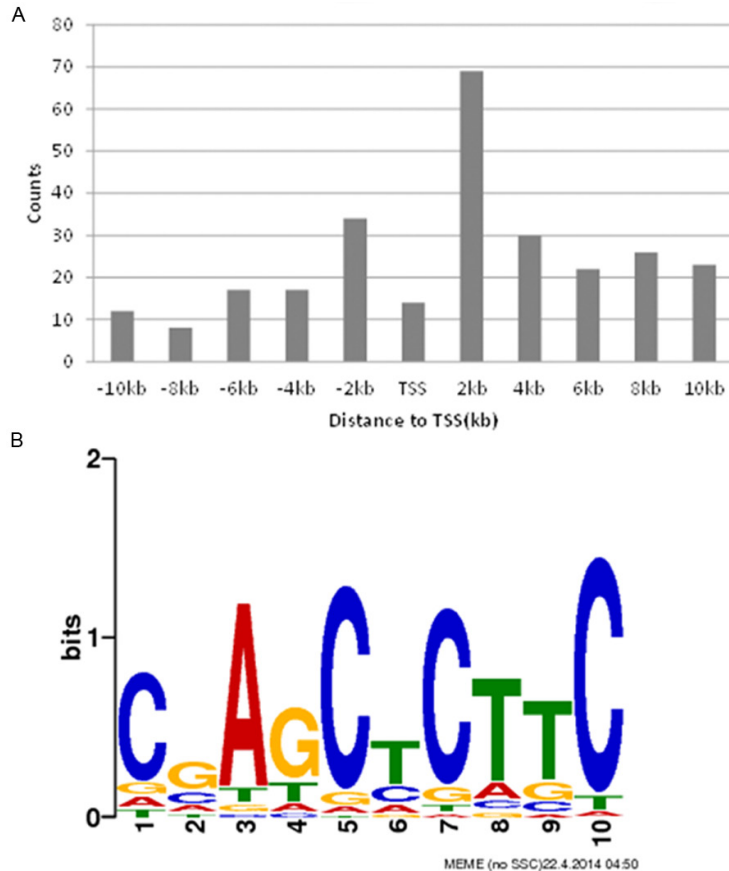


Figure 2. A. Histogram of TCF4 binding sites around annotated TSSs; B. The logo of the motif C-G/C-A-G-C-T/C-C-T-T-C.

Annotation of TCF4-associated biological processes and molecular function

The biological processes and metabolic pathways of TCF4 binding genes were annotated by GO and KEGG terms with the DAVID program (Table 2). The top enriched GO terms included intracellular signaling cascade (GO: 0007242), positive regulation of macromolecule metabolic process (GO: 0010604), cell adhesion (GO: 0007155), biological adhesion (GO: 0022610). KEGG terms included Axon guidance (hsa-04360), Chemokine signaling pathway (hsa-04062), Melanogenesis (hsa04916), and Wnt signaling pathway (hsa04310). Having observed that TCF4 regulated 18 genes in Wnt signaling pathway, we verified their TCF4 binding regions' specificity with PCR test as previously mentioned (Figure 1C). The results show that most of the gene was verified.

Furthermore, we searched for other known potential TFs (transcription factors) that were

regulated by TCF4 and controlled corresponding downstream gene expression. 97 TFs were identified as potential TCF4 cooperators in GO transcription regulator activity terms (GO 0030528) and another 34 TFs were found in transcription activator activity terms (GO 0016563) (Table S5).

Discussion

ChIP analysis is one of the most common approaches to study the binding sites of TFs and the mechanisms of genes' functions. With the help of next generation sequencing technologies, ChIP-seq could efficiently provide a whole-genome view of protein-DNA interactions with high quantity gene detection [20-22]. As an important transcription factor of the Wnt signaling pathway, TCF4 plays diverse functions in the carcinogenesis and progression of several cancers. Identification of TCF4's binding sites on the genome is important for understanding its role in cancer.

In this study, we applied ChIP-seq approach to search and identify physical interactions between

TCF4 proteins and DNA in SW620 colorectal cancer cell line. Subsequently, we found that TCF4 binding regions were enriched with a motif of C-G/C-A-G-C-T/C-C-T-T-C, which was undiscovered previously. In earlier studies, similar experiments were carried out by Bottomly et al. in HCT116 cells [23]. They found a core TCF4 motif (T/A-T/A-C-A-A-G). However, the antibodies we used (Cell Signaling Technology, #2569) and the ones Bottomly et al. used (Millipore, 05-511) were different. This would affect the protein binding sites. Meanwhile, it is worth noting the cell lines were different and from patients who had different genotypes. Our cell lines (SW620) were separated from a 51 years male (Dukes' type C), and HCT116 cell lines were separated from an adult male (no age data). These unique protocols suggest that the difference between the results derived from different antibodies and cell types. In addition, it reveals that the TCF4 protein may have a different mechanism of action in differ-

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Table 2. Annotation of TCF4 binding genes by GO and KEGG terms

| Category | Term | Number of genes | Fold Enrichment | IgP | |
|---|--|--------------------------------------|-----------------|--------|--------|
| GO | GO: 0007242_intracellular signaling cascade | 80 | 1.370 | -2.517 | |
| | GO: 0010604_positive regulation of macromolecule metabolic process | 65 | 1.631 | -3.994 | |
| | GO: 0007155_cell adhesion | 63 | 1.936 | -6.195 | |
| | GO: 0022610_biological adhesion | 63 | 1.933 | -6.173 | |
| | GO: 0006357_regulation of transcription from RNA polymerase II promoter | 60 | 1.775 | -4.735 | |
| | GO: 0006811_ion transport | 59 | 1.652 | -3.796 | |
| | GO: 0042981_regulation of apoptosis | 59 | 1.578 | -3.280 | |
| | GO: 0043067_regulation of programmed cell death | 59 | 1.563 | -3.183 | |
| | GO: 0010941_regulation of cell death | 59 | 1.557 | -3.138 | |
| | GO: 0031328_positive regulation of cellular biosynthetic process | 55 | 1.727 | -4.036 | |
| | GO: 0009891_positive regulation of biosynthetic process | 55 | 1.702 | -3.875 | |
| | GO: 0016310_phosphorylation | 55 | 1.479 | -2.465 | |
| | GO: 0042127_regulation of cell proliferation | 54 | 1.476 | -2.404 | |
| | GO: 0051173_positive regulation of nitrogen compound metabolic process | 53 | 1.770 | -4.175 | |
| | GO: 0010557_positive regulation of macromolecule biosynthetic process | 53 | 1.743 | -3.998 | |
| | GO: 0006468_protein amino acid phosphorylation | 53 | 1.709 | -3.791 | |
| | GO: 0045935_positive regulation of nucleobase, nucleoside, nucleotide and nucleic acid metabolic process | 51 | 1.758 | -3.950 | |
| | GO: 0042592_homeostatic process | 50 | 1.432 | -2.007 | |
| | KEGG | hsa04360_Axon guidance | 20 | 2.953 | -4.478 |
| | | hsa04062_Chemokine signaling pathway | 20 | 2.037 | -2.416 |
| hsa04916_Melanogenesis | | 18 | 3.463 | -4.950 | |
| hsa04310_Wnt signaling pathway | | 18 | 2.270 | -2.677 | |
| hsa04270_Vascular smooth muscle contraction | | 17 | 2.891 | -3.694 | |
| hsa04020_Calcium signaling pathway | | 16 | 1.731 | -1.386 | |
| hsa05414_Dilated cardiomyopathy | | 13 | 2.691 | -2.554 | |
| hsa04912_GnRH signaling pathway | | 13 | 2.526 | -2.325 | |
| hsa04114_Oocyte meiosis | | 12 | 2.078 | -1.554 | |
| hsa05412_Arrhythmogenic right ventricular cardiomyopathy (ARVC) | | 10 | 2.506 | -1.774 | |

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ent cell environments. This requires more clinical samples for further study.

Apart from the motif difference, Bottomly et al. found 2168 TCF4 enriched regions in HCT116 cells. 241 binding sites overlapped with the 1506 binding sites in this study [23]. Despite the differences between cell samples and antibodies, our results can be verified.

Identification of TCF4 binding sites in glioblastoma has been done with ChIP-seq technology [24]. Zhang et al. identified 3812 TCF4 putative target genes in U87 human glioblastoma cell lines [24]. We found that 128 of those genes overlapped with our data in the present study. This may suggest that the gene regulation of TCF4 is conserved in colorectal cancer and glioma cells.

Further, we investigated the enriched analysis of GO and KEGG terms. The results show that TCF4 may be involved in a series of important biological processes such as regulation of metabolic and biosynthetic (GO: 0010604, GO: 0031328, GO: 0009891, GO: 0051173, GO: 0010557, GO: 0045935), adhesion (GO: 0007155, GO: 0022610), apoptosis (GO: 0042981, GO: 0043067, GO: 0010941), and important signaling pathways (Wnt, Chemokine, Calcium, GnRH). Some of these important interactions have not been studied in depth.

In conclusion, our study provides a genome-wide binding profile of TCF4, the major transcription factor of Wnt signaling in colorectal cancer. This work may provide new ideas to clarify the mechanism of colorectal carcinogenesis.

Disclosure of conflict of interest

None.

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Table S1. Primers for validation of ChIP-target sequence associated with Wnt signaling pathways

| Gene | Forward primer | Reverse primer |
|---------|-----------------------|----------------------|
| APC | CCCTAGAACCAATCCAGCA | AACATGAGTGGGGTCTCCTG |
| CAMK2D | CCCTCCCCTCTGCTTCTACT | CGCTTCCTTCTTCCACTG |
| CSNK1E | TGTGTTTCCCAAGACAGCAG | CTCCATGGATTCTGCCCTAA |
| CSNK2A1 | AGGCCCCCATTTTATACACC | ACTTTTCCATCCCCAATCC |
| CTNNB1 | GGTGGGCTGGTATCTCAGAA | CAAGCAAGGCTAGGGTTTGA |
| FBXW11 | ATTGCGTGTGTGTGGTTTGT | GCCACGACTGCACAGAATAA |
| FZD6 | GTTGGCCTTTATGACCTGGA | CACAAGATACAAGCCGCTGA |
| LEF1 | CCCTTCCAACCTCTCCTTTCC | TTGAAGGGGATCATCTCGTC |
| LRP5 | CGTGTGTGACAGCGACTACA | TTACAGGGGCACAGAGAAGC |
| NFATC1 | CCCCTCTAGTTGCCACAT | CCTGCTTTCCTTCTTGTGG |
| PPP2R5E | GGGATGGGAAAGGGATGTAT | GTCTGGTGCCACCTTTTGT |
| PRKACG | TGGTCCCTCTGTGCTTCTCT | CAGGATTACGCCAAAGGGTA |
| RAC2 | GGCCAGCTGCTCTAATATCG | CAGATATCCCCAGAGGCGTA |
| ROCK1 | ATGTCTGCACACTGCCTCAG | GGTGCATGGGCTAACTCAAT |
| VANGL1 | ATGTCACAGTCCGTGTTCCA | CCAGAAGTGCCGAATCATT |
| WNT10B | TGGGATGTGTAGCCTTCTCC | CCCAGCCAAAAGGAGTATGA |
| WNT11 | ACAAGACATCCAACGGAAGC | TGAGGGTCTTGAGCAGAGT |
| WNT9A | GCATGCAGTATGAGGGGTCT | CTCAGAAAGCATTGGTGCAA |

Table S2. Annotations of the TCF4 binding regions

| annotation | gene | distance to TSS | chr | start | end | strand |
|------------|--------------|-----------------|-------|-----------|-----------|--------|
| FLJ20294 | NM_017749 | 140881 | chr11 | 46428410 | 46428608 | + |
| H2AFY | NM_138609 | 72989 | chr5 | 134689639 | 134689837 | + |
| SGCZ | NM_139167 | 161667 | chr8 | 14978297 | 14978495 | + |
| TLE3 | NM_005078 | 9121 | chr15 | 68166892 | 68167090 | + |
| METTL6 | NM_152396 | 22168 | chr3 | 15421648 | 15421846 | + |
| PLD1 | NM_002662 | 148495 | chr3 | 172789872 | 172790070 | + |
| APOL3 | NM_014349 | 29546 | chr22 | 34857178 | 34857376 | + |
| FRMD6 | NM_001042481 | 12131 | chr14 | 51037735 | 51037933 | + |
| FLJ35740 | NM_147195 | 5938 | chr9 | 38561067 | 38561265 | 0 |
| TNFSF18 | NM_005092 | -28434 | chr1 | 171315112 | 171315310 | + |
| DLG5 | NM_004747 | 85549 | chr10 | 79270606 | 79270804 | + |
| LMO2 | NM_005574 | -1419 | chr11 | 33871830 | 33872028 | + |
| SLIT3 | NM_003062 | 602112 | chr5 | 168058340 | 168058441 | + |
| ZBTB16 | NM_001018011 | 66501 | chr11 | 113502998 | 113503196 | + |
| CDC2L5 | NM_003718 | -30593 | chr7 | 39925842 | 39926040 | + |
| NFASC | NM_015090 | 150735 | chr1 | 203215180 | 203215378 | + |
| SLC12A2 | NM_001046 | 32237 | chr5 | 127479618 | 127479816 | + |
| KCNC1 | NM_004976 | 19443 | chr11 | 17733532 | 17733730 | + |
| ARL13B | NM_144996 | 29838 | chr3 | 95211509 | 95211707 | + |
| SYT2 | NM_177402 | 86283 | chr1 | 200859686 | 200859884 | + |
| HOXC9 | NM_006897 | 4746 | chr12 | 52684889 | 52685087 | + |
| KCNMA1 | NM_002247 | 392336 | chr10 | 78675048 | 78675246 | + |
| PCGF3 | NM_006315 | 61203 | chr4 | 750775 | 750973 | + |
| LEF1 | NM_016269 | 59532 | chr4 | 109249296 | 109249494 | + |
| ATP9B | NM_198531 | 3545 | chr18 | 74933929 | 74934127 | + |
| RASSF8 | NM_007211 | -30218 | chr12 | 25972819 | 25973017 | + |

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| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| TSSC1 | NM_003310 | 34578 | chr2 | 3325827 | 3326026 | + |
| TMEM173 | NM_198282 | -29712 | chr5 | 138872187 | 138872385 | + |
| B4GALT1 | NM_001497 | -33785 | chr9 | 33191015 | 33191213 | + |
| DNMBP | NM_015221 | 58514 | chr10 | 101663158 | 101663356 | + |
| KCTD1 | NM_198991 | 229344 | chr18 | 22244763 | 22244961 | + |
| SLC1A1 | NM_004170 | 2938 | chr9 | 4483381 | 4483579 | + |
| DAB2IP | NM_138709 | 12720 | chr9 | 123557604 | 123557802 | + |
| RALA | NM_005402 | 109660 | chr7 | 39739346 | 39739544 | + |
| LOC440131 | NM_001010918 | -33797 | chr13 | 29374672 | 29374870 | + |
| GRM7 | NM_181875 | 328333 | chr3 | 7206259 | 7206457 | + |
| PITPNM2 | NM_020845 | 82030 | chr12 | 122078699 | 122078897 | + |
| ELL | NM_006532 | 14046 | chr19 | 18479673 | 18479871 | + |
| RARB | NM_000965 | 157241 | chr3 | 25601998 | 25602197 | + |
| DSCAML1 | NM_020693 | 71571 | chr11 | 117101416 | 117101614 | + |
| GPR6 | NM_005284 | 23652 | chr6 | 110430642 | 110430840 | + |
| FLJ10154 | NM_018011 | 0 | chr13 | 106018470 | 106018669 | + |
| UBQLN1 | NM_013438 | -351 | chr9 | 85513123 | 85513321 | + |
| PKNOX1 | NM_004571 | 66997 | chr21 | 43334708 | 43334906 | + |
| AZIN1 | NM_015878 | -32714 | chr8 | 103978286 | 103978484 | + |
| C1orf19 | NM_052965 | 57597 | chr1 | 182345065 | 182345263 | + |
| MYH9 | NM_002473 | -11505 | chr22 | 35125431 | 35125629 | + |
| WDSUB1 | NM_152528 | -222 | chr2 | 159851530 | 159851728 | + |
| LOC387882 | NM_207376 | 20835 | chr12 | 104269604 | 104269802 | + |
| TMEM132D | NM_133448 | 631380 | chr12 | 128322587 | 128322785 | + |
| WDR42B | NM_001017930 | -17539 | chrX | 27927025 | 27927223 | + |
| NIN | NM_182944 | -58 | chr14 | 50367646 | 50367844 | + |
| ADAMTS14 | NM_080722 | 42421 | chr10 | 72144985 | 72145183 | + |
| ZNF397 | NM_032347 | 0 | chr18 | 31074894 | 31075092 | + |
| WBSCR28 | NM_182504 | 26140 | chr7 | 72939564 | 72939762 | + |
| ZNF185 | NM_007150 | 44017 | chrX | 151881337 | 151881535 | + |
| AMIGO1 | NM_020703 | -13119 | chr1 | 109866945 | 109867143 | + |
| TOMM34 | NM_006809 | 3753 | chr20 | 43018576 | 43018774 | + |
| VPS37C | NM_017966 | 23368 | chr11 | 60661925 | 60662123 | + |
| RFWD2 | NM_001001740 | -8266 | chr1 | 174451258 | 174451456 | + |
| GSG1 | NM_031289 | -31633 | chr12 | 13171584 | 13171782 | + |
| KCNQ1 | NM_181798 | 378195 | chr11 | 2817454 | 2817652 | + |
| TNFSF18 | NM_005092 | 36456 | chr1 | 171250024 | 171250222 | + |
| MAML3 | NM_018717 | 25955 | chr4 | 141268529 | 141268727 | + |
| B3GALT6 | NM_080605 | 10448 | chr1 | 1167939 | 1168137 | + |
| CACNA1C | NM_000719 | 297214 | chr12 | 2329938 | 2330136 | + |
| GSTA4 | NM_001512 | 47233 | chr6 | 52920667 | 52920865 | + |
| EFNA5 | NM_001962 | -2242 | chr5 | 107036736 | 107036934 | + |
| OXT | NM_000915 | -443 | chr20 | 2999624 | 2999822 | + |
| TTC7A | NM_020458 | 37731 | chr2 | 47059547 | 47059745 | + |
| CREB3L1 | NM_052854 | 3058 | chr11 | 46258861 | 46259059 | + |
| GRB10 | NM_001001550 | 85747 | chr7 | 50654546 | 50654744 | + |
| AGPS | NM_003659 | -43295 | chr2 | 177922237 | 177922435 | + |
| STK32B | NM_018401 | 90255 | chr4 | 5194682 | 5194781 | + |
| NTN1 | NM_004822 | 197110 | chr17 | 9062693 | 9062891 | + |
| FGD1 | NM_004463 | 12641 | chrX | 54526484 | 54526682 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| FAM96B | NM_016062 | 0 | chr16 | 65525694 | 65525892 | + |
| NFYB | NM_006166 | -49361 | chr12 | 103105530 | 103105728 | + |
| EDN1 | NM_001955 | -9257 | chr6 | 12389189 | 12389387 | + |
| HTRA4 | NM_153692 | -11249 | chr8 | 38939406 | 38939604 | + |
| NCAPH | NM_015341 | 18830 | chr2 | 96384040 | 96384238 | + |
| CRSP8 | NM_004269 | 235226 | chr9 | 133709649 | 133709847 | + |
| C9orf23 | NM_148178 | 177 | chr9 | 34601725 | 34601923 | + |
| DOCK5 | NM_024940 | 123472 | chr8 | 25221675 | 25221873 | + |
| SDK1 | NM_152744 | 380930 | chr7 | 3688535 | 3688733 | + |
| SLC30A3 | NM_003459 | 6126 | chr2 | 27333139 | 27333337 | + |
| MGC39900 | NM_194324 | -572 | chrX | 103103090 | 103103288 | + |
| ZFP37 | NM_003408 | -46931 | chr9 | 114905747 | 114905945 | + |
| ELP3 | NM_018091 | -25808 | chr8 | 27980638 | 27980836 | + |
| CRKL | NM_005207 | 28618 | chr22 | 19630331 | 19630529 | + |
| KIF13B | NM_015254 | 144765 | chr8 | 29031596 | 29031794 | + |
| MMP28 | NM_001032278 | -5758 | chr17 | 31152510 | 31152708 | + |
| LUC7L | NM_201412 | 17044 | chr16 | 202207 | 202405 | + |
| CLEC4G | NM_198492 | 7372 | chr19 | 7695435 | 7695633 | + |
| LONRF3 | NM_001031855 | 68624 | chrX | 118061364 | 118061563 | + |
| COL23A1 | NM_173465 | 320454 | chr5 | 177629509 | 177629707 | + |
| OVCH2 | NM_198185 | -42969 | chr11 | 7727485 | 7727683 | + |
| EN2 | NM_001427 | -45856 | chr7 | 154896121 | 154896319 | + |
| FLJ10159 | NM_018013 | 150118 | chr6 | 108068127 | 108068325 | + |
| RPP25 | NM_017793 | 273 | chr15 | 73036356 | 73036554 | + |
| FLJ90680 | NM_207475 | 12047 | chr22 | 35561944 | 35562142 | + |
| KCNT1 | NM_020822 | 16159 | chr9 | 137750017 | 137750215 | + |
| KCNT1 | NM_020822 | 5369 | chr9 | 137739227 | 137739425 | + |
| NR6A1 | NM_001489 | 47751 | chr9 | 126525447 | 126525645 | + |
| FGF20 | NM_019851 | 43691 | chr8 | 16860155 | 16860353 | + |
| PTHB1 | NM_001033604 | 375 | chr7 | 33136051 | 33136249 | + |
| CPE | NM_001873 | 137599 | chr4 | 166657142 | 166657340 | + |
| ZNF319 | NM_020807 | -539 | chr16 | 56591801 | 56591999 | + |
| MYOT | NM_006790 | 7537 | chr5 | 137239009 | 137239207 | + |
| FBN2 | NM_001999 | -29976 | chr5 | 127931609 | 127931807 | + |
| EPN1 | NM_013333 | 10100 | chr19 | 60888503 | 60888701 | + |
| NR1I3 | NM_001077478 | 6669 | chr1 | 159467756 | 159467954 | + |
| TP73L | NM_003722 | 262983 | chr3 | 191094892 | 191095090 | + |
| TG | NM_003235 | 262192 | chr8 | 134210578 | 134210776 | + |
| FAM49A | NM_030797 | -9100 | chr2 | 16719676 | 16719875 | + |
| KIAA1706 | NM_030636 | 61857 | chr7 | 36221217 | 36221415 | + |
| SLC4A1 | NM_000342 | 5650 | chr17 | 39695144 | 39695342 | + |
| C12orf12 | NM_152638 | 898 | chr12 | 89871987 | 89872185 | + |
| RXRA | NM_002957 | 17203 | chr9 | 136375433 | 136375631 | + |
| LONRF2 | NM_198461 | -12347 | chr2 | 100304745 | 100304943 | + |
| WNT9A | NM_003395 | -1790 | chr1 | 226204011 | 226204209 | + |
| NFIA | NM_005595 | 89785 | chr1 | 61410667 | 61410865 | + |
| OLFM1 | NM_014279 | 45602 | chr9 | 137152593 | 137152791 | + |
| DMBT1 | NM_004406 | 74619 | chr10 | 124384789 | 124384987 | + |
| OBSCN | NM_052843 | 106609 | chr1 | 226569092 | 226569290 | + |
| STXBP5 | NM_139244 | -29041 | chr6 | 147537328 | 147537526 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| COMMD4 | NM_017828 | 1136 | chr15 | 73416562 | 73416760 | + |
| PRDM16 | NM_022114 | 325031 | chr1 | 3300634 | 3300832 | + |
| PRPF8 | NM_006445 | 33977 | chr17 | 1500749 | 1500948 | + |
| ASMTL | NM_004192 | 7203 | chrX | 1524442 | 1524640 | + |
| SLC23A2 | NM_005116 | 105507 | chr20 | 4824439 | 4824637 | + |
| MBIP | NM_016586 | 34778 | chr14 | 35824619 | 35824817 | + |
| CUTL2 | NM_015267 | 207016 | chr12 | 110163227 | 110163425 | + |
| IGF2 | NM_000612 | 49615 | chr11 | 2066966 | 2067164 | + |
| NEURL | NM_004210 | 48407 | chr10 | 105292444 | 105292642 | + |
| C7orf26 | NM_024067 | 14279 | chr7 | 6610718 | 6610916 | + |
| SDK1 | NM_152744 | 955403 | chr7 | 4263008 | 4263206 | + |
| COMMD8 | NM_017845 | 2780 | chr4 | 47157454 | 47157652 | + |
| PIGG | NM_017733 | 533 | chr4 | 483542 | 483740 | + |
| ACCN1 | NM_183377 | 184714 | chr17 | 28459206 | 28459404 | + |
| NOM1 | NM_138400 | -9034 | chr7 | 156425945 | 156426143 | + |
| WFS1 | NM_006005 | 36972 | chr4 | 6359449 | 6359647 | + |
| C21orf13 | NM_152505 | 27508 | chr21 | 39710291 | 39710489 | + |
| PUM2 | NM_015317 | 85231 | chr2 | 20305195 | 20305393 | + |
| C18orf1 | NM_181482 | 312743 | chr18 | 13521537 | 13521735 | + |
| XPO4 | NM_022459 | -33454 | chr13 | 20374293 | 20374491 | + |
| TNFRSF21 | NM_014452 | 74975 | chr6 | 47310465 | 47310663 | + |
| MGAT5B | NM_198955 | 61064 | chr17 | 72441387 | 72441587 | + |
| NTF3 | NM_002527 | -15231 | chr12 | 5458095 | 5458295 | + |
| PLK4 | NM_014264 | 1099 | chr4 | 129022649 | 129022847 | + |
| MGLL | NM_007283 | 34924 | chr3 | 128989268 | 128989466 | + |
| LTBP3 | NM_021070 | 1955 | chr11 | 65079852 | 65080050 | + |
| LDHA | NM_005566 | 583 | chr11 | 18373269 | 18373467 | + |
| INPP5A | NM_005539 | 100366 | chr10 | 134301708 | 134301906 | + |
| NHS | NM_198270 | 149461 | chrX | 17452924 | 17453122 | + |
| C7orf41 | NM_152793 | 148 | chr7 | 30141224 | 30141422 | + |
| KIAA1984 | NM_001039374 | -115 | chr9 | 138810309 | 138810507 | + |
| NPAL2 | NM_024759 | 73441 | chr8 | 99302157 | 99302355 | + |
| DZIP1L | NM_173543 | 61480 | chr3 | 139255462 | 139255660 | + |
| FLJ21839 | NM_001035507 | -1476 | chr2 | 27126350 | 27126548 | + |
| TMEM132D | NM_133448 | 479900 | chr12 | 128474067 | 128474265 | + |
| RYR2 | NM_001035 | 667010 | chr1 | 235939334 | 235939532 | + |
| CDC7 | NM_003503 | 67298 | chr1 | 91806329 | 91806527 | + |
| LOC116236 | NM_198147 | 5100 | chr17 | 24912874 | 24913073 | + |
| UBE2R2 | NM_017811 | 89763 | chr9 | 33896944 | 33897142 | + |
| ADCY8 | NM_001115 | 257917 | chr8 | 131865738 | 131865936 | + |
| C6orf117 | NM_138409 | 0 | chr6 | 84800067 | 84800265 | + |
| EML4 | NM_019063 | -43191 | chr2 | 42206630 | 42206828 | + |
| KIAA1370 | NM_019600 | 0 | chr15 | 50758054 | 50758252 | + |
| XPO4 | NM_022459 | -15605 | chr13 | 20356444 | 20356642 | + |
| ABCC8 | NM_000352 | 357 | chr11 | 17454469 | 17454667 | + |
| NFIA | NM_005595 | 143907 | chr1 | 61464789 | 61464987 | + |
| ATP2B2 | NM_001001331 | -19305 | chr3 | 10485850 | 10486048 | + |
| MYO3B | NM_138995 | 328986 | chr2 | 171071886 | 171072084 | + |
| JARID2 | NM_004973 | -31236 | chr6 | 15323170 | 15323269 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| GNA13 | NM_006572 | -8309 | chr17 | 60491524 | 60491722 | + |
| LOC388910 | NM_001012986 | -24152 | chr22 | 43319532 | 43319730 | + |
| TASP1 | NM_017714 | 255130 | chr20 | 13312254 | 13312452 | + |
| FIBCD1 | NM_032843 | 25348 | chr9 | 132778511 | 132778709 | + |
| C9orf165 | NM_198573 | 0 | chr9 | 34512992 | 34513190 | + |
| INSIG1 | NM_198337 | 14373 | chr7 | 154734848 | 154735046 | + |
| IRF5 | NM_002200 | -35239 | chr7 | 128329792 | 128329990 | + |
| SORCS2 | NM_020777 | 274106 | chr4 | 7519478 | 7519676 | + |
| SST | NM_001048 | 20791 | chr3 | 188849905 | 188850103 | + |
| ATRN | NM_139322 | 91291 | chr20 | 3490966 | 3491164 | + |
| CNTNAP5 | NM_130773 | 556789 | chr2 | 125056122 | 125056320 | + |
| PGAM5 | NM_138575 | 9219 | chr12 | 131806727 | 131806925 | + |
| DNAJC6 | NM_014787 | 120894 | chr1 | 65623911 | 65624109 | + |
| ARFGEF2 | NM_006420 | 108401 | chr20 | 47080234 | 47080432 | + |
| PHYH | NM_001037537 | 27275 | chr10 | 13354278 | 13354476 | + |
| ABLIM3 | NM_014945 | 106158 | chr5 | 148607483 | 148607681 | + |
| LRRN6A | NM_032808 | -41716 | chr15 | 75753479 | 75753677 | + |
| ANKRD13A | NM_033121 | 11878 | chr12 | 108933495 | 108933693 | + |
| ADAMTSL3 | NM_207517 | 301084 | chr15 | 82414925 | 82415123 | + |
| PTEN | NM_000314 | 2645 | chr10 | 89615819 | 89616017 | + |
| GPR123 | NM_032422 | 30822 | chr10 | 134765244 | 134765442 | + |
| CSMD3 | NM_052900 | 23046 | chr8 | 114495173 | 114495371 | + |
| TAF1A | NM_139352 | 34653 | chr1 | 220795026 | 220795224 | + |
| HEATR2 | NM_017802 | 29986 | chr7 | 762852 | 763050 | + |
| PSMF1 | NM_178579 | 125 | chr20 | 1047369 | 1047567 | + |
| DENND1A | NM_024820 | 197467 | chr9 | 125534572 | 125534770 | + |
| VPS53 | NM_018289 | 43892 | chr17 | 520667 | 520865 | + |
| NUPL1 | NM_001008565 | 28631 | chr13 | 24802296 | 24802494 | + |
| STK10 | NM_005990 | 3125 | chr5 | 171544541 | 171544739 | + |
| LOC441108 | NM_001013717 | 54200 | chr5 | 131828771 | 131828969 | + |
| SH3BP2 | NM_003023 | -748 | chr4 | 2789392 | 2789590 | + |
| TMPRSS6 | NM_153609 | 7600 | chr22 | 35821840 | 35822038 | + |
| C20orf102 | NM_080607 | 36696 | chr20 | 36001615 | 36001813 | + |
| PASK | NM_015148 | 8715 | chr2 | 241728637 | 241728835 | + |
| C18orf1 | NM_181482 | -41204 | chr18 | 13167392 | 13167590 | + |
| NMT1 | NM_021079 | 45837 | chr17 | 40540042 | 40540240 | + |
| CCR7 | NM_001838 | 11049 | chr17 | 35964002 | 35964200 | + |
| LRP5 | NM_002335 | 334 | chr11 | 67837044 | 67837242 | + |
| PCID1 | NM_006360 | 3371 | chr11 | 32565337 | 32565535 | + |
| INPP5B | NM_005540 | 63267 | chr1 | 38121850 | 38122048 | + |
| PSMB2 | NM_002794 | -10409 | chr1 | 35890138 | 35890336 | + |
| RCOR1 | NM_015156 | 102338 | chr14 | 102231323 | 102231522 | + |
| FLJ22374 | NM_032222 | -4063 | chr7 | 30773296 | 30773494 | + |
| PACRG | NM_152410 | 25623 | chr6 | 163093776 | 163093974 | + |
| FAM86A | NM_201400 | -42472 | chr16 | 5130253 | 5130451 | + |
| GLIS2 | NM_032575 | -18193 | chr16 | 4303834 | 4304032 | + |
| KIAA1333 | NM_017769 | -29636 | chr14 | 30068293 | 30068491 | + |
| C12orf30 | NM_024953 | 218 | chr12 | 111030563 | 111030761 | + |
| MYOM3 | NM_152372 | -3465 | chr1 | 24297544 | 24297742 | + |
| LRP8 | NM_001018054 | 51262 | chr1 | 53514852 | 53515051 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|--------------|--------------|--------|-------|-----------|-----------|---|
| TLL11 | NM_194252 | 129890 | chr9 | 123765617 | 123765815 | + |
| UBAP2 | NM_018449 | 76796 | chr9 | 33961952 | 33962150 | + |
| TRPS1 | NM_014112 | -49038 | chr8 | 116799439 | 116799637 | + |
| IL7 | NM_000880 | 33287 | chr8 | 79846827 | 79847025 | + |
| FSTL4 | NM_015082 | 173528 | chr5 | 132802395 | 132802593 | + |
| PISD | NM_014338 | 10068 | chr22 | 30346543 | 30346741 | + |
| BRWD1 | NM_033656 | 116860 | chr21 | 39490367 | 39490565 | + |
| PARD3B | NM_057177 | -4834 | chr2 | 205113728 | 205113926 | + |
| FBXL16 | NM_153350 | 2064 | chr16 | 693546 | 693744 | + |
| CHSY1 | NM_014918 | 103694 | chr15 | 99505756 | 99505954 | + |
| FOXB1 | NM_012182 | 108 | chr15 | 58083820 | 58084018 | + |
| SLC2A13 | NM_052885 | 2598 | chr12 | 38783131 | 38783329 | + |
| TSPAN9 | NM_006675 | 8254 | chr12 | 3065071 | 3065269 | + |
| LRRC18 | NM_001006939 | -24643 | chr10 | 49816925 | 49817123 | + |
| CACNA2D1 | NM_000722 | 51097 | chr7 | 81859671 | 81859869 | + |
| FOXP4 | NM_001012426 | -23524 | chr6 | 41598419 | 41598617 | + |
| ICOSLG | NM_015259 | 43635 | chr21 | 44441428 | 44441626 | + |
| FLJ45964 | NM_207483 | -13434 | chr2 | 240151299 | 240151497 | + |
| BCL2 | NM_000633 | 153350 | chr18 | 58984044 | 58984242 | + |
| NEDD4L | NM_015277 | 284382 | chr18 | 54147159 | 54147357 | + |
| NFKBIA | NM_020529 | 7032 | chr14 | 34936464 | 34936662 | + |
| PHGDHL1 | NM_177967 | 115448 | chr13 | 98766611 | 98766809 | + |
| LARP4 | NM_052879 | -34989 | chr12 | 49045729 | 49045927 | + |
| FAM60A | NM_021238 | 23912 | chr12 | 31346229 | 31346427 | + |
| AMOTL1 | NM_130847 | 958 | chr11 | 94142113 | 94142311 | + |
| C11orf11 | NM_006133 | 49158 | chr11 | 61253643 | 61253841 | + |
| AK5 | NM_012093 | 122359 | chr1 | 77643233 | 77643431 | + |
| NIBP | NM_031466 | 190955 | chr8 | 141346706 | 141346904 | + |
| NIBP | NM_031466 | 656651 | chr8 | 140881010 | 140881208 | + |
| DSP | NM_001008844 | -27946 | chr6 | 7458724 | 7458922 | + |
| GHR | NM_000163 | 235288 | chr5 | 42695070 | 42695268 | + |
| DKFZP564J102 | NM_001006655 | 33885 | chr4 | 187336929 | 187337127 | + |
| RPL39L | NM_052969 | -26431 | chr3 | 188366387 | 188366585 | + |
| HSF2BP | NM_007031 | 142140 | chr21 | 43761463 | 43761661 | + |
| C20orf79 | NM_178483 | 14968 | chr20 | 18757337 | 18757535 | + |
| HCN2 | NM_001194 | 9840 | chr19 | 550732 | 550930 | + |
| CALM1 | NM_006888 | -28157 | chr14 | 89904770 | 89904968 | + |
| ZC3H10 | NM_032786 | 3665 | chr12 | 54801961 | 54802159 | + |
| FAM53B | NM_014661 | 47549 | chr10 | 126375172 | 126375370 | + |
| C9orf93 | NM_173550 | -77 | chr9 | 15542821 | 15543019 | + |
| CSMD1 | NM_033225 | 449259 | chr8 | 4390278 | 4390476 | + |
| FASTK | NM_006712 | 2441 | chr7 | 150406244 | 150406442 | + |
| ELM01 | NM_001039459 | 740 | chr7 | 36990251 | 36990449 | + |
| CELSR3 | NM_001407 | 20511 | chr3 | 48654642 | 48654840 | + |
| ZCWPW2 | NM_001040432 | 174593 | chr3 | 28581583 | 28581781 | + |
| PLTP | NM_006227 | -7761 | chr20 | 43981953 | 43982151 | + |
| C20orf26 | NM_015585 | 15843 | chr20 | 19997038 | 19997236 | + |
| GLI2 | NM_005270 | 240597 | chr2 | 121506923 | 121507121 | + |
| CAPN13 | NM_144575 | -29958 | chr2 | 30913772 | 30913970 | + |
| RAB27B | NM_004163 | -480 | chr18 | 50646159 | 50646357 | + |
| CDRT15 | NM_001007530 | 12157 | chr17 | 14068519 | 14068717 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| SMPD3 | NM_018667 | -30375 | chr16 | 67070279 | 67070477 | + |
| CRYM | NM_001014444 | 5495 | chr16 | 21216224 | 21216422 | + |
| VPS33A | NM_022916 | 15056 | chr12 | 121301766 | 121301964 | + |
| C11orf52 | NM_080659 | 1232 | chr11 | 111296078 | 111296276 | + |
| GRID1 | NM_017551 | 124939 | chr10 | 87991092 | 87991290 | + |
| CAPN2 | NM_001748 | 39934 | chr1 | 222006757 | 222006955 | + |
| GNB1 | NM_002074 | 68149 | chr1 | 1744007 | 1744205 | + |
| ENTPD6 | NM_001247 | 9069 | chr20 | 25133440 | 25133543 | + |
| NYD-SP18 | NM_032599 | 9522 | chr7 | 128152200 | 128152398 | + |
| TNS3 | NM_022748 | 298997 | chr7 | 47246528 | 47246726 | + |
| SORCS2 | NM_020777 | 383405 | chr4 | 7628777 | 7628975 | + |
| CSDC2 | NM_014460 | 15557 | chr22 | 40302571 | 40302769 | + |
| DSCAM | NM_001389 | -3964 | chr21 | 41144872 | 41145070 | + |
| ZBTB46 | NM_025224 | 30034 | chr20 | 61877067 | 61877265 | + |
| LOC284274 | NM_001037331 | 36694 | chr18 | 71231684 | 71231882 | + |
| NDRG4 | NM_022910 | 18073 | chr16 | 57097233 | 57097431 | + |
| SPG3A | NM_015915 | 31637 | chr14 | 50128136 | 50128334 | + |
| SLC15A1 | NM_005073 | 89008 | chr13 | 98113702 | 98113900 | + |
| FAM124A | NM_145019 | 69051 | chr13 | 50763558 | 50763756 | + |
| KIAA0774 | NM_001033602 | 75495 | chr13 | 28572242 | 28572440 | + |
| VEZT | NM_017599 | 6032 | chr12 | 94175883 | 94176081 | + |
| C12orf36 | NM_182558 | -41391 | chr12 | 13462302 | 13462500 | + |
| FLJ45337 | NM_207465 | 103569 | chr1 | 55922866 | 55923064 | + |
| TMC04 | NM_181719 | 92995 | chr1 | 19905803 | 19906001 | + |
| PAX7 | NM_002584 | -26978 | chr1 | 18802910 | 18803108 | + |
| NIBP | NM_031466 | 9087 | chr8 | 141528669 | 141528772 | + |
| GRIN2A | NM_000833 | 23972 | chr16 | 10159941 | 10160139 | + |
| OR4D1 | NM_012374 | -26101 | chr17 | 53561213 | 53561412 | + |
| MOSC1 | NM_022746 | 19127 | chr1 | 219046020 | 219046218 | + |
| MST150 | NM_032947 | 17182 | chr5 | 150155241 | 150155439 | + |
| KIAA1622 | NM_020958 | -10818 | chr14 | 93699385 | 93699583 | + |
| KIAA0133 | NM_014777 | 38269 | chr1 | 227866872 | 227867070 | + |
| C16orf68 | NM_024109 | 22828 | chr16 | 8645855 | 8646053 | + |
| TBC1D22A | NM_014346 | 298250 | chr22 | 45835462 | 45835660 | + |
| BRE | NM_199192 | 196472 | chr2 | 28163532 | 28163730 | + |
| NR1D1 | NM_021724 | -9980 | chr17 | 35520478 | 35520676 | + |
| ABLIM2 | NM_032432 | 199363 | chr4 | 8011876 | 8012074 | + |
| GNAL | NM_002071 | 25517 | chr18 | 11767702 | 11767900 | + |
| PKNOX2 | NM_022062 | 251937 | chr11 | 124791705 | 124791808 | + |
| BOC | NM_033254 | 10487 | chr3 | 114424551 | 114424749 | + |
| AQP2 | NM_000486 | -4404 | chr12 | 48626190 | 48626391 | + |
| ZNF277P | NM_021994 | 160992 | chr7 | 111794870 | 111795069 | + |
| GSH2 | NM_133267 | -1875 | chr4 | 54658881 | 54659079 | + |
| POU3F4 | NM_000307 | -18445 | chrX | 82631297 | 82631495 | + |
| LAS1L | NM_031206 | 2229 | chrX | 64668964 | 64669162 | + |
| DLG2 | NM_001364 | 848439 | chr11 | 83463574 | 83463673 | + |
| CAMKK2 | NM_172226 | 55931 | chr12 | 120162758 | 120162956 | + |
| SLC26A7 | NM_134266 | 76212 | chr8 | 92406903 | 92407101 | + |
| CDK10 | NM_003674 | 8951 | chr16 | 88289529 | 88289727 | + |
| C20orf133 | NM_001033086 | 803923 | chr20 | 14728191 | 14728389 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| CDH10 | NM_006727 | 153857 | chr5 | 24526612 | 24526810 | + |
| LEMD1 | NM_001001552 | -3314 | chr1 | 203661117 | 203661316 | + |
| ANKRD18B | NM_001013728 | 48906 | chr9 | 33563118 | 33563316 | + |
| FAM107B | NM_031453 | 175667 | chr10 | 14681036 | 14681234 | + |
| NFATC1 | NM_172390 | 58168 | chr18 | 75314927 | 75315125 | + |
| C21orf63 | NM_058187 | 25046 | chr21 | 32731668 | 32731866 | + |
| RABGAP1L | NM_014857 | -46882 | chr1 | 172348176 | 172348374 | + |
| POMC | NM_000939 | 27303 | chr2 | 25217560 | 25217759 | + |
| USF2 | NM_003367 | 2923 | chr19 | 40454658 | 40454857 | + |
| FAF1 | NM_007051 | 539104 | chr1 | 50659221 | 50659419 | + |
| HECW1 | NM_015052 | 266706 | chr7 | 43385428 | 43385626 | + |
| ITPK1 | NM_014216 | 146915 | chr14 | 92504866 | 92505064 | + |
| SLC35C2 | NM_015945 | 11520 | chr20 | 44414752 | 44414950 | + |
| ARAF | NM_001654 | 6094 | chrX | 47311544 | 47311742 | + |
| NCOA2 | NM_006540 | 171777 | chr8 | 71306598 | 71306796 | + |
| GRK5 | NM_005308 | 234118 | chr10 | 121191304 | 121191502 | + |
| SLC9A10 | NM_183061 | -13968 | chr3 | 113509731 | 113509929 | + |
| ASB14 | NM_130387 | 6301 | chr3 | 57281520 | 57281718 | + |
| CREB3L1 | NM_052854 | -39664 | chr11 | 46215941 | 46216139 | + |
| C10orf92 | NM_017609 | -33855 | chr10 | 134555080 | 134555278 | + |
| ATP10A | NM_024490 | 70325 | chr15 | 23589439 | 23589637 | + |
| WNT11 | NM_004626 | 32461 | chr11 | 75562562 | 75562760 | + |
| PARD3B | NM_057177 | 900632 | chr2 | 206019392 | 206019590 | + |
| ITGAL | NM_002209 | 40814 | chr16 | 30432385 | 30432583 | + |
| KCND3 | NM_004980 | 177439 | chr1 | 112155662 | 112155860 | + |
| ERC2 | NM_015576 | 735346 | chr3 | 55741886 | 55742084 | + |
| GRB10 | NM_001001549 | 4467 | chr7 | 50762878 | 50763076 | + |
| ZFPM1 | NM_153813 | -7851 | chr16 | 87039465 | 87039663 | + |
| ZUBR1 | NM_020765 | 122517 | chr1 | 19286617 | 19286815 | + |
| RSU1 | NM_152724 | 118002 | chr10 | 16781357 | 16781456 | + |
| LRP1B | NM_018557 | 987174 | chr2 | 141618367 | 141618565 | + |
| FAM118A | NM_017911 | -290 | chr22 | 44083990 | 44084188 | + |
| CAPZB | NM_004930 | -15145 | chr1 | 19699723 | 19699921 | + |
| ITGB1BP1 | NM_004763 | 7322 | chr2 | 9473573 | 9473771 | + |
| CLEC4M | NM_214677 | 35232 | chr19 | 7769312 | 7769510 | + |
| RHOJ | NM_020663 | 19934 | chr14 | 62760831 | 62761029 | + |
| SAMD4A | NM_015589 | 200445 | chr14 | 54304831 | 54305029 | + |
| EXTL3 | NM_001440 | 3623 | chr8 | 28618694 | 28618892 | + |
| ALDH1A1 | NM_000689 | 22067 | chr9 | 74735523 | 74735721 | + |
| MAGI1 | NM_004742 | 482687 | chr3 | 65516663 | 65516861 | + |
| WDR64 | NM_144625 | 16209 | chr1 | 239929713 | 239929911 | + |
| ZMIZ2 | NM_031449 | 449 | chr7 | 44755503 | 44755701 | + |
| NUDT12 | NM_031438 | 57270 | chr5 | 102869015 | 102869118 | + |
| NIBP | NM_031466 | 350569 | chr8 | 141187092 | 141187290 | + |
| SOX21 | NM_007084 | -3773 | chr13 | 94166162 | 94166360 | + |
| SMAF1 | NM_001018082 | 38981 | chr20 | 36682232 | 36682430 | + |
| KIAA0350 | NM_015226 | 110628 | chr16 | 11056570 | 11056768 | + |
| PABPC1 | NM_002568 | 12466 | chr8 | 101790826 | 101791024 | + |
| SEC24B | NM_001042734 | 29285 | chr4 | 110603704 | 110603902 | + |
| NCAM1 | NM_000615 | 315256 | chr11 | 112652460 | 112652658 | + |
| CTNND1 | NM_001331 | 57757 | chr11 | 57343601 | 57343799 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| KIAA1324 | NM_020775 | -3618 | chr1 | 109454239 | 109454437 | + |
| FFAR2 | NM_005306 | -3980 | chr19 | 40628278 | 40628476 | + |
| SUPT3H | NM_003599 | 450166 | chr6 | 45003188 | 45003386 | + |
| Tenr | NM_139243 | -28929 | chr4 | 123490490 | 123490688 | + |
| OXT | NM_000915 | 413 | chr20 | 3000678 | 3000876 | + |
| ABCC1 | NM_019862 | 74579 | chr16 | 16025513 | 16025711 | + |
| ARHGEF11 | NM_014784 | 51460 | chr1 | 155230127 | 155230325 | + |
| PRKAR1B | NM_002735 | 41604 | chr7 | 676855 | 677054 | + |
| SYT9 | NM_175733 | 163323 | chr11 | 7393079 | 7393277 | + |
| LOH12CR1 | NM_058169 | 1407 | chr12 | 12402728 | 12402926 | + |
| KHDRBS2 | NM_152688 | 629405 | chr6 | 62424487 | 62424685 | + |
| TIAM2 | NM_012454 | 10025 | chr6 | 155463139 | 155463337 | + |
| SKAP1 | NM_003726 | 226668 | chr17 | 43635726 | 43635924 | + |
| SLC35F1 | NM_001029858 | 252770 | chr6 | 118588151 | 118588250 | + |
| KIAA0427 | NM_014772 | 203040 | chr18 | 44522464 | 44522662 | + |
| SLC5A11 | NM_052944 | 29218 | chr16 | 24794270 | 24794468 | + |
| ECE1 | NM_001397 | 15713 | chr1 | 21473582 | 21473780 | + |
| CFDP1 | NM_006324 | -859 | chr16 | 74025746 | 74025944 | + |
| HEXA | NM_000520 | 34148 | chr15 | 70421046 | 70421244 | + |
| LOC283331 | NM_001037806 | 14561 | chr12 | 48470680 | 48470878 | + |
| MYO1E | NM_004998 | 201650 | chr15 | 57250613 | 57250712 | + |
| NAV2 | NM_145117 | -20028 | chr11 | 19671261 | 19671459 | + |
| NGEF | NM_019850 | 25106 | chr2 | 233560877 | 233561075 | + |
| DTNB | NM_021907 | 105227 | chr2 | 25644680 | 25644779 | + |
| APC | NM_000038 | 72086 | chr5 | 112173568 | 112173766 | + |
| NLGN4Y | NM_014893 | 57560 | chrY | 15203407 | 15203605 | + |
| CXorf48 | NM_001031705 | 5066 | chrX | 134127561 | 134127759 | + |
| SH3KBP1 | NM_001024666 | 24298 | chrX | 19703293 | 19703491 | + |
| BTBD14A | NM_144653 | -16664 | chr9 | 138143615 | 138143813 | + |
| KCNB2 | NM_004770 | -31127 | chr8 | 73580854 | 73581052 | + |
| BAI3 | NM_001704 | 526489 | chr6 | 69930646 | 69930844 | + |
| IHPK3 | NM_054111 | 24623 | chr6 | 33797838 | 33798036 | + |
| MST150 | NM_032947 | 10452 | chr5 | 150148511 | 150148709 | + |
| FSTL4 | NM_015082 | 84185 | chr5 | 132891738 | 132891936 | + |
| NEK1 | NM_012224 | 63016 | chr4 | 170706974 | 170707172 | + |
| CCDC109B | NM_017918 | 127416 | chr4 | 110828281 | 110828479 | + |
| SH3BP2 | NM_003023 | -4577 | chr4 | 2785563 | 2785761 | + |
| OSBPL11 | NM_022776 | 1126 | chr3 | 126795299 | 126795497 | + |
| WDR4 | NM_033661 | 60324 | chr21 | 43112224 | 43112422 | + |
| COX10 | NM_001303 | 55745 | chr17 | 13969188 | 13969386 | + |
| KIAA0523 | NM_015253 | 29315 | chr17 | 5943972 | 5944170 | + |
| FRMD5 | NM_032892 | 308454 | chr15 | 41966068 | 41966266 | + |
| ATF7IP | NM_018179 | -28678 | chr12 | 14381001 | 14381199 | + |
| KCNK18 | NM_181840 | -17887 | chr10 | 118928904 | 118929102 | + |
| TLL2 | NM_012465 | 101330 | chr10 | 98162129 | 98162327 | + |
| NEUROG3 | NM_020999 | -17626 | chr10 | 71020753 | 71020951 | + |
| ABCD3 | NM_002858 | 17648 | chr1 | 94674246 | 94674444 | + |
| TAF12 | NM_005644 | 43179 | chr1 | 28798794 | 28798992 | + |
| ROCK1 | NM_005406 | 171511 | chr18 | 16774159 | 16774298 | + |
| FSTL4 | NM_015082 | 354694 | chr5 | 132621224 | 132621427 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| ENPP3 | NM_005021 | 23267 | chr6 | 132023401 | 132023599 | + |
| PTPRE | NM_006504 | 5982 | chr10 | 129601296 | 129601494 | + |
| MELK | NM_014791 | -5683 | chr9 | 36557023 | 36557221 | + |
| NDRG1 | NM_006096 | 8975 | chr8 | 134369506 | 134369704 | + |
| SDC2 | NM_002998 | 42962 | chr8 | 97618019 | 97618217 | + |
| THEX1 | NM_153332 | 38338 | chr8 | 8936197 | 8936395 | + |
| HIPK2 | NM_022740 | 18534 | chr7 | 138948281 | 138948479 | + |
| HERPUD2 | NM_022373 | 38656 | chr7 | 35662399 | 35662597 | + |
| EPHA7 | NM_004440 | 143242 | chr6 | 94042552 | 94042750 | + |
| TREM1 | NM_018643 | 620 | chr6 | 41361616 | 41361814 | + |
| WRNIP1 | NM_020135 | -674 | chr6 | 2709792 | 2709990 | + |
| SCOC | NM_032547 | 102475 | chr4 | 141500364 | 141500562 | + |
| SLCO2A1 | NM_005630 | 62027 | chr3 | 135169192 | 135169390 | + |
| CD96 | NM_005816 | 103636 | chr3 | 112847251 | 112847449 | + |
| PTPRT | NM_007050 | 921396 | chr20 | 40330376 | 40330574 | + |
| TPX2 | NM_012112 | 47011 | chr20 | 29837575 | 29837773 | + |
| NR1H2 | NM_007121 | 883 | chr19 | 55572397 | 55572595 | + |
| PRDX2 | NM_181738 | 211 | chr19 | 12773284 | 12773482 | + |
| METRNL | NM_001004431 | 5956 | chr17 | 78636811 | 78637009 | + |
| KRT33B | NM_002279 | 6132 | chr17 | 36773242 | 36773440 | + |
| CNTNAP4 | NM_033401 | 268785 | chr16 | 75137461 | 75137659 | + |
| CRTC3 | NM_001042574 | -388 | chr15 | 88873615 | 88873813 | + |
| HS6ST3 | NM_153456 | 56731 | chr13 | 95597824 | 95598022 | + |
| SERPINH1 | NM_001235 | 12426 | chr11 | 74963243 | 74963441 | + |
| PRDX5 | NM_012094 | 9211 | chr11 | 63851355 | 63851553 | + |
| CREB3L1 | NM_052854 | 11829 | chr11 | 46267632 | 46267830 | + |
| PNLIPRP1 | NM_006229 | 16516 | chr10 | 118356995 | 118357193 | + |
| C1orf21 | NM_030806 | 129787 | chr1 | 182752559 | 182752757 | + |
| FLJ35530 | NM_207467 | 9628 | chr1 | 176788181 | 176788379 | + |
| RASAL2 | NM_004841 | 116023 | chr1 | 176693251 | 176693449 | + |
| LOC340602 | NM_203407 | -5747 | chrX | 51160562 | 51160759 | + |
| DLC1 | NM_182643 | 335503 | chr8 | 13081066 | 13081262 | + |
| CPA6 | NM_020361 | -37124 | chr8 | 68858257 | 68858455 | + |
| SPARC | NM_003118 | 59697 | chr5 | 150986814 | 150987012 | + |
| TADA2L | NM_133439 | 33462 | chr17 | 32874886 | 32875084 | + |
| TBX5 | NM_181486 | 60895 | chr12 | 113267178 | 113267376 | + |
| KIAA0999 | NM_025164 | 14948 | chr11 | 116459056 | 116459254 | + |
| CAMTA1 | NM_015215 | 725709 | chr1 | 7493679 | 7493877 | + |
| DPYSL2 | NM_001386 | 91022 | chr8 | 26582359 | 26582557 | + |
| AKAP7 | NM_016377 | 17563 | chr6 | 131525716 | 131525914 | + |
| MEA1 | NM_014623 | 1247 | chr6 | 43088150 | 43088348 | + |
| ZNF193 | NM_006299 | -2169 | chr6 | 28298684 | 28298882 | + |
| LOC340156 | NM_001012418 | 90759 | chr6 | 2605195 | 2605393 | + |
| OSBPL11 | NM_022776 | 57888 | chr3 | 126738537 | 126738735 | + |
| SLC6A11 | NM_014229 | 63537 | chr3 | 10896453 | 10896651 | + |
| UBE2L3 | NM_198157 | 46006 | chr22 | 20297962 | 20298160 | + |
| NOVA2 | NM_002516 | -2900 | chr19 | 51171396 | 51171594 | + |
| NARF | NM_012336 | 32240 | chr17 | 78042100 | 78042298 | + |
| BCAS3 | NM_017679 | 667064 | chr17 | 56777078 | 56777276 | + |
| SNIP | NM_025248 | 123137 | chr17 | 33892373 | 33892571 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| ZNF207 | NM_003457 | 43409 | chr17 | 27744680 | 27744878 | + |
| ZFPM1 | NM_153813 | -6941 | chr16 | 87040375 | 87040573 | + |
| MPHOSPH6 | NM_005792 | 7664 | chr16 | 80753450 | 80753648 | + |
| ADCY7 | NM_001114 | -13335 | chr16 | 48865790 | 48865988 | + |
| CCPG1 | NM_004748 | 18401 | chr15 | 53469234 | 53469432 | + |
| RGS6 | NM_004296 | 647504 | chr14 | 72117089 | 72117287 | + |
| LUZP2 | NM_001009909 | 176612 | chr11 | 24651743 | 24651941 | + |
| MRPL23 | NM_021134 | 6652 | chr11 | 1931765 | 1931963 | + |
| NRP1 | NM_001024629 | 0 | chr10 | 33663297 | 33663495 | + |
| SMYD3 | NM_022743 | 186189 | chr1 | 244460946 | 244461144 | + |
| C1orf21 | NM_030806 | 262301 | chr1 | 182885073 | 182885271 | + |
| DAB1 | NM_021080 | 368326 | chr1 | 58120274 | 58120472 | + |
| PRDM16 | NM_022114 | 283818 | chr1 | 3259421 | 3259619 | + |
| TNPO2 | NM_013433 | 18398 | chr19 | 12675577 | 12675679 | + |
| MTX2 | NM_006554 | -5 | chr2 | 176842276 | 176842377 | + |
| LASS3 | NM_178842 | 110245 | chr15 | 98792103 | 98792202 | + |
| C9orf23 | NM_148178 | 7167 | chr9 | 34594735 | 34594933 | + |
| TRPM1 | NM_002420 | -9941 | chr15 | 29191156 | 29191354 | + |
| HSPB1 | NM_001540 | 0 | chr7 | 75769796 | 75769994 | + |
| AUTS2 | NM_015570 | 884984 | chr7 | 69587238 | 69587436 | + |
| XAB2 | NM_020196 | 16501 | chr19 | 7583739 | 7583937 | + |
| AZI1 | NM_014984 | 23354 | chr17 | 76787793 | 76787991 | + |
| FUT8 | NM_178157 | 114160 | chr14 | 65320045 | 65320243 | + |
| PCF11 | NM_015885 | -27715 | chr11 | 82517947 | 82518145 | + |
| NFASC | NM_015090 | 149136 | chr1 | 203213581 | 203213779 | + |
| ENG | NM_000118 | 17001 | chr9 | 129639605 | 129639803 | + |
| C9orf88 | NM_022833 | 47098 | chr9 | 129323879 | 129324077 | + |
| XKR6 | NM_173683 | 131907 | chr8 | 10964179 | 10964377 | + |
| AARSL | NM_020745 | -14557 | chr6 | 44403597 | 44403795 | + |
| KIF6 | NM_145027 | 284034 | chr6 | 39516926 | 39517124 | + |
| EDIL3 | NM_005711 | 341 | chr5 | 83715827 | 83716025 | + |
| HERC3 | NM_014606 | -244 | chr4 | 89732227 | 89732425 | + |
| PCBP4 | NM_033008 | 201 | chr3 | 51976109 | 51976307 | + |
| SLC25A18 | NM_031481 | 21119 | chr22 | 16444301 | 16444499 | + |
| MARCO | NM_006770 | -38857 | chr2 | 119377159 | 119377357 | + |
| C14orf49 | NM_152592 | 88174 | chr14 | 94923553 | 94923751 | + |
| CLMN | NM_024734 | -435 | chr14 | 94856389 | 94856587 | + |
| HECTD1 | NM_015382 | -28095 | chr14 | 30774368 | 30774566 | + |
| ANKRD13A | NM_033121 | 38947 | chr12 | 108960564 | 108960762 | + |
| NEU3 | NM_006656 | 30314 | chr11 | 74407911 | 74408109 | + |
| C10orf35 | NM_145306 | 3535 | chr10 | 71063554 | 71063752 | + |
| C10orf71 | NM_199459 | 9540 | chr10 | 50186732 | 50186930 | + |
| GRHL3 | NM_021180 | 19825 | chr1 | 24541941 | 24542139 | + |
| CAMTA1 | NM_015215 | 275301 | chr1 | 7043271 | 7043469 | + |
| SETD3 | NM_032233 | 119194 | chr14 | 98897684 | 98897784 | + |
| PACRG | NM_152410 | 454750 | chr6 | 163522903 | 163523101 | + |
| PDSS2 | NM_020381 | 209588 | chr6 | 107677661 | 107677859 | + |
| CXCL14 | NM_004887 | 0 | chr5 | 134942864 | 134943062 | + |
| MBP | NM_001025100 | 88586 | chr18 | 72884977 | 72885175 | + |
| WWOX | NM_016373 | 885354 | chr16 | 77576405 | 77576603 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| ZFYVE26 | NM_015346 | 30308 | chr14 | 67322548 | 67322746 | + |
| KIAA1522 | NM_020888 | -22841 | chr1 | 32957059 | 32957257 | + |
| IL28RA | NM_170743 | 8788 | chr1 | 24377351 | 24377549 | + |
| PRKG1 | NM_006258 | 186 | chr10 | 52504484 | 52504600 | + |
| EGFR | NM_005228 | 163368 | chr7 | 55217586 | 55217685 | + |
| TCHP | NM_032300 | 4760 | chr12 | 108827465 | 108827564 | + |
| GLRA2 | NM_002063 | 210944 | chrX | 14668514 | 14668712 | + |
| COL22A1 | NM_152888 | 108415 | chr8 | 139886804 | 139887002 | + |
| CHRN3 | NM_000749 | -42154 | chr8 | 42629366 | 42629564 | + |
| RARRES2 | NM_002889 | 926 | chr7 | 149668514 | 149668712 | + |
| GRM8 | NM_000845 | -18901 | chr7 | 126689446 | 126689644 | + |
| LPA | NM_005577 | 107588 | chr6 | 160899610 | 160899808 | + |
| UNC5A | NM_133369 | -41514 | chr5 | 176128453 | 176128651 | + |
| NEUROG1 | NM_006161 | 0 | chr5 | 134899420 | 134899618 | + |
| SLC12A2 | NM_001046 | 93861 | chr5 | 127541242 | 127541440 | + |
| KCNH8 | NM_144633 | 409968 | chr3 | 19574988 | 19575186 | + |
| ATP2B2 | NM_001001331 | 36359 | chr3 | 10429988 | 10430186 | + |
| PKP4 | NM_001005476 | 268946 | chr2 | 159290667 | 159290865 | + |
| NCK2 | NM_001004722 | 561 | chr2 | 105728346 | 105728544 | + |
| KCMF1 | NM_020122 | -3910 | chr2 | 85047649 | 85047847 | + |
| FALZ | NM_004459 | 5293 | chr17 | 63257534 | 63257732 | + |
| CACNG1 | NM_000727 | 9819 | chr17 | 62480986 | 62481184 | + |
| TRAP1 | NM_016292 | 3997 | chr16 | 3703318 | 3703516 | + |
| CHRNA3 | NM_000743 | 979 | chr15 | 76699199 | 76699397 | + |
| TDRD3 | NM_030794 | 200318 | chr13 | 60069440 | 60069638 | + |
| DCAMKL1 | NM_004734 | 49216 | chr13 | 35554028 | 35554226 | + |
| CCDC60 | NM_178499 | 161384 | chr12 | 118418283 | 118418481 | + |
| NR4A1 | NM_173158 | -5867 | chr12 | 50717697 | 50717895 | + |
| IPMK | NM_152230 | 107547 | chr10 | 59589954 | 59590152 | + |
| MEGF6 | NM_001409 | 121874 | chr1 | 3395846 | 3396044 | + |
| VANGL1 | NM_138959 | 4390 | chr1 | 115990486 | 115990683 | + |
| ITPK1 | NM_014216 | 155884 | chr14 | 92495897 | 92496095 | + |
| LSM7 | NM_016199 | 17990 | chr19 | 2261385 | 2261583 | + |
| CYFIP2 | NM_014376 | 83968 | chr5 | 156712907 | 156713105 | + |
| TAOK1 | NM_020791 | -20326 | chr17 | 24721641 | 24721742 | + |
| SLC25A32 | NM_030780 | 13373 | chr8 | 104482875 | 104483073 | + |
| ROR2 | NM_004560 | 163138 | chr9 | 93588928 | 93589126 | + |
| CABIN1 | NM_012295 | 130948 | chr22 | 22868712 | 22868910 | + |
| SGK2 | NM_016276 | 19680 | chr20 | 41647830 | 41648028 | + |
| LDLRAP1 | NM_015627 | 29711 | chr1 | 25772463 | 25772661 | + |
| RABL4 | NM_006860 | -6977 | chr22 | 35509036 | 35509234 | + |
| ZNF703 | NM_025069 | -19989 | chr8 | 37652271 | 37652469 | + |
| PDE2A | NM_002599 | 135983 | chr11 | 71926877 | 71927076 | + |
| KIAA1128 | NM_018999 | 232171 | chr10 | 86310560 | 86310758 | + |
| DHRS7 | NM_016029 | -33229 | chr14 | 59735085 | 59735283 | + |
| PTGFRN | NM_020440 | 74135 | chr1 | 117328346 | 117328544 | + |
| CUTL1 | NM_181552 | 331980 | chr7 | 101579581 | 101579779 | + |
| FZD6 | NM_003506 | 42903 | chr8 | 104423178 | 104423376 | + |
| STEAP3 | NM_182915 | -5721 | chr2 | 119691934 | 119692132 | + |
| HIPK2 | NM_022740 | 23196 | chr7 | 138943619 | 138943817 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| ATF6 | NM_007348 | 4894 | chr1 | 160007601 | 160007799 | + |
| CCR9 | NM_031200 | -1071 | chr3 | 45901753 | 45901951 | + |
| WNK2 | NM_006648 | 133093 | chr9 | 95120125 | 95120323 | + |
| FRMD6 | NM_001042481 | 15654 | chr14 | 51041258 | 51041456 | + |
| ZBTB20 | NM_015642 | 738262 | chr3 | 115610356 | 115610554 | + |
| ZIC2 | NM_007129 | 44424 | chr13 | 99476743 | 99476941 | + |
| C10orf28 | NM_014472 | 82871 | chr10 | 99967295 | 99967493 | + |
| BUB3 | NM_004725 | 6087 | chr10 | 124909946 | 124910144 | + |
| LOC116143 | NM_138458 | 28025 | chr2 | 68209936 | 68210134 | + |
| MLSTD1 | NM_018099 | 78524 | chr12 | 29346388 | 29346586 | + |
| GSR | NM_000637 | 24704 | chr8 | 30680082 | 30680280 | + |
| DSCAM | NM_001389 | 770017 | chr21 | 40370693 | 40370891 | + |
| NEURL | NM_004210 | 52636 | chr10 | 105296673 | 105296871 | + |
| GALNT17 | NM_001034845 | 618703 | chr4 | 173589934 | 173590132 | + |
| NEFM | NM_005382 | 1347 | chr8 | 24828558 | 24828756 | + |
| PAM | NM_000919 | 80358 | chr5 | 102309783 | 102309981 | + |
| SORCS2 | NM_020777 | 367683 | chr4 | 7613055 | 7613253 | + |
| ARHGEF5 | NM_005435 | 59764 | chr7 | 143743185 | 143743384 | + |
| NFATC1 | NM_172389 | 115560 | chr18 | 75376873 | 75377071 | + |
| ADCY3 | NM_004036 | 55286 | chr2 | 24940022 | 24940220 | + |
| FCRL5 | NM_031281 | 32100 | chr1 | 155756635 | 155756833 | + |
| SYK | NM_003177 | 119871 | chr9 | 92723761 | 92723959 | + |
| MTAP | NM_002451 | 34000 | chr9 | 21826634 | 21826832 | + |
| MGC39715 | NM_152628 | 31388 | chr8 | 101699482 | 101699680 | + |
| MTDH | NM_178812 | -21229 | chr8 | 98704155 | 98704353 | + |
| ZNF596 | NM_001042415 | 57672 | chr8 | 230055 | 230253 | + |
| HIBADH | NM_152740 | 88561 | chr7 | 27580367 | 27580565 | + |
| MGC9712 | NM_152689 | -4180 | chr7 | 1566452 | 1566650 | + |
| F13A1 | NM_000129 | 150050 | chr6 | 6115652 | 6115850 | + |
| KCNMB2 | NM_181361 | 18541 | chr3 | 179755458 | 179755656 | + |
| FBLN1 | NM_006487 | 29328 | chr22 | 44306710 | 44306908 | + |
| LRRC3 | NM_030891 | 6074 | chr21 | 44705894 | 44706092 | + |
| LOC441956 | NM_001013729 | -23733 | chr21 | 13999062 | 13999260 | + |
| PTGIS | NM_000961 | -8521 | chr20 | 47626634 | 47626832 | + |
| ARFGEF2 | NM_006420 | 97856 | chr20 | 47069689 | 47069887 | + |
| ANKRD5 | NM_022096 | 19133 | chr20 | 9982829 | 9983027 | + |
| TNS1 | NM_022648 | 25649 | chr2 | 218491158 | 218491356 | + |
| ZNF208 | NM_007153 | 53440 | chr19 | 21931946 | 21932144 | + |
| NFIC | NM_005597 | 67662 | chr19 | 3385234 | 3385432 | + |
| ZNF236 | NM_007345 | 101008 | chr18 | 72766111 | 72766309 | + |
| SERPINB3 | NM_006919 | 2481 | chr18 | 59477414 | 59477612 | + |
| CCBE1 | NM_133459 | 212209 | chr18 | 55303162 | 55303360 | + |
| TMEM105 | NM_178520 | -32829 | chr17 | 76951897 | 76952095 | + |
| KREMEN2 | NM_024507 | 3462 | chr16 | 2957679 | 2957877 | + |
| ADAM10 | NM_001110 | 0 | chr15 | 56829436 | 56829634 | + |
| GTF2A1 | NM_015859 | 50553 | chr14 | 80706295 | 80706493 | + |
| C13orf30 | NM_182508 | -30496 | chr13 | 42223056 | 42223254 | + |
| HNT | NM_001048209 | 391301 | chr11 | 131136881 | 131137079 | + |
| NRP1 | NM_001024629 | 39132 | chr10 | 33624125 | 33624323 | + |
| GPR158 | NM_020752 | 115208 | chr10 | 25619503 | 25619701 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| RTCD1 | NM_003729 | 610 | chr1 | 100504960 | 100505158 | + |
| BARHL2 | NM_020063 | -12424 | chr1 | 90967805 | 90968003 | + |
| PGM1 | NM_002633 | 568 | chr1 | 63832102 | 63832300 | + |
| PHC2 | NM_198040 | -4013 | chr1 | 33617793 | 33617991 | + |
| PDIK1L | NM_152835 | 623 | chr1 | 26311540 | 26311738 | + |
| BAT1 | NM_004640 | 395 | chr6 | 31617611 | 31617808 | + |
| FLJ45187 | NM_207371 | 846 | chr10 | 21853611 | 21853770 | + |
| TRPC5 | NM_012471 | 79109 | chrX | 111133352 | 111133550 | + |
| GYG2 | NM_003918 | 3358 | chrX | 2760220 | 2760418 | + |
| PNPLA7 | NM_152286 | 84511 | chr9 | 139479947 | 139480145 | + |
| PLAA | NM_004253 | 15790 | chr9 | 26909218 | 26909416 | + |
| VLDLR | NM_001018056 | 22996 | chr9 | 2634788 | 2634986 | + |
| UST | NM_005715 | 289734 | chr6 | 149399890 | 149400088 | + |
| AIM1 | NM_001624 | 28083 | chr6 | 107094505 | 107094703 | + |
| C6orf145 | NM_183373 | -33266 | chr6 | 3730200 | 3730398 | + |
| TRPC7 | NM_020389 | 129900 | chr5 | 135590873 | 135591071 | + |
| CLSTN2 | NM_022131 | 93017 | chr3 | 141229913 | 141230111 | + |
| LMOD3 | NM_198271 | -47204 | chr3 | 69301610 | 69301808 | + |
| CNTN4 | NM_175607 | 84806 | chr3 | 2202052 | 2202250 | + |
| MKL1 | NM_020831 | 41872 | chr22 | 39320565 | 39320763 | + |
| PEX26 | NM_017929 | -14789 | chr22 | 16925717 | 16925915 | + |
| RIPK4 | NM_020639 | 25760 | chr21 | 42034359 | 42034557 | + |
| OSBPL2 | NM_014835 | 5951 | chr20 | 60252925 | 60253123 | + |
| NKX2-2 | NM_002509 | -3966 | chr20 | 21446629 | 21446827 | + |
| PARD3B | NM_057177 | 756988 | chr2 | 205875748 | 205875946 | + |
| SMC6 | NM_024624 | 36 | chr2 | 17798306 | 17798504 | + |
| CKM | NM_001824 | 15918 | chr19 | 50501857 | 50502055 | + |
| FBL | NM_001436 | 439 | chr19 | 45028175 | 45028373 | + |
| CHST9 | NM_031422 | 20221 | chr18 | 22998859 | 22999057 | + |
| PDK2 | NM_002611 | 3686 | chr17 | 45531380 | 45531578 | + |
| C16orf75 | NM_152308 | 15221 | chr16 | 11362032 | 11362230 | + |
| MAPK6 | NM_002748 | 10936 | chr15 | 50109674 | 50109872 | + |
| OCA2 | NM_000275 | 346487 | chr15 | 25671375 | 25671573 | + |
| PPP2R5E | NM_006246 | 102078 | chr14 | 62977555 | 62977753 | + |
| GJB6 | NM_006783 | -6597 | chr13 | 19709663 | 19709861 | + |
| LRP1 | NM_002332 | 67585 | chr12 | 55876133 | 55876331 | + |
| MYO7A | NM_000260 | 48910 | chr11 | 76565873 | 76566071 | + |
| CHKA | NM_001277 | 68929 | chr11 | 67576306 | 67576504 | + |
| TSPAN15 | NM_012339 | 28071 | chr10 | 70909302 | 70909500 | + |
| C10orf38 | NM_001010924 | 173828 | chr10 | 15279037 | 15279235 | + |
| FRMD4A | NM_018027 | 685373 | chr10 | 13727300 | 13727498 | + |
| CRNN | NM_016190 | -35571 | chr1 | 150688922 | 150689120 | + |
| SAMD13 | NM_001010971 | 979 | chr1 | 84537615 | 84537813 | + |
| KCNK10 | NM_138317 | 26905 | chr14 | 87831997 | 87832194 | + |
| KIAA0020 | NM_014878 | 26138 | chr9 | 2807888 | 2807991 | + |
| SGIP1 | NM_032291 | 104089 | chr1 | 66876501 | 66876600 | + |
| AIFM1 | NM_004208 | 33148 | chrX | 129094142 | 129094340 | + |
| SP8 | NM_198956 | 10162 | chr7 | 20782669 | 20782867 | + |
| EMCN | NM_016242 | 68031 | chr4 | 101589972 | 101590170 | + |
| C1orf198 | NM_032800 | -3420 | chr1 | 229074319 | 229074419 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|--------------|--------------|--------|-------|-----------|-----------|---|
| EFHA1 | NM_152726 | 126665 | chr13 | 20949542 | 20949641 | + |
| DKFZp761B107 | NM_173463 | 80267 | chr4 | 24510458 | 24510656 | + |
| ACCN1 | NM_001094 | 180127 | chr17 | 29327612 | 29327810 | + |
| C20orf94 | NM_001009608 | 43494 | chr20 | 10407444 | 10407642 | + |
| EIF2AK3 | NM_004836 | -30440 | chr2 | 88738513 | 88738711 | + |
| ZIC3 | NM_003413 | -19900 | chrX | 136455913 | 136456111 | + |
| TMEM28 | NM_015686 | 19962 | chrX | 68661764 | 68661962 | + |
| ENG | NM_000118 | 13429 | chr9 | 129643177 | 129643375 | + |
| TSNARE1 | NM_145003 | 191353 | chr8 | 143290892 | 143291090 | + |
| ASPH | NM_020164 | 6059 | chr8 | 62758582 | 62758780 | + |
| RP1L1 | NM_178857 | 81545 | chr8 | 10468283 | 10468481 | + |
| SMOC2 | NM_022138 | 78614 | chr6 | 168663493 | 168663691 | + |
| IRF4 | NM_002460 | 1113 | chr6 | 337872 | 338070 | + |
| GCNT4 | NM_016591 | -28250 | chr5 | 74390729 | 74390927 | + |
| BFSP2 | NM_003571 | -1196 | chr3 | 134600085 | 134600283 | + |
| ADCY5 | NM_183357 | 16011 | chr3 | 124633872 | 124634070 | + |
| LMCD1 | NM_014583 | -19406 | chr3 | 8498906 | 8499104 | + |
| LOC553158 | NM_181334 | 31118 | chr22 | 43520250 | 43520448 | + |
| COL18A1 | NM_030582 | 24183 | chr21 | 45724034 | 45724232 | + |
| C21orf29 | NM_144991 | 158668 | chr21 | 44797056 | 44797254 | + |
| PDYN | NM_024411 | 1043 | chr20 | 1921460 | 1921658 | + |
| CSNK2A1 | NM_177560 | 143 | chr20 | 472140 | 472338 | + |
| PSMD14 | NM_005805 | 97855 | chr2 | 161971040 | 161971238 | + |
| TEKT4 | NM_144705 | 14146 | chr2 | 94915104 | 94915302 | + |
| ADD2 | NM_017482 | 21313 | chr2 | 70827325 | 70827523 | + |
| CCDC128 | NM_152994 | 239 | chr2 | 48521650 | 48521848 | + |
| SIX2 | NM_016932 | -1119 | chr2 | 45091144 | 45091342 | + |
| ZNF579 | NM_152600 | 30922 | chr19 | 60752902 | 60753100 | + |
| PSTPIP2 | NM_024430 | 30300 | chr18 | 41875722 | 41875920 | + |
| GSG1L | NM_144675 | 15959 | chr16 | 27790821 | 27791019 | + |
| A2BP1 | NM_018723 | 780441 | chr16 | 6789573 | 6789771 | + |
| KIAA0284 | NM_015005 | 16698 | chr14 | 104419396 | 104419594 | + |
| NUFIP1 | NM_012345 | 57412 | chr13 | 44403960 | 44404158 | + |
| NBEA | NM_015678 | -34809 | chr13 | 34379448 | 34379646 | + |
| NUAK1 | NM_014840 | 69716 | chr12 | 104988026 | 104988224 | + |
| TMTC2 | NM_152588 | 148882 | chr12 | 81753946 | 81754144 | + |
| WNT10B | NM_003394 | 2 | chr12 | 47651609 | 47651807 | + |
| CACNA1C | NM_000719 | 258949 | chr12 | 2291673 | 2291871 | + |
| LOC89944 | NM_138342 | 11751 | chr11 | 133718769 | 133718967 | + |
| ARHGEF12 | NM_015313 | 200820 | chr11 | 119913975 | 119914173 | + |
| CYP2R1 | NM_024514 | -12037 | chr11 | 14882363 | 14882561 | + |
| HMX2 | NM_005519 | 2292 | chr10 | 124899919 | 124900117 | + |
| VANGL1 | NM_138959 | 3267 | chr1 | 115989363 | 115989561 | + |
| TMEM39B | NM_018056 | -5981 | chr1 | 32304936 | 32305134 | + |
| PAK3 | NM_002578 | 24116 | chrX | 110250371 | 110250568 | + |
| FLJ23356 | NM_032237 | 47367 | chr8 | 43115184 | 43115381 | + |
| CSNK1E | NM_001894 | -18339 | chr22 | 37062373 | 37062570 | + |
| ULK1 | NM_003565 | 22471 | chr12 | 130967702 | 130967897 | + |
| ADCY1 | NM_021116 | 115528 | chr7 | 45696173 | 45696366 | + |
| IRF2 | NM_002199 | 78183 | chr4 | 185554332 | 185554513 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|----------|--------------|--------|-------|-----------|-----------|---|
| ATP8B1 | NM_005603 | 21154 | chr18 | 53528764 | 53528882 | + |
| USP25 | NM_013396 | 41127 | chr21 | 16065493 | 16065691 | + |
| C1orf121 | NM_016076 | 15104 | chr1 | 242898078 | 242898240 | + |
| NANP | NM_152667 | -5438 | chr20 | 25558051 | 25558249 | + |
| STX7 | NM_003569 | 12838 | chr6 | 132862827 | 132863020 | + |
| SPTBN1 | NM_178313 | 102536 | chr2 | 54741570 | 54741673 | + |
| PASD1 | NM_173493 | 75904 | chrX | 150558653 | 150558851 | + |
| PAG1 | NM_018440 | 117584 | chr8 | 82069075 | 82069273 | + |
| OPRK1 | NM_000912 | 9154 | chr8 | 54317394 | 54317592 | + |
| ZFAND2A | NM_182491 | -9099 | chr7 | 1175422 | 1175620 | + |
| LPP | NM_005578 | 493168 | chr3 | 189906582 | 189906780 | + |
| TEX101 | NM_031451 | 18414 | chr19 | 48603016 | 48603214 | + |
| USMG5 | NM_032747 | 6185 | chr10 | 105139829 | 105140027 | + |
| WWOX | NM_130844 | -5703 | chr16 | 76685249 | 76685348 | + |
| C22orf32 | NM_033318 | 666 | chr22 | 40806310 | 40806508 | + |
| SCN1B | NM_001037 | 4013 | chr19 | 40217386 | 40217584 | + |
| ESX1 | NM_153448 | -48660 | chrX | 103434903 | 103435101 | + |
| ZNF711 | NM_021998 | 1691 | chrX | 84387343 | 84387541 | + |
| SARDH | NM_007101 | 48098 | chr9 | 135546566 | 135546764 | + |
| FBP1 | NM_000507 | 1747 | chr9 | 96439678 | 96439876 | + |
| PAX5 | NM_016734 | 68020 | chr9 | 36956257 | 36956455 | + |
| C9orf19 | NM_022343 | 27598 | chr9 | 36154339 | 36154537 | + |
| FLNC | NM_001458 | 18980 | chr7 | 128276698 | 128276896 | + |
| PFTK1 | NM_012395 | 327598 | chr7 | 90504245 | 90504443 | + |
| OSBPL3 | NM_015550 | 74346 | chr7 | 24911740 | 24911938 | + |
| PDE7B | NM_018945 | -42531 | chr6 | 136171797 | 136171995 | + |
| HMGNA4 | NM_006353 | 19624 | chr6 | 26666174 | 26666372 | + |
| LRRRC16 | NM_017640 | 49629 | chr6 | 25437384 | 25437582 | + |
| CAGE1 | NM_205864 | 48717 | chr6 | 7286025 | 7286223 | + |
| MCC | NM_002387 | 134202 | chr5 | 112523800 | 112523998 | + |
| FLJ23577 | NM_024867 | 65196 | chr5 | 35718941 | 35719139 | + |
| SUB1 | NM_006713 | -3814 | chr5 | 32617421 | 32617619 | + |
| SPOCK3 | NM_016950 | 530524 | chr4 | 167861593 | 167861791 | + |
| FRAS1 | NM_025074 | 106201 | chr4 | 79304320 | 79304518 | + |
| MBNL1 | NM_021038 | -10814 | chr3 | 153457506 | 153457704 | + |
| ACAD11 | NM_032169 | 105210 | chr3 | 133756207 | 133756405 | + |
| ARVP6125 | NM_001030078 | 38508 | chr3 | 131283353 | 131283551 | + |
| DAG1 | NM_004393 | -2871 | chr3 | 49479525 | 49479723 | + |
| UBE2E2 | NM_152653 | 71027 | chr3 | 23290838 | 23291036 | + |
| MYH9 | NM_002473 | 98594 | chr22 | 35015134 | 35015332 | + |
| R3HDM1 | NM_015361 | 78207 | chr2 | 136083759 | 136083957 | + |
| SLC8A1 | NM_021097 | 274001 | chr2 | 40236748 | 40236946 | + |
| MEGF8 | NM_001410 | -2976 | chr19 | 47529623 | 47529821 | + |
| GRIK5 | NM_002088 | 49010 | chr19 | 47212588 | 47212786 | + |
| GATA6 | NM_005257 | -192 | chr18 | 18003023 | 18003221 | + |
| PTPRM | NM_002845 | 654609 | chr18 | 8212425 | 8212623 | + |
| DLGAP1 | NM_001003809 | 295550 | chr18 | 3539547 | 3539745 | + |
| TMC8 | NM_152468 | 5742 | chr17 | 73644205 | 73644403 | + |
| ICAM2 | NM_000873 | 1294 | chr17 | 59436346 | 59436544 | + |
| MYH1 | NM_005963 | 20860 | chr17 | 10341525 | 10341723 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| CDH1 | NM_004360 | 79951 | chr16 | 67408646 | 67408844 | + |
| TMEM63C | NM_020431 | 3295 | chr14 | 76721217 | 76721415 | + |
| RPGRIP1 | NM_020366 | 46653 | chr14 | 20872628 | 20872826 | + |
| TSC22D1 | NM_183422 | 101935 | chr13 | 43946567 | 43946765 | + |
| STX2 | NM_001980 | 42660 | chr12 | 129846905 | 129847103 | + |
| PLXNC1 | NM_005761 | 250 | chr12 | 93066879 | 93067077 | + |
| ABCD2 | NM_005164 | 40524 | chr12 | 38259514 | 38259712 | + |
| RNF26 | NM_032015 | 98 | chr11 | 118710544 | 118710742 | + |
| C11orf75 | NM_020179 | -71 | chr11 | 92916232 | 92916430 | + |
| P4HA1 | NM_000917 | 114920 | chr10 | 74411511 | 74411709 | + |
| SLC29A3 | NM_018344 | -8031 | chr10 | 72740808 | 72741006 | + |
| ABCB10 | NM_012089 | 1 | chr1 | 227760865 | 227761063 | + |
| CACNA1S | NM_000069 | 38969 | chr1 | 199309149 | 199309347 | + |
| RGS18 | NM_130782 | 62832 | chr1 | 190457046 | 190457244 | + |
| TGFBR3 | NM_003243 | 120849 | chr1 | 92003195 | 92003393 | + |
| TTC22 | NM_017904 | 25792 | chr1 | 55013468 | 55013666 | + |
| EIF4G3 | NM_003760 | 336337 | chr1 | 21039391 | 21039589 | + |
| KIAA1026 | NM_001017999 | 63023 | chr1 | 15208024 | 15208222 | + |
| WDR8 | NM_017818 | 9826 | chr1 | 3546472 | 3546670 | + |
| HOXD13 | NM_000523 | -7668 | chr2 | 176657912 | 176658109 | + |
| SLC13A5 | NM_177550 | 10764 | chr17 | 6546426 | 6546623 | + |
| PAX6 | NM_001604 | -36945 | chr11 | 31826399 | 31826596 | + |
| PDE4DIP | NM_022359 | 58989 | chr1 | 143728193 | 143728390 | + |
| ARPP-21 | NM_016300 | 197122 | chr3 | 35855974 | 35856170 | + |
| DEFB115 | NM_001037730 | -39192 | chr20 | 29269739 | 29269935 | + |
| FLJ46300 | NM_001001677 | 40437 | chr10 | 133431892 | 133432087 | + |
| STK10 | NM_005990 | 9139 | chr5 | 171538532 | 171538725 | + |
| ISG15 | NM_005101 | 2656 | chr1 | 941397 | 941590 | + |
| NOL4 | NM_003787 | 7834 | chr18 | 30049495 | 30049678 | + |
| PCBD2 | NM_032151 | 20063 | chr5 | 134288771 | 134288953 | + |
| GLYCTK | NM_145262 | -8965 | chr3 | 52287771 | 52287946 | + |
| STRN | NM_003162 | 115321 | chr2 | 36931644 | 36931797 | + |
| ADCK2 | NM_052853 | 15474 | chr7 | 140034895 | 140035023 | + |
| SURF4 | NM_033161 | 1316 | chr9 | 135231349 | 135231474 | + |
| SFT2D1 | NM_145169 | 11691 | chr6 | 166664186 | 166664289 | + |
| POLS | NM_006999 | 47824 | chr5 | 6815541 | 6815640 | + |
| SSH2 | NM_033389 | 295428 | chr17 | 24985517 | 24985715 | + |
| WARS2 | NM_015836 | 13698 | chr1 | 119470913 | 119471111 | + |
| KIAA1622 | NM_058237 | 68546 | chr14 | 93778947 | 93779145 | + |
| OVCH1 | NM_183378 | 59984 | chr12 | 29481703 | 29481901 | + |
| IFIT1 | NM_001548 | 10151 | chr10 | 91152452 | 91152650 | + |
| HIPK2 | NM_022740 | 44029 | chr7 | 138922786 | 138922984 | + |
| C14orf145 | NM_152446 | 405553 | chr14 | 80069885 | 80070083 | + |
| DHRS3 | NM_004753 | -293 | chr1 | 12600699 | 12600897 | + |
| GDF9 | NM_005260 | 2675 | chr5 | 132225502 | 132225700 | + |
| UCK2 | NM_012474 | 16464 | chr1 | 164079977 | 164080175 | + |
| CLPX | NM_006660 | -360 | chr15 | 63264975 | 63265173 | + |
| C1orf175 | NM_001039464 | 32999 | chr1 | 54913030 | 54913228 | + |
| SLC4A11 | NM_032034 | -1174 | chr20 | 3167546 | 3167744 | + |
| NXF3 | NM_022052 | 8871 | chrX | 102225608 | 102225806 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| SVIL | NM_021738 | 153258 | chr10 | 29810450 | 29810648 | + |
| ROCK1 | NM_005406 | 173593 | chr18 | 16772019 | 16772216 | + |
| PAK1 | NM_002576 | 156970 | chr11 | 76705412 | 76705610 | + |
| NRG1 | NM_013962 | 227398 | chr8 | 31844207 | 31844404 | + |
| LOC375449 | NM_198828 | 120530 | chr5 | 66048493 | 66048691 | + |
| ADAM22 | NM_004194 | 174640 | chr7 | 87576277 | 87576376 | + |
| GRIN2A | NM_000833 | 293510 | chr16 | 9890403 | 9890601 | + |
| NEDD4L | NM_015277 | 151153 | chr18 | 54013930 | 54014030 | + |
| FCRL3 | NM_052939 | 17990 | chr1 | 155919181 | 155919280 | + |
| LZTR2 | NM_033127 | 71600 | chr1 | 176133874 | 176134072 | + |
| ACY1 | NM_000666 | 3885 | chr3 | 51996487 | 51996685 | + |
| FLJ21986 | NM_024913 | 290756 | chr7 | 120706787 | 120706985 | + |
| FLJ42133 | NM_001001690 | -40182 | chr20 | 35698389 | 35698543 | + |
| CD24 | NM_013230 | 20519 | chrY | 19593375 | 19593573 | + |
| MAGEC3 | NM_138702 | -22406 | chrX | 140731163 | 140731361 | + |
| NXT2 | NM_018698 | 47543 | chrX | 108713208 | 108713406 | + |
| FAM125B | NM_001011703 | 981 | chr9 | 128129929 | 128130127 | + |
| MAPKAP1 | NM_001006620 | 304790 | chr9 | 127204345 | 127204543 | + |
| PAPPA | NM_002581 | 60045 | chr9 | 118015936 | 118016134 | + |
| CA8 | NM_004056 | 88313 | chr8 | 61267996 | 61268194 | + |
| TTC26 | NM_024926 | 57533 | chr7 | 138526596 | 138526794 | + |
| CALN1 | NM_001017440 | 1080 | chr7 | 71438617 | 71438815 | + |
| UTRN | NM_007124 | 224912 | chr6 | 144879477 | 144879675 | + |
| KHDRBS2 | NM_152688 | 419728 | chr6 | 62634164 | 62634362 | + |
| FBXW11 | NM_012300 | 172464 | chr5 | 171193819 | 171194017 | + |
| HMHB1 | NM_021182 | -42780 | chr5 | 143128940 | 143129138 | + |
| PCDH1 | NM_002587 | -5224 | chr5 | 141243351 | 141243549 | + |
| CTNND2 | NM_001332 | -21976 | chr5 | 11979085 | 11979283 | + |
| CAMK2D | NM_172115 | 221972 | chr4 | 114680006 | 114680204 | + |
| RAB6B | NM_016577 | 23879 | chr3 | 135073303 | 135073501 | + |
| LIMD1 | NM_014240 | -4834 | chr3 | 45606294 | 45606492 | + |
| CDC42EP1 | NM_007061 | 1542 | chr22 | 36287988 | 36288186 | + |
| RUTBC2 | NM_133454 | 18115 | chr22 | 23550369 | 23550567 | + |
| C21orf29 | NM_144991 | 198893 | chr21 | 44756831 | 44757029 | + |
| SOX12 | NM_006943 | 1885 | chr20 | 256123 | 256321 | + |
| SGPP2 | NM_152386 | 38176 | chr2 | 223035741 | 223035939 | + |
| PDE11A | NM_001077196 | 189892 | chr2 | 178271621 | 178271819 | + |
| B3GALT1 | NM_020981 | 50423 | chr2 | 168433850 | 168434048 | + |
| STEAP3 | NM_182915 | 2347 | chr2 | 119700200 | 119700398 | + |
| TTC7A | NM_020458 | 56704 | chr2 | 47078520 | 47078718 | + |
| ZNF428 | NM_182498 | 7720 | chr19 | 48807927 | 48808125 | + |
| THEG | NM_016585 | 10650 | chr19 | 316160 | 316358 | + |
| LOC146713 | NM_001025448 | 91383 | chr17 | 74839984 | 74840182 | + |
| FBXL20 | NM_032875 | 38465 | chr17 | 34772738 | 34772936 | + |
| YWHAE | NM_006761 | 22046 | chr17 | 1228022 | 1228220 | + |
| KIAA0350 | NM_015226 | 194823 | chr16 | 11140765 | 11140963 | + |
| KIAA1199 | NM_018689 | 7553 | chr15 | 78866319 | 78866517 | + |
| MYO5C | NM_018728 | 2701 | chr15 | 50372244 | 50372442 | + |
| FBLN5 | NM_006329 | 38878 | chr14 | 91444711 | 91444909 | + |
| FBXO34 | NM_017943 | 69852 | chr14 | 54877683 | 54877881 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| HNT | NM_016522 | 427300 | chr11 | 131713221 | 131713419 | + |
| ZP1 | NM_207341 | 5730 | chr11 | 60397320 | 60397518 | + |
| PRKG1 | NM_006258 | 984110 | chr10 | 53488408 | 53488606 | + |
| PGBD5 | NM_024554 | -44459 | chr1 | 228624448 | 228624646 | + |
| ARHGEF2 | NM_004723 | -12691 | chr1 | 154227265 | 154227463 | + |
| GOLPH3L | NM_018178 | 10067 | chr1 | 148925991 | 148926189 | + |
| FAM46C | NM_017709 | 34774 | chr1 | 117984900 | 117985098 | + |
| LRRRC8B | NM_015350 | 33077 | chr1 | 89829936 | 89830134 | + |
| GJB4 | NM_153212 | 8769 | chr1 | 35008133 | 35008331 | + |
| RUNX3 | NM_004350 | 517 | chr1 | 25128641 | 25128839 | + |
| NECAP2 | NM_018090 | 817 | chr1 | 16640636 | 16640834 | + |
| ZFPM2 | NM_012082 | 158774 | chr8 | 106559096 | 106559293 | + |
| CBX3 | NM_016587 | 630 | chr7 | 26208478 | 26208675 | + |
| JMJD1B | NM_016604 | 17016 | chr5 | 137733199 | 137733396 | + |
| DRD3 | NM_000796 | 68431 | chr3 | 115311960 | 115312157 | + |
| SLC40A1 | NM_014585 | 46746 | chr2 | 190106914 | 190107111 | + |
| TMSB10 | NM_021103 | 30699 | chr2 | 85016972 | 85017169 | + |
| SOX9 | NM_000346 | -28957 | chr17 | 67599601 | 67599798 | + |
| CDK5R1 | NM_003885 | 0 | chr17 | 27838072 | 27838269 | + |
| SERPINA12 | NM_173850 | 12621 | chr14 | 94041115 | 94041312 | + |
| FBXW8 | NM_012174 | 78888 | chr12 | 115912031 | 115912228 | + |
| ETV6 | NM_001987 | 69915 | chr12 | 11763969 | 11764166 | + |
| DHDDS | NM_024887 | 39006 | chr1 | 26670394 | 26670591 | + |
| SKI | NM_003036 | 79019 | chr1 | 2229012 | 2229209 | + |
| AMELY | NM_001143 | 24276 | chrY | 6777595 | 6777791 | + |
| WDR31 | NM_001006615 | 0 | chr9 | 115142278 | 115142473 | + |
| CSMD1 | NM_033225 | 112399 | chr8 | 4727141 | 4727336 | + |
| ADAMTS18 | NM_139054 | 39778 | chr16 | 75986539 | 75986733 | + |
| OLFM4 | NM_006418 | -21662 | chr13 | 52479116 | 52479310 | + |
| ADAMTSL2 | NM_014694 | 51163 | chr9 | 135440958 | 135441151 | + |
| CCDC51 | NM_024661 | 10569 | chr3 | 48445770 | 48445963 | + |
| CAPN13 | NM_144575 | 84975 | chr2 | 30798646 | 30798839 | + |
| OR4K2 | NM_001005501 | -7721 | chr14 | 19406352 | 19406545 | + |
| KCNAB2 | NM_003636 | 34567 | chr1 | 6043533 | 6043726 | + |
| PTER | NM_001001484 | 54389 | chr10 | 16573361 | 16573543 | + |
| TSHZ1 | NM_005786 | 25234 | chr18 | 71076952 | 71077131 | + |
| LAMA3 | NM_000227 | 70955 | chr18 | 19777958 | 19778134 | + |
| CITED2 | NM_006079 | -13925 | chr6 | 139751402 | 139751577 | + |
| HRBL | NM_006076 | 417 | chr7 | 99975186 | 99975359 | + |
| ABCA7 | NM_019112 | 428 | chr19 | 992672 | 992845 | + |
| RAB17 | NM_022449 | -40123 | chr2 | 238204597 | 238204765 | + |
| LOC649159 | NM_001040069 | -768 | chr16 | 33870771 | 33870934 | + |
| NME3 | NM_002513 | 927 | chr16 | 1760625 | 1760783 | + |
| MDS1 | NM_004991 | 450746 | chr3 | 170413265 | 170413421 | + |
| ATXN7L2 | NM_153340 | 6025 | chr1 | 109834108 | 109834255 | + |
| SHB | NM_003028 | 75877 | chr9 | 37983187 | 37983332 | + |
| C20orf4 | NM_015511 | 38631 | chr20 | 34326491 | 34326636 | + |
| NAB1 | NM_005966 | 55324 | chr2 | 191277416 | 191277561 | + |
| AP2A1 | NM_014203 | -76 | chr19 | 54961775 | 54961915 | + |
| PAX5 | NM_016734 | 6194 | chr9 | 37018149 | 37018281 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| SCEL | NM_003843 | 61572 | chr13 | 77069431 | 77069563 | + |
| GPX7 | NM_015696 | 4321 | chr1 | 52844952 | 52845081 | + |
| ARL16 | NM_001040025 | 0 | chr17 | 77261288 | 77261411 | + |
| RAB33A | NM_004794 | 5630 | chrX | 129139083 | 129139205 | + |
| TMEM117 | NM_032256 | 393845 | chr12 | 42910073 | 42910187 | + |
| PHF17 | NM_024900 | 40375 | chr4 | 129990603 | 129990711 | + |
| SRC | NM_198291 | 44578 | chr20 | 35452548 | 35452655 | + |
| IBTK | NM_015525 | 10676 | chr6 | 83003385 | 83003490 | + |
| MBNL2 | NM_144778 | -33909 | chr13 | 96638562 | 96638665 | + |
| TLE1 | NM_005077 | 28837 | chr9 | 83464476 | 83464578 | + |
| TBC1D22A | NM_014346 | 14215 | chr22 | 45551427 | 45551527 | + |
| RAC2 | NM_002872 | 16626 | chr22 | 35953524 | 35953624 | + |
| TPO | NM_000547 | 150268 | chr2 | 1546509 | 1546609 | + |
| NID2 | NM_007361 | 276 | chr14 | 51605319 | 51605419 | + |
| GLB1 | NM_000404 | 90505 | chr3 | 33022928 | 33023126 | + |
| PCMTD2 | NM_018257 | 68924 | chr20 | 62426488 | 62426686 | + |
| BRCC2 | NM_001001786 | 44294 | chr11 | 121447640 | 121447838 | + |
| LYN | NM_002350 | -2810 | chr8 | 56951917 | 56952115 | + |
| BRD1 | NM_014577 | 39582 | chr22 | 48564675 | 48564873 | + |
| SHKBP1 | NM_138392 | 304 | chr19 | 45774933 | 45775131 | + |
| SLC39A11 | NM_139177 | 416129 | chr17 | 68184099 | 68184297 | + |
| APC | NM_000038 | 16183 | chr5 | 112117665 | 112117862 | + |
| HFM1 | NM_001017975 | 13650 | chr1 | 91625489 | 91625603 | + |
| C3orf56 | NM_001007534 | -48286 | chr3 | 128346179 | 128346377 | + |
| PRPF38B | NM_018061 | 287 | chr1 | 109036947 | 109037145 | + |
| MEIS2 | NM_172315 | 928 | chr15 | 35176669 | 35176866 | + |
| NELL1 | NM_006157 | 93852 | chr11 | 20741563 | 20741712 | + |
| SLIT2 | NM_004787 | 178982 | chr4 | 20043314 | 20043417 | + |
| ENTHD1 | NM_152512 | 55092 | chr22 | 38564548 | 38564647 | + |
| VWA2 | NM_198496 | 46521 | chr10 | 116035528 | 116035726 | + |
| OPLAH | NM_017570 | 9416 | chr8 | 145177345 | 145177542 | + |
| EPHB4 | NM_004444 | 20037 | chr7 | 100242843 | 100243041 | + |
| SUPT3H | NM_003599 | 481120 | chr6 | 44972234 | 44972432 | + |
| NRSN1 | NM_080723 | -45826 | chr6 | 24188304 | 24188502 | + |
| SLC30A9 | NM_006345 | 51173 | chr4 | 41738452 | 41738650 | + |
| RNF157 | NM_052916 | 26300 | chr17 | 71721486 | 71721684 | + |
| OPCML | NM_002545 | 103681 | chr11 | 132214367 | 132214565 | + |
| HSPA14 | NM_016299 | 7084 | chr10 | 14927350 | 14927548 | + |
| AMY2B | NM_020978 | 9881 | chr1 | 103908725 | 103908923 | + |
| GABRG3 | NM_033223 | 110928 | chr15 | 24910190 | 24910387 | + |
| BTBD3 | NM_181443 | 4092 | chr20 | 11823568 | 11823667 | + |
| MDM1 | NM_017440 | -1529 | chr12 | 67013907 | 67014105 | + |
| TCERG1 | NM_001040006 | 60913 | chr5 | 145867978 | 145868176 | + |
| TRIM24 | NM_003852 | -22559 | chr7 | 137772960 | 137773059 | + |
| LRRRC62 | NM_052906 | -18690 | chr22 | 36120214 | 36120412 | + |
| KIDINS220 | NM_020738 | 55942 | chr2 | 8839040 | 8839238 | + |
| GNGT2 | NM_031498 | 9170 | chr17 | 44632373 | 44632571 | + |
| CCDC64 | NM_207311 | 90646 | chr12 | 119002676 | 119002874 | + |
| CUTL2 | NM_015267 | 74864 | chr12 | 110031075 | 110031273 | + |
| PRKACG | NM_002732 | -6252 | chr9 | 70825079 | 70825182 | + |

TCF4 binding regions in colorectal cancer cells

| | | | | | | |
|-----------|--------------|--------|-------|-----------|-----------|---|
| NCOA1 | NM_147223 | 149981 | chr2 | 24810830 | 24810929 | + |
| C6orf145 | NM_183373 | -34166 | chr6 | 3731100 | 3731298 | + |
| COX6A1 | NM_004373 | -8323 | chr12 | 119351765 | 119351963 | + |
| IKBKE | NM_014002 | -257 | chr1 | 204709963 | 204710161 | + |
| SPATA5 | NM_145207 | 113607 | chr4 | 124177285 | 124177478 | + |
| TSPAN33 | NM_178562 | 13086 | chr7 | 128585033 | 128585198 | + |
| KCNK12 | NM_022055 | 50130 | chr2 | 47600744 | 47600843 | + |
| TMC1 | NM_138691 | 198560 | chr9 | 74525096 | 74525294 | + |
| GLIS3 | NM_001042413 | -5156 | chr9 | 4295190 | 4295388 | + |
| PDE1C | NM_005020 | 306064 | chr7 | 31771253 | 31771451 | + |
| APC | NM_000038 | 25479 | chr5 | 112126961 | 112127159 | + |
| ATOX8 | NM_032827 | 6920 | chr2 | 85841452 | 85841650 | + |
| CRIM1 | NM_016441 | 192858 | chr2 | 36629758 | 36629956 | + |
| C18orf1 | NM_181482 | 205893 | chr18 | 13414687 | 13414885 | + |
| ST8SIA2 | NM_006011 | 38638 | chr15 | 90776781 | 90776979 | + |
| ANKRD19 | NM_001010925 | 5446 | chr9 | 94617116 | 94617313 | + |
| DDB1 | NM_001923 | 22705 | chr11 | 60834222 | 60834419 | + |
| PKNOX2 | NM_022062 | 186909 | chr11 | 124726677 | 124726870 | + |
| LOC399744 | NM_001013665 | 51345 | chr10 | 38828622 | 38828809 | + |
| ST6GAL1 | NM_173216 | 53053 | chr3 | 188184262 | 188184398 | + |
| ELK3 | NM_005230 | 47240 | chr12 | 95159577 | 95159687 | + |
| SOX8 | NM_014587 | 288 | chr16 | 972096 | 972199 | + |
| IL1RAPL1 | NM_014271 | 821360 | chrX | 29336839 | 29337037 | + |
| LY96 | NM_015364 | 81355 | chr8 | 75147498 | 75147696 | + |
| SHFM1 | NM_006304 | -45820 | chr7 | 96222958 | 96223156 | + |
| OPN5 | NM_001030051 | 62988 | chr6 | 47925808 | 47926006 | + |
| CAV3 | NM_001234 | -17933 | chr3 | 8732364 | 8732562 | + |
| MCM10 | NM_018518 | 50322 | chr10 | 13293908 | 13294106 | + |
| HMCN1 | NM_031935 | 320085 | chr1 | 184290390 | 184290588 | + |
| SH3RF2 | NM_152550 | 2234 | chr5 | 145298568 | 145298765 | + |
| GNAO1 | NM_138736 | 65601 | chr16 | 54849249 | 54849446 | + |
| STT3A | NM_152713 | -337 | chr11 | 124967436 | 124967629 | + |
| CTNNA1 | NM_001904 | 44799 | chr3 | 41260814 | 41261005 | + |
| ARID2 | NM_152641 | -2646 | chr12 | 44407098 | 44407240 | + |
| KIAA0350 | NM_015226 | 239939 | chr16 | 11185881 | 11186013 | + |
| RASSF8 | NM_007211 | -39315 | chr12 | 25963808 | 25963920 | + |

TCF4 binding regions in colorectal cancer cells

Table S3. Motif letter-probability matrix

| site | A | C | G | T |
|------|--------|--------|--------|--------|
| 1 | 8.19% | 75.59% | 9.20% | 7.02% |
| 2 | 14.05% | 22.91% | 54.01% | 9.03% |
| 3 | 85.62% | 2.68% | 4.35% | 7.36% |
| 4 | 8.53% | 5.35% | 66.89% | 19.23% |
| 5 | 3.68% | 87.79% | 7.02% | 1.51% |
| 6 | 12.21% | 23.58% | 6.19% | 58.03% |
| 7 | 2.68% | 84.95% | 8.36% | 4.01% |
| 8 | 13.04% | 7.19% | 5.69% | 74.08% |
| 9 | 4.18% | 10.03% | 17.39% | 68.39% |
| 10 | 2.51% | 90.97% | 0.50% | 6.02% |

w=10; sites=598; E=4.4e-201; Consensus=C-G/C-A-G-C-T/C-C-T-T-C.

Table S4. The 598 instances of the motif

| Gene | Chr | start | end | Sites | Num | Strand | Start | P-value |
|----------|-------|-----------|-----------|------------|------|--------|-------|----------|
| SLC35F1 | chr6 | 118588151 | 118588250 | CGAGCTCTTC | 548 | + | 6 | 8.31E-07 |
| NID2 | chr14 | 51605319 | 51605419 | CGAGCTCTTC | 1373 | - | 33 | 8.31E-07 |
| INPP5B | chr1 | 38121850 | 38122048 | CGAGCTCTTC | 312 | - | 56 | 8.31E-07 |
| CLPX | chr15 | 63264975 | 63265173 | CGAGCTCTTC | 1209 | + | 56 | 8.31E-07 |
| SLC4A1 | chr17 | 39695144 | 39695342 | CGAGCTCTTC | 165 | - | 56 | 8.31E-07 |
| LEF1 | chr4 | 109249296 | 109249494 | CGAGCTCTTC | 35 | + | 56 | 8.31E-07 |
| NUPL1 | chr13 | 24802296 | 24802494 | CGAGCTCTTC | 289 | - | 56 | 8.31E-07 |
| STK32B | chr4 | 5194682 | 5194781 | CGAGCTCTTC | 107 | + | 6 | 8.31E-07 |
| FCRL3 | chr1 | 155919181 | 155919280 | CGAGCTCTTC | 1229 | + | 11 | 8.31E-07 |
| MAPK6 | chr15 | 50109674 | 50109872 | CGAGCTCTTC | 956 | + | 56 | 8.31E-07 |
| USP25 | chr21 | 16065493 | 16065691 | CGAGCTCTTC | 1069 | - | 56 | 8.31E-07 |
| C14orf49 | chr14 | 94923553 | 94923751 | CGAGCTCTTC | 722 | - | 56 | 8.31E-07 |
| TNFRSF21 | chr6 | 47310465 | 47310663 | CGAGCTCTTC | 209 | + | 56 | 8.31E-07 |
| KCNMB2 | chr3 | 179755458 | 179755656 | CGAGCTCTTC | 874 | - | 56 | 8.31E-07 |
| KCNK10 | chr14 | 87831997 | 87832194 | CGAGCCCTTC | 975 | - | 55 | 1.57E-06 |
| LONRF3 | chrX | 118061364 | 118061563 | CGAGCCCTTC | 133 | - | 55 | 1.57E-06 |
| DMBT1 | chr10 | 124384789 | 124384987 | CGAGCCCTTC | 178 | + | 56 | 1.57E-06 |
| EFNA5 | chr5 | 107036736 | 107036934 | CGAGCCCTTC | 99 | + | 56 | 1.57E-06 |
| BRE | chr2 | 28163532 | 28163730 | CCAGCTCTTC | 435 | - | 56 | 2.40E-06 |
| MELK | chr9 | 36557023 | 36557221 | CCAGCTCTTC | 607 | + | 56 | 2.40E-06 |
| RAB6B | chr3 | 135073303 | 135073501 | CCAGCTCTTC | 1261 | + | 56 | 2.40E-06 |
| LRRC16 | chr6 | 25437384 | 25437582 | CCAGCTCTTC | 1107 | - | 56 | 2.40E-06 |
| GALNT17 | chr4 | 173589934 | 173590132 | CCAGCTCTTC | 845 | - | 51 | 2.40E-06 |
| SST | chr3 | 188849905 | 188850103 | CCAGCTCTTC | 265 | + | 56 | 2.40E-06 |
| MBNL1 | chr3 | 153457506 | 153457704 | CCAGCTCTTC | 1116 | + | 56 | 2.40E-06 |
| VPS33A | chr12 | 121301766 | 121301964 | CCAGCTCTTC | 393 | + | 56 | 2.40E-06 |
| CABIN1 | chr22 | 22868712 | 22868910 | CCAGCTCTTC | 800 | - | 56 | 2.40E-06 |
| CSDC2 | chr22 | 40302571 | 40302769 | CCAGCTCTTC | 404 | + | 61 | 2.40E-06 |
| UBE2L3 | chr22 | 20297962 | 20298160 | CCAGCTCTTC | 666 | - | 56 | 2.40E-06 |
| DZIP1L | chr3 | 139255462 | 139255660 | CCAGCTCTTC | 228 | - | 56 | 2.40E-06 |
| OXT | chr20 | 3000678 | 3000876 | CCAGCTCTTC | 536 | - | 56 | 2.40E-06 |
| VPS53 | chr17 | 520667 | 520865 | CCAGCTCTTC | 288 | - | 55 | 2.40E-06 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|--------------|-------|-----------|-----------|------------|------|---|----|----------|
| THEG | chr19 | 316160 | 316358 | CGAGCTCTGC | 1277 | + | 56 | 3.13E-06 |
| CFDP1 | chr16 | 74025746 | 74025944 | CGAGCTCTGC | 556 | + | 56 | 3.13E-06 |
| ARVP6125 | chr3 | 131283353 | 131283551 | CGAGCTCTGC | 1119 | - | 56 | 3.13E-06 |
| TSSC1 | chr2 | 3325827 | 3326026 | CGAGCTCTGC | 38 | + | 56 | 3.13E-06 |
| LRRN6A | chr15 | 75753479 | 75753677 | CGAGCTCTGC | 275 | + | 56 | 3.13E-06 |
| C21orf63 | chr21 | 32731668 | 32731866 | CGAGCTCTGC | 469 | + | 56 | 3.13E-06 |
| BRWD1 | chr21 | 39490367 | 39490565 | CGATCTCTTC | 332 | + | 56 | 4.07E-06 |
| SVIL | chr10 | 29810450 | 29810648 | CGATCTCTTC | 1213 | + | 56 | 4.07E-06 |
| ZNF208 | chr19 | 21931946 | 21932144 | CGATCTCTTC | 885 | - | 56 | 4.07E-06 |
| ELMO1 | chr7 | 36990251 | 36990449 | CAAGCTCTTC | 381 | + | 56 | 5.01E-06 |
| CRNN | chr1 | 150688922 | 150689120 | CAAGCTCTTC | 971 | - | 56 | 5.01E-06 |
| DKFZP564J102 | chr4 | 187336929 | 187337127 | CAAGCTCTTC | 366 | + | 57 | 5.01E-06 |
| ZNF277P | chr7 | 111794870 | 111795069 | CAAGCTCTTC | 449 | - | 56 | 5.01E-06 |
| C1orf21 | chr1 | 182885073 | 182885271 | CAAGCTCTTC | 686 | + | 56 | 5.01E-06 |
| ADAMTSL2 | chr9 | 135440958 | 135441151 | CGAGCACTTC | 1328 | - | 53 | 5.84E-06 |
| DENND1A | chr9 | 125534572 | 125534770 | CGAGCACTTC | 287 | - | 56 | 5.84E-06 |
| SORCS2 | chr4 | 7613055 | 7613253 | CGAGCACTTC | 849 | - | 51 | 5.84E-06 |
| SKI | chr1 | 2229012 | 2229209 | CGAGCACTTC | 1321 | - | 55 | 5.84E-06 |
| CUTL1 | chr7 | 101579581 | 101579779 | CCAGCCCTTC | 815 | + | 61 | 6.57E-06 |
| TMSB10 | chr2 | 85016972 | 85017169 | CCAGCCCTTC | 1313 | - | 50 | 6.57E-06 |
| LRRC8B | chr1 | 89829936 | 89830134 | CCAGCCCTTC | 1299 | + | 56 | 6.57E-06 |
| KIAA1333 | chr14 | 30068293 | 30068491 | CCAGCCCTTC | 320 | - | 51 | 6.57E-06 |
| KIAA0284 | chr14 | 104419396 | 104419594 | CCAGCCCTTC | 1040 | - | 51 | 6.57E-06 |
| SUB1 | chr5 | 32617421 | 32617619 | CGAGCTCTCC | 1112 | - | 55 | 8.14E-06 |
| ZUBR1 | chr1 | 19286617 | 19286815 | CGAGCTCATC | 496 | - | 56 | 8.14E-06 |
| C7orf41 | chr7 | 30141224 | 30141422 | CGAGCTCATC | 224 | + | 61 | 8.14E-06 |
| SLIT3 | chr5 | 168058340 | 168058441 | CGAGCTCTCC | 19 | + | 7 | 8.14E-06 |
| PRKAR1B | chr7 | 676855 | 677054 | CGAGCTCTCC | 539 | + | 61 | 8.14E-06 |
| ITPK1 | chr14 | 92504866 | 92505064 | CGAGCTCATC | 476 | - | 56 | 8.14E-06 |
| NEK1 | chr4 | 170706974 | 170707172 | CTAGCTCTTC | 578 | + | 56 | 9.08E-06 |
| RTCD1 | chr1 | 100504960 | 100505158 | CTAGCTCTTC | 904 | - | 3 | 9.08E-06 |
| ALDH1A1 | chr9 | 74735523 | 74735721 | CTAGCTCTTC | 508 | + | 56 | 9.08E-06 |
| CLMN | chr14 | 94856389 | 94856587 | CGAGCCCTGC | 724 | + | 56 | 9.73E-06 |
| NIBP | chr8 | 141528669 | 141528772 | CCAGCTCTGC | 421 | + | 36 | 1.29E-05 |
| PSMD14 | chr2 | 161971040 | 161971238 | GGAGCTCTTC | 1028 | - | 56 | 1.29E-05 |
| ZNF579 | chr19 | 60752902 | 60753100 | CCAGCTCTGC | 1036 | - | 56 | 1.29E-05 |
| LDLRAP1 | chr1 | 25772463 | 25772661 | CCAGCTCTGC | 806 | - | 19 | 1.29E-05 |
| DPYSL2 | chr8 | 26582359 | 26582557 | CCAGCTCTGC | 653 | + | 56 | 1.29E-05 |
| BFSP2 | chr3 | 134600085 | 134600283 | CCAGCTCTGC | 1019 | + | 73 | 1.29E-05 |
| AIM1 | chr6 | 107094505 | 107094703 | CCAGCTCTGC | 931 | + | 56 | 1.29E-05 |
| SOX8 | chr16 | 972096 | 972199 | CGAGCGCTTC | 1480 | + | 8 | 1.29E-05 |
| KCNC1 | chr11 | 17733532 | 17733730 | GGAGCTCTTC | 24 | - | 56 | 1.29E-05 |
| KIAA1370 | chr15 | 50758054 | 50758252 | CGAACTCTTC | 242 | + | 56 | 1.38E-05 |
| SGK2 | chr20 | 41647830 | 41648028 | CGAACTCTTC | 803 | + | 56 | 1.38E-05 |
| C20orf4 | chr20 | 34326491 | 34326636 | CGAGCTCCTC | 1346 | + | 30 | 1.63E-05 |
| PCMTD2 | chr20 | 62426488 | 62426686 | CCATCTCTTC | 1378 | + | 70 | 1.63E-05 |
| KIAA0427 | chr18 | 44522464 | 44522662 | CGAGCTCCTC | 550 | + | 61 | 1.63E-05 |
| SLC5A11 | chr16 | 24794270 | 24794468 | CAAGCCCTTC | 551 | - | 56 | 1.63E-05 |
| LUC7L | chr16 | 202207 | 202405 | CGAGCTCCTC | 131 | - | 54 | 1.63E-05 |
| NME3 | chr16 | 1760625 | 1760783 | CGAGCTCCTC | 1342 | - | 36 | 1.63E-05 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|------------|------|---|----|----------|
| C9orf19 | chr9 | 36154339 | 36154537 | CCATCTCTTC | 1097 | + | 56 | 1.63E-05 |
| ARHGEF2 | chr1 | 154227265 | 154227463 | CCATCTCTTC | 1296 | + | 81 | 1.63E-05 |
| PCGF3 | chr4 | 750775 | 750973 | CGAGCTCCTC | 32 | - | 56 | 1.63E-05 |
| ZNF236 | chr18 | 72766111 | 72766309 | CAAGCCCTTC | 888 | + | 61 | 1.63E-05 |
| HIBADH | chr7 | 27580367 | 27580565 | AGAGCTCTTC | 868 | + | 56 | 1.81E-05 |
| C16orf75 | chr16 | 11362032 | 11362230 | AGAGCTCTTC | 955 | + | 57 | 1.81E-05 |
| PDE2A | chr11 | 71926877 | 71927076 | AGAGCTCTTC | 811 | + | 56 | 1.81E-05 |
| PASD1 | chrX | 150558653 | 150558851 | AGAGCTCTTC | 1075 | + | 58 | 1.81E-05 |
| NEFM | chr8 | 24828558 | 24828756 | AGAGCTCTTC | 847 | - | 56 | 1.81E-05 |
| MDM1 | chr12 | 67013907 | 67014105 | AGAGCTCTTC | 1422 | - | 54 | 1.81E-05 |
| ZMIZ2 | chr7 | 44755503 | 44755701 | AGAGCTCTTC | 515 | + | 58 | 1.81E-05 |
| KCNT1 | chr9 | 137739227 | 137739425 | CGTGCTCTTC | 149 | - | 56 | 2.21E-05 |
| LPA | chr6 | 160899610 | 160899808 | CGACCTCTTC | 757 | - | 56 | 2.21E-05 |
| B4GALT1 | chr9 | 33191015 | 33191213 | CGAGGTCTTC | 41 | + | 61 | 2.21E-05 |
| PSMD14 | chr2 | 161971040 | 161971238 | CGTGCTCTTC | 1029 | - | 56 | 2.21E-05 |
| OSBPL3 | chr7 | 24911740 | 24911938 | TGAGCTCTTC | 1103 | + | 54 | 2.45E-05 |
| B3GALT6 | chr1 | 1167939 | 1168137 | CGAGCCCTCC | 93 | + | 56 | 2.45E-05 |
| TLL2 | chr10 | 98162129 | 98162327 | TGAGCTCTTC | 592 | - | 51 | 2.45E-05 |
| FRMD6 | chr14 | 51041258 | 51041456 | TGAGCTCTTC | 826 | + | 56 | 2.45E-05 |
| TP73L | chr3 | 191094892 | 191095090 | TGAGCTCTTC | 161 | + | 56 | 2.45E-05 |
| NR6A1 | chr9 | 126525447 | 126525645 | TGAGCTCTTC | 151 | + | 56 | 2.45E-05 |
| HERPUD2 | chr7 | 35662399 | 35662597 | TGAGCTCTTC | 613 | - | 56 | 2.45E-05 |
| SGIP1 | chr1 | 66876501 | 66876600 | CGATCTCTGC | 979 | + | 6 | 2.53E-05 |
| GRB10 | chr7 | 50762878 | 50763076 | CCAGCTCATC | 494 | + | 56 | 2.69E-05 |
| ABCC8 | chr11 | 17454469 | 17454667 | CCAGCTCATC | 244 | - | 56 | 2.69E-05 |
| CRYM | chr16 | 21216224 | 21216422 | CAAGCTCTGC | 392 | - | 56 | 2.85E-05 |
| RIPK4 | chr21 | 42034359 | 42034557 | CGAGCACTGC | 944 | - | 56 | 3.11E-05 |
| C20orf79 | chr20 | 18757337 | 18757535 | CGAGCTCTAC | 370 | - | 56 | 3.11E-05 |
| CAPN13 | chr2 | 30798646 | 30798839 | CGAGCACTGC | 1330 | + | 68 | 3.11E-05 |
| MELK | chr9 | 36557023 | 36557221 | CGAGCTCTAC | 606 | + | 56 | 3.11E-05 |
| PEX26 | chr22 | 16925717 | 16925915 | CGAGCACTGC | 942 | - | 46 | 3.11E-05 |
| SMOC2 | chr6 | 168663493 | 168663691 | CAATCTCTTC | 1009 | + | 71 | 3.11E-05 |
| ANKRD13A | chr12 | 108960564 | 108960762 | CGGGCTCTTC | 726 | - | 56 | 3.28E-05 |
| NRG1 | chr8 | 31844207 | 31844404 | CGAGCTCTTT | 1218 | + | 55 | 3.28E-05 |
| RPGRIP1 | chr14 | 20872628 | 20872826 | CGAGCTCTTT | 1143 | + | 66 | 3.28E-05 |
| RGS6 | chr14 | 72117089 | 72117287 | CGGGCTCTTC | 679 | + | 57 | 3.28E-05 |
| ATOH8 | chr2 | 85841452 | 85841650 | CGAGCTCTTT | 1467 | + | 56 | 3.28E-05 |
| CFDP1 | chr16 | 74025746 | 74025944 | CGAGCTCTTT | 555 | + | 56 | 3.28E-05 |
| ZMIZ2 | chr7 | 44755503 | 44755701 | CGATCACTTC | 514 | + | 65 | 3.51E-05 |
| MPHOSPH6 | chr16 | 80753450 | 80753648 | GGAGCCCTTC | 676 | - | 56 | 3.51E-05 |
| GRB10 | chr7 | 50654546 | 50654744 | GGAGCCCTTC | 103 | + | 56 | 3.51E-05 |
| CRTC3 | chr15 | 88873615 | 88873813 | CCAGCCCTGC | 633 | - | 56 | 3.51E-05 |
| FGD1 | chrX | 54526484 | 54526682 | CCAGCCCTGC | 109 | + | 90 | 3.51E-05 |
| PNPLA7 | chr9 | 139479947 | 139480145 | CGAACCTTC | 922 | + | 56 | 3.60E-05 |
| SGCZ | chr8 | 14978297 | 14978495 | CCATCCCTTC | 4 | + | 56 | 4.07E-05 |
| LOC375449 | chr5 | 66048493 | 66048691 | CCAGCGCTTC | 1221 | + | 56 | 4.07E-05 |
| MOSC1 | chr1 | 219046020 | 219046218 | CAAGCACTTC | 425 | + | 56 | 4.07E-05 |
| SPOCK3 | chr4 | 167861593 | 167861791 | CAAGCACTTC | 1113 | + | 56 | 4.07E-05 |
| STK10 | chr5 | 171538532 | 171538725 | CCAGCGCTTC | 1177 | - | 53 | 4.07E-05 |
| AZIN1 | chr8 | 103978286 | 103978484 | GCAGCTCTTC | 63 | + | 56 | 4.07E-05 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|------------|------|---|----|----------|
| KCNMB2 | chr3 | 179755458 | 179755656 | CCAGCTCCTC | 875 | - | 56 | 4.49E-05 |
| ADCY5 | chr3 | 124633872 | 124634070 | CCAGCTGTTC | 1015 | + | 56 | 5.07E-05 |
| ARAF | chrX | 47311544 | 47311742 | CGAGCCCGTC | 479 | - | 57 | 5.07E-05 |
| C6orf145 | chr6 | 3730200 | 3730398 | CGAGCCCGTC | 934 | - | 56 | 5.07E-05 |
| VANGL1 | chr1 | 115990486 | 115990683 | CAAGCTCATC | 784 | + | 56 | 5.07E-05 |
| LAMA3 | chr18 | 19777958 | 19778134 | CAAGCTCTCC | 1336 | - | 45 | 5.07E-05 |
| USF2 | chr19 | 40454658 | 40454857 | CGAGGCCTTC | 472 | - | 56 | 5.59E-05 |
| SGK2 | chr20 | 41647830 | 41648028 | CTATCTCTTC | 802 | + | 56 | 5.59E-05 |
| MAGEC3 | chrX | 140731163 | 140731361 | CTATCTCTTC | 1238 | + | 7 | 5.59E-05 |
| LOC441956 | chr21 | 13999062 | 13999260 | CGAGGCCTTC | 879 | + | 20 | 5.59E-05 |
| PDSS2 | chr6 | 107677661 | 107677859 | CTATCTCTTC | 737 | - | 56 | 5.59E-05 |
| POLS | chr5 | 6815541 | 6815640 | CGAGGCCTTC | 1191 | + | 7 | 5.59E-05 |
| CNTNAP5 | chr2 | 125056122 | 125056320 | CGAGGCCTTC | 267 | - | 56 | 5.59E-05 |
| COX6A1 | chr12 | 119351765 | 119351963 | CTATCTCTTC | 1446 | + | 56 | 5.59E-05 |
| TRPM1 | chr15 | 29191156 | 29191354 | CGAGATCTTC | 694 | - | 56 | 5.59E-05 |
| HIBADH | chr7 | 27580367 | 27580565 | CTATCTCTTC | 869 | - | 11 | 5.59E-05 |
| SH3RF2 | chr5 | 145298568 | 145298765 | CGTGCCCTTC | 1492 | - | 51 | 5.59E-05 |
| KCNC1 | chr11 | 17733532 | 17733730 | TGAGCCCTTC | 26 | - | 56 | 5.90E-05 |
| NECAP2 | chr1 | 16640636 | 16640834 | CGAGCACTCC | 1304 | - | 56 | 5.90E-05 |
| FLJ46300 | chr10 | 133431892 | 133432087 | CCAGCTCGTC | 1176 | + | 54 | 5.90E-05 |
| LOC283331 | chr12 | 48470680 | 48470878 | CCAGCTCGTC | 558 | + | 58 | 5.90E-05 |
| HNT | chr11 | 131136881 | 131137079 | CGCGCTCTTC | 901 | - | 51 | 6.43E-05 |
| RABGAP1L | chr1 | 172348176 | 172348374 | CCACCTCTTC | 470 | + | 57 | 6.43E-05 |
| CDK10 | chr16 | 88289529 | 88289727 | CCAGGTCTTC | 457 | + | 56 | 6.43E-05 |
| SGK2 | chr20 | 41647830 | 41648028 | GGAGCTCTGC | 801 | + | 56 | 6.43E-05 |
| FBXL16 | chr16 | 693546 | 693744 | GGAGCTCTGC | 334 | - | 53 | 6.43E-05 |
| PEX26 | chr22 | 16925717 | 16925915 | CGAGCGCTGC | 943 | - | 56 | 6.43E-05 |
| SH3RF2 | chr5 | 145298568 | 145298765 | GGAGCTCTGC | 1493 | + | 56 | 6.43E-05 |
| IPMK | chr10 | 59589954 | 59590152 | CCACCTCTTC | 780 | + | 59 | 6.43E-05 |
| TNPO2 | chr19 | 12675577 | 12675679 | GGAGCTCTGC | 690 | + | 8 | 6.43E-05 |
| TADA2L | chr17 | 32874886 | 32875084 | GGAGCTCTGC | 647 | - | 56 | 6.43E-05 |
| C1orf198 | chr1 | 229074319 | 229074419 | GGAGCTCTGC | 988 | + | 56 | 6.43E-05 |
| WBSCR28 | chr7 | 72939564 | 72939762 | CCAGCCCATC | 79 | - | 56 | 6.75E-05 |
| DOCK5 | chr8 | 25221675 | 25221873 | CCAGCCCATC | 118 | + | 61 | 6.75E-05 |
| LTBP3 | chr11 | 65079852 | 65080050 | CCAGCCCATC | 220 | + | 61 | 6.75E-05 |
| SGK2 | chr20 | 41647830 | 41648028 | CCAGCCCATC | 804 | + | 61 | 6.75E-05 |
| MGC39900 | chrX | 103103090 | 103103288 | CGAACTCTGC | 122 | + | 56 | 6.75E-05 |
| NTN1 | chr17 | 9062693 | 9062891 | TCAGCTCTTC | 108 | - | 56 | 6.75E-05 |
| MGAT5B | chr17 | 72441387 | 72441587 | CCAGCCCTCC | 211 | - | 55 | 6.75E-05 |
| GATA6 | chr18 | 18003023 | 18003221 | CGAACTCTGC | 1133 | - | 56 | 6.75E-05 |
| CAMK2D | chr4 | 114680006 | 114680204 | CAAGCCCTGC | 1257 | - | 56 | 7.24E-05 |
| PTPRM | chr18 | 8212425 | 8212623 | GGATCTCTTC | 1135 | + | 56 | 7.24E-05 |
| C20orf133 | chr20 | 14728191 | 14728389 | GGATCTCTTC | 459 | + | 56 | 7.24E-05 |
| FLJ90680 | chr22 | 35561944 | 35562142 | CTAGCACTTC | 144 | + | 8 | 7.24E-05 |
| LOC387882 | chr12 | 104269604 | 104269802 | CGAGCTATTC | 69 | - | 56 | 7.91E-05 |
| ZFPM1 | chr16 | 87039465 | 87039663 | CGAGCTGTGC | 495 | - | 56 | 7.91E-05 |
| SH3BP2 | chr4 | 2785563 | 2785761 | CGAGCTGTGC | 581 | + | 56 | 7.91E-05 |
| KIAA0350 | chr16 | 11056570 | 11056768 | GAAGCTCTTC | 524 | - | 56 | 7.91E-05 |
| CD24 | chrY | 19593375 | 19593573 | CAATCCCTTC | 1235 | + | 61 | 7.91E-05 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|--------------|-------|-----------|-----------|-------------|------|---|----|----------|
| CNTNAP4 | chr16 | 75137461 | 75137659 | CAATCCCTTC | 632 | - | 51 | 7.91E-05 |
| KIF6 | chr6 | 39516926 | 39517124 | GAAGCTCTTC | 714 | + | 57 | 7.91E-05 |
| OSBPL2 | chr20 | 60252925 | 60253123 | CAAGCGCTTC | 945 | - | 56 | 7.91E-05 |
| ENPP3 | chr6 | 132023401 | 132023599 | AGAGCTCTGC | 600 | - | 56 | 8.25E-05 |
| FLNC | chr7 | 128276698 | 128276896 | AGAGCTCTGC | 1099 | + | 56 | 8.25E-05 |
| FLJ22374 | chr7 | 30773296 | 30773494 | CAAACCTTC | 315 | - | 87 | 8.25E-05 |
| FRMD6 | chr14 | 51041258 | 51041456 | CAAACCTTC | 825 | - | 56 | 8.25E-05 |
| C7orf26 | chr7 | 6610718 | 6610916 | AGAGCTCTGC | 195 | - | 56 | 8.25E-05 |
| GCNT4 | chr5 | 74390729 | 74390927 | CCAGCTCTAC | 1014 | - | 56 | 9.00E-05 |
| SLC25A32 | chr8 | 104482875 | 104483073 | CGAGCTCTTA | 797 | + | 56 | 9.00E-05 |
| LPA | chr6 | 160899610 | 160899808 | CCAGCTCTAC | 756 | + | 56 | 9.00E-05 |
| LAS1L | chrX | 64668964 | 64669162 | CTAGCTCATC | 453 | - | 56 | 9.00E-05 |
| R3HDM1 | chr2 | 136083759 | 136083957 | GGAGCACTTC | 1124 | - | 56 | 9.00E-05 |
| COL23A1 | chr5 | 177629509 | 177629707 | CTAGCTCTCC | 135 | + | 57 | 9.00E-05 |
| GTF2A1 | chr14 | 80706295 | 80706493 | GGAGCACTTC | 897 | + | 56 | 9.00E-05 |
| ADAMTS14 | chr10 | 72144985 | 72145183 | CGATCTGTTT | 75 | - | 56 | 9.00E-05 |
| CXorf48 | chrX | 134127561 | 134127759 | CGAACACTTC | 567 | + | 56 | 9.59E-05 |
| PRPF38B | chr1 | 109036947 | 109037145 | CGTGCTCTGC | 1394 | + | 56 | 9.59E-05 |
| IHPK3 | chr6 | 33797838 | 33798036 | AGATCTCTTC | 575 | + | 58 | 9.59E-05 |
| TREM1 | chr6 | 41361616 | 41361814 | CCAGCTCTTT | 617 | - | 88 | 9.59E-05 |
| WNT11 | chr11 | 75562562 | 75562760 | CCAGCTCTTT | 488 | + | 61 | 9.59E-05 |
| AMIGO1 | chr1 | 109866945 | 109867143 | AGATCTCTTC | 81 | - | 56 | 9.59E-05 |
| DKFZp761B107 | chr4 | 24510458 | 24510656 | CGAGGCTCTGC | 993 | + | 56 | 9.59E-05 |
| KCNT1 | chr9 | 137750017 | 137750215 | TGAGCTCTGC | 147 | + | 59 | 1.02E-04 |
| CACNG1 | chr17 | 62480986 | 62481184 | TGAGCTCTGC | 773 | - | 56 | 1.02E-04 |
| FBN2 | chr5 | 127931609 | 127931807 | TGAGCTCTGC | 158 | + | 56 | 1.02E-04 |
| IRF5 | chr7 | 128329792 | 128329990 | TGAGCTCTGC | 262 | + | 56 | 1.02E-04 |
| PITPNM2 | chr12 | 122078699 | 122078897 | CGAGCCCAGC | 51 | + | 56 | 1.02E-04 |
| CPE | chr4 | 166657142 | 166657340 | CGTTCTCTTC | 155 | + | 61 | 1.05E-04 |
| CACNA1S | chr1 | 199309149 | 199309347 | AAAGCTCTTC | 1160 | - | 56 | 1.05E-04 |
| SOX12 | chr20 | 256123 | 256321 | CCAACCTTC | 1269 | - | 56 | 1.05E-04 |
| DAG1 | chr3 | 49479525 | 49479723 | CAAGCTCGTC | 1120 | - | 56 | 1.14E-04 |
| ENTHD1 | chr22 | 38564548 | 38564647 | CGAGCAGTTC | 1404 | + | 6 | 1.14E-04 |
| C10orf92 | chr10 | 134555080 | 134555278 | GGAGCTCTCC | 485 | + | 56 | 1.14E-04 |
| KCNMB2 | chr3 | 179755458 | 179755656 | CGAGCGCTCC | 872 | + | 56 | 1.14E-04 |
| COL23A1 | chr5 | 177629509 | 177629707 | CGATCCCATC | 134 | + | 61 | 1.14E-04 |
| ADAMTSL3 | chr15 | 82414925 | 82415123 | GGAGCTCTCC | 278 | + | 57 | 1.14E-04 |
| COMMD8 | chr4 | 47157454 | 47157652 | CCAGCTCAGC | 198 | + | 71 | 1.14E-04 |
| SCOC | chr4 | 141500364 | 141500562 | CATGCTCTTC | 621 | + | 61 | 1.21E-04 |
| KIAA1984 | chr9 | 138810309 | 138810507 | CGAACTCATC | 225 | - | 51 | 1.21E-04 |
| ZNF596 | chr8 | 230055 | 230253 | CGAGCCTTTC | 867 | - | 56 | 1.21E-04 |
| C9orf93 | chr9 | 15542821 | 15543019 | AGAGCACTTC | 376 | + | 56 | 1.21E-04 |
| NLGN4Y | chrY | 15203407 | 15203605 | CAACCTCTTC | 565 | - | 56 | 1.21E-04 |
| ROR2 | chr9 | 93588928 | 93589126 | CAACCTCTTC | 799 | - | 56 | 1.21E-04 |
| PHC2 | chr1 | 33617793 | 33617991 | CGAGCAGGTC | 908 | + | 56 | 1.28E-04 |
| AARSL | chr6 | 44403597 | 44403795 | CAAGCCCTCC | 710 | - | 55 | 1.28E-04 |
| RPL39L | chr3 | 188366387 | 188366585 | CCATCTCATC | 368 | - | 38 | 1.28E-04 |
| GSG1 | chr12 | 13171584 | 13171782 | CCATCTCATC | 85 | + | 61 | 1.28E-04 |
| PAX5 | chr9 | 36956257 | 36956455 | CAAGCCCTCC | 1096 | + | 56 | 1.28E-04 |
| SOX8 | chr16 | 972096 | 972199 | CGAGTCCCC | 1479 | + | 13 | 1.28E-04 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|------------|------|---|----|----------|
| CDC42EP1 | chr22 | 36287988 | 36288186 | CAAGCCCTCC | 1263 | + | 57 | 1.28E-04 |
| CXCL14 | chr5 | 134942864 | 134943062 | CCAGCTTTTC | 738 | + | 56 | 1.36E-04 |
| ZP1 | chr11 | 60397320 | 60397518 | CGAGACCTTC | 1292 | + | 56 | 1.36E-04 |
| RAB6B | chr3 | 135073303 | 135073501 | CAATCTCTGC | 1260 | - | 56 | 1.36E-04 |
| MGC39715 | chr8 | 101699482 | 101699680 | CAATCTCTGC | 864 | - | 46 | 1.36E-04 |
| WNK2 | chr9 | 95120125 | 95120323 | CCAGCTTTTC | 824 | + | 56 | 1.36E-04 |
| LMO2 | chr11 | 33871830 | 33872028 | CGGGCTCTGC | 18 | + | 56 | 1.42E-04 |
| ZNF579 | chr19 | 60752902 | 60753100 | TGAGCACTTC | 1034 | + | 56 | 1.42E-04 |
| CALN1 | chr7 | 71438617 | 71438815 | CCAGCCCGTC | 1248 | + | 89 | 1.42E-04 |
| CDH10 | chr5 | 24526612 | 24526810 | TGAGCACTTC | 462 | - | 56 | 1.42E-04 |
| KCNK12 | chr2 | 47600744 | 47600843 | GGAGCCCTGC | 1458 | - | 52 | 1.52E-04 |
| ERC2 | chr3 | 55741886 | 55742084 | AGAGCTCATC | 493 | - | 56 | 1.52E-04 |
| FZD6 | chr8 | 104423178 | 104423376 | CTAGCTCCTC | 816 | + | 56 | 1.52E-04 |
| LPP | chr3 | 189906582 | 189906780 | AGAGCTCATC | 1080 | - | 51 | 1.52E-04 |
| LRRC18 | chr10 | 49816925 | 49817123 | CGAGTTCTTC | 340 | + | 56 | 1.52E-04 |
| MAML3 | chr4 | 141268529 | 141268727 | CCAGCACATC | 90 | + | 61 | 1.57E-04 |
| KHDRBS2 | chr6 | 62424487 | 62424685 | CCAGCACATC | 545 | + | 78 | 1.57E-04 |
| INPP5A | chr10 | 134301708 | 134301906 | CCAGCACATC | 222 | - | 56 | 1.57E-04 |
| TRPC5 | chrX | 111133352 | 111133550 | CCAGCACTCC | 917 | - | 56 | 1.57E-04 |
| COX6A1 | chr12 | 119351765 | 119351963 | CGTGCTCATC | 1447 | - | 51 | 1.70E-04 |
| C18orf1 | chr18 | 13167392 | 13167590 | CGAGCCCGGC | 304 | - | 56 | 1.70E-04 |
| ENG | chr9 | 129643177 | 129643375 | CGACCTCATC | 1001 | - | 56 | 1.70E-04 |
| SDC2 | chr8 | 97618019 | 97618217 | CAAGCTCTAC | 609 | - | 56 | 1.70E-04 |
| CACNA2D1 | chr7 | 81859671 | 81859869 | GGAActTTC | 344 | - | 56 | 1.78E-04 |
| ACCN1 | chr17 | 29327612 | 29327810 | TGAGCTCATC | 994 | + | 56 | 1.78E-04 |
| PDE7B | chr6 | 136171797 | 136171995 | CCAActTGC | 1105 | - | 56 | 1.78E-04 |
| ADCY3 | chr2 | 24940022 | 24940220 | GGAActTTC | 854 | + | 56 | 1.78E-04 |
| PACRG | chr6 | 163522903 | 163523101 | CAACTACTTC | 736 | + | 56 | 1.88E-04 |
| SDK1 | chr7 | 3688535 | 3688733 | CGAGCGCCTC | 119 | - | 56 | 1.88E-04 |
| ITPK1 | chr14 | 92504866 | 92505064 | CTAGCTCGTC | 475 | + | 56 | 1.88E-04 |
| PRDM16 | chr1 | 3300634 | 3300832 | CGAGCGCCTC | 183 | - | 56 | 1.88E-04 |
| C20orf133 | chr20 | 14728191 | 14728389 | CGAGCACTAC | 460 | + | 56 | 1.88E-04 |
| MYO3B | chr2 | 171071886 | 171072084 | CCATCGCTTC | 251 | + | 56 | 1.88E-04 |
| EDN1 | chr6 | 12389189 | 12389387 | CTAGGTCTTC | 112 | + | 56 | 1.97E-04 |
| FALZ | chr17 | 63257534 | 63257732 | AGAGCCCTGC | 771 | + | 77 | 1.97E-04 |
| SRC | chr20 | 35452548 | 35452655 | CCAGCTCACC | 1361 | - | 78 | 1.97E-04 |
| UST | chr6 | 149399890 | 149400088 | CTAGGTCTTC | 928 | + | 56 | 1.97E-04 |
| NIBP | chr8 | 141187092 | 141187290 | CTTGCTCTTC | 521 | - | 56 | 1.97E-04 |
| MRPL23 | chr11 | 1931765 | 1931963 | CGGGCACTTC | 683 | + | 9 | 1.97E-04 |
| KIAA0350 | chr16 | 11185881 | 11186013 | TTAGCTCTTC | 1500 | - | 89 | 2.08E-04 |
| FLJ90680 | chr22 | 35561944 | 35562142 | CCAGCCCTAC | 143 | - | 56 | 2.08E-04 |
| CCDC51 | chr3 | 48445770 | 48445963 | CGAGCCCGGC | 1329 | - | 53 | 2.08E-04 |
| ZMIZ2 | chr7 | 44755503 | 44755701 | GGAGCTGTTC | 518 | + | 56 | 2.08E-04 |
| EPHA7 | chr6 | 94042552 | 94042750 | CGAGCCCTTA | 616 | + | 56 | 2.08E-04 |
| MYO3B | chr2 | 171071886 | 171072084 | CTAGCCCTCC | 252 | + | 56 | 2.08E-04 |
| SLC25A32 | chr8 | 104482875 | 104483073 | CGAGCGGTTC | 795 | - | 56 | 2.08E-04 |
| ENPP3 | chr6 | 132023401 | 132023599 | GGAGCTGTTC | 598 | + | 56 | 2.08E-04 |
| TBC1D22A | chr22 | 45835462 | 45835660 | CGAGCGGTTC | 433 | - | 56 | 2.08E-04 |
| NANP | chr20 | 25558051 | 25558249 | TTAGCTCTTC | 1072 | + | 56 | 2.08E-04 |
| RAB6B | chr3 | 135073303 | 135073501 | CCAGCCCTAC | 1258 | - | 56 | 2.08E-04 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|----------|-------|-----------|-----------|------------|------|---|----|----------|
| IKBKE | chr1 | 204709963 | 204710161 | CTATCTCTGC | 1449 | + | 56 | 2.18E-04 |
| APC | chr5 | 112173568 | 112173766 | CGATCTTTTC | 564 | - | 44 | 2.18E-04 |
| CHRN3 | chr8 | 42629366 | 42629564 | CCGGCCCTTC | 752 | - | 56 | 2.18E-04 |
| CHRNA3 | chr15 | 76699199 | 76699397 | CGAGGCCTGC | 775 | - | 84 | 2.18E-04 |
| MAGI1 | chr3 | 65516663 | 65516861 | CAATCTCTCC | 512 | - | 56 | 2.30E-04 |
| NR4A1 | chr12 | 50717697 | 50717895 | GGAGCTCGTC | 779 | + | 58 | 2.30E-04 |
| PSMF1 | chr20 | 1047369 | 1047567 | CGAGCGCGTC | 285 | - | 56 | 2.30E-04 |
| TASP1 | chr20 | 13312254 | 13312452 | CCAGCTCGGC | 256 | + | 56 | 2.30E-04 |
| GSTA4 | chr6 | 52920667 | 52920865 | CGAGCGCGTC | 98 | - | 56 | 2.30E-04 |
| TCERG1 | chr5 | 145867978 | 145868176 | CCATCTGTTC | 1424 | + | 6 | 2.30E-04 |
| FAM60A | chr12 | 31346229 | 31346427 | CAATCTCATC | 358 | + | 61 | 2.30E-04 |
| PDK2 | chr17 | 45531380 | 45531578 | CCAACACTTC | 954 | + | 56 | 2.49E-04 |
| SLC25A32 | chr8 | 104482875 | 104483073 | CGATGCCTTC | 796 | - | 56 | 2.49E-04 |
| PRKG1 | chr10 | 52504484 | 52504600 | CGCGCTCTGC | 745 | - | 50 | 2.49E-04 |
| ATP2B2 | chr3 | 10485850 | 10486048 | TCAGCTCTGC | 248 | + | 56 | 2.60E-04 |
| FASTK | chr7 | 150406244 | 150406442 | CGAAGTCTTC | 380 | - | 36 | 2.60E-04 |
| HNT | chr11 | 131713221 | 131713419 | GGAGCCCTCC | 1291 | + | 56 | 2.60E-04 |
| WNT10B | chr12 | 47651609 | 47651807 | CGACTACTCC | 1047 | - | 46 | 2.60E-04 |
| CAMTA1 | chr1 | 7493679 | 7493877 | CGAGCATTTC | 652 | + | 56 | 2.76E-04 |
| APC | chr5 | 112117665 | 112117862 | CAAGGCCTTC | 1386 | + | 17 | 2.76E-04 |
| FLJ45187 | chr10 | 21853611 | 21853770 | CCTTCTCTTC | 913 | - | 61 | 2.76E-04 |
| C6orf145 | chr6 | 3730200 | 3730398 | CTAGCTCTAC | 933 | - | 56 | 2.76E-04 |
| TMEM105 | chr17 | 76951897 | 76952095 | CTAGCACTGC | 891 | + | 56 | 2.76E-04 |
| LOH12CR1 | chr12 | 12402728 | 12402926 | CGAGCATTTC | 543 | + | 56 | 2.76E-04 |
| C18orf1 | chr18 | 13167392 | 13167590 | CAACCCCTTC | 302 | + | 56 | 2.76E-04 |
| KIAA1324 | chr1 | 109454239 | 109454437 | CGCTCTCTTC | 530 | + | 56 | 2.76E-04 |
| CHSY1 | chr15 | 99505756 | 99505954 | CTAGCACTGC | 335 | - | 56 | 2.76E-04 |
| OBSCN | chr1 | 226569092 | 226569290 | TGAGCTCCTC | 179 | + | 58 | 2.89E-04 |
| HOXC9 | chr12 | 52684889 | 52685087 | CCAGCGCTCC | 30 | - | 56 | 2.89E-04 |
| SHKBP1 | chr19 | 45774933 | 45775131 | CCATCCCTCC | 1383 | - | 81 | 2.89E-04 |
| FLJ23356 | chr8 | 43115184 | 43115381 | CGAGCCCCCC | 1059 | - | 55 | 2.89E-04 |
| CA8 | chr8 | 61267996 | 61268194 | CTAGCTCTTT | 1245 | + | 56 | 2.89E-04 |
| HOXD13 | chr2 | 176657912 | 176658109 | CTAGCTCTTT | 1169 | - | 55 | 2.89E-04 |
| VLDLR | chr9 | 2634788 | 2634986 | CTAGCTCTTT | 925 | + | 62 | 2.89E-04 |
| ITGB1BP1 | chr2 | 9473573 | 9473771 | CCATCCCATC | 503 | + | 61 | 2.89E-04 |
| HECW1 | chr7 | 43385428 | 43385626 | CCATCCCATC | 474 | + | 61 | 2.89E-04 |
| PLD1 | chr3 | 172789872 | 172790070 | CCATCCCATC | 8 | + | 61 | 2.89E-04 |
| TSPAN9 | chr12 | 3065071 | 3065269 | CCAACTCATC | 339 | - | 56 | 3.04E-04 |
| TRIM24 | chr7 | 137772960 | 137773059 | CGAGGTGTTC | 1428 | + | 6 | 3.04E-04 |
| EN2 | chr7 | 154896121 | 154896319 | CGTGCTGTTC | 139 | - | 56 | 3.04E-04 |
| POLS | chr5 | 6815541 | 6815640 | CGAGAACTTC | 1190 | + | 6 | 3.04E-04 |
| ADAM22 | chr7 | 87576277 | 87576376 | CGAGGTGTTC | 1222 | - | 56 | 3.04E-04 |
| LASS3 | chr15 | 98792103 | 98792202 | CGTGCTGTTC | 692 | + | 10 | 3.04E-04 |
| EMCN | chr4 | 101589972 | 101590170 | CGACCTGTTC | 984 | - | 56 | 3.04E-04 |
| APC | chr5 | 112117665 | 112117862 | CGAGAACTTC | 1385 | + | 56 | 3.04E-04 |
| THEX1 | chr8 | 8936197 | 8936395 | CACGCTCTTC | 611 | + | 56 | 3.04E-04 |
| RAB6B | chr3 | 135073303 | 135073501 | CCAGCACGTC | 1259 | - | 56 | 3.14E-04 |
| LEMD1 | chr1 | 203661117 | 203661316 | TGAGCTGTTC | 463 | + | 56 | 3.14E-04 |
| SIX2 | chr2 | 45091144 | 45091342 | CGAGCCGATC | 1033 | - | 51 | 3.14E-04 |
| ZIC3 | chrX | 136455913 | 136456111 | CCAGCACGTC | 998 | - | 31 | 3.14E-04 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|------------|------|---|----|----------|
| GNA13 | chr17 | 60491524 | 60491722 | CGATCCCTAC | 254 | - | 51 | 3.35E-04 |
| UBE2E2 | chr3 | 23290838 | 23291036 | CTAGCTCAGC | 1121 | + | 56 | 3.35E-04 |
| FBXW11 | chr5 | 171193819 | 171194017 | CCAGCTCTGT | 1251 | + | 48 | 3.51E-04 |
| PDE1C | chr7 | 31771253 | 31771451 | CGACGTCTTC | 1462 | - | 56 | 3.51E-04 |
| NRP1 | chr10 | 33663297 | 33663495 | GGGGCTCTTC | 684 | - | 55 | 3.51E-04 |
| SOX12 | chr20 | 256123 | 256321 | GGGGCTCTTC | 1266 | - | 56 | 3.51E-04 |
| CACNA1S | chr1 | 199309149 | 199309347 | GGGGCTCTTC | 1161 | - | 56 | 3.51E-04 |
| SUPT3H | chr6 | 45003188 | 45003386 | CGAGGCCATC | 532 | - | 51 | 3.78E-04 |
| C18orf1 | chr18 | 13414687 | 13414885 | CCATCACTGC | 1469 | - | 46 | 3.78E-04 |
| KCNMA1 | chr10 | 78675048 | 78675246 | ACAGCTCTCC | 31 | + | 73 | 3.78E-04 |
| LOC284274 | chr18 | 71231684 | 71231882 | TGAGGTCTTC | 409 | - | 56 | 3.78E-04 |
| DNAJC6 | chr1 | 65623911 | 65624109 | CAAGCCCTAC | 271 | + | 56 | 3.78E-04 |
| GYG2 | chrX | 2760220 | 2760418 | CCAACCCTGC | 919 | - | 56 | 3.92E-04 |
| SETD3 | chr14 | 98897684 | 98897784 | CTAGCTTTTC | 733 | + | 87 | 3.92E-04 |
| INSIG1 | chr7 | 154734848 | 154735046 | TGAGCCCTCC | 260 | - | 55 | 3.92E-04 |
| BAT1 | chr6 | 31617611 | 31617808 | CGCGCTCTCC | 911 | - | 54 | 4.12E-04 |
| TEKT4 | chr2 | 94915104 | 94915302 | CGAGCAATTC | 1030 | + | 56 | 4.12E-04 |
| LRP8 | chr1 | 53514852 | 53515051 | CCAGCCCGGC | 323 | - | 20 | 4.12E-04 |
| SAMD13 | chr1 | 84537615 | 84537813 | CAAACACTTC | 973 | - | 56 | 4.31E-04 |
| PAX5 | chr9 | 37018149 | 37018281 | CTAGATCTTC | 1351 | + | 88 | 4.31E-04 |
| RPP25 | chr15 | 73036356 | 73036554 | CTAGCACATC | 141 | + | 56 | 4.52E-04 |
| KCNK10 | chr14 | 87831997 | 87832194 | CCATCCCTC | 976 | + | 55 | 4.52E-04 |
| KIAA1199 | chr15 | 78866319 | 78866517 | CCAGCCATTC | 1284 | + | 75 | 4.52E-04 |
| OPN5 | chr6 | 47925808 | 47926006 | AGAGCTCTTT | 1487 | - | 56 | 4.52E-04 |
| PCBP4 | chr3 | 51976109 | 51976307 | CCAGCGCTC | 719 | + | 56 | 4.52E-04 |
| WDR42B | chrX | 27927025 | 27927223 | CGTGCACTGC | 72 | + | 56 | 4.73E-04 |
| SLC23A2 | chr20 | 4824439 | 4824637 | CCAACTCCTC | 187 | - | 76 | 4.73E-04 |
| C9orf23 | chr9 | 34594735 | 34594933 | CCAGCACTTT | 693 | - | 56 | 4.73E-04 |
| KIDINS220 | chr2 | 8839040 | 8839238 | CAATGTCTTC | 1433 | + | 56 | 4.73E-04 |
| ARL16 | chr17 | 77261288 | 77261411 | CGGGGTCTTC | 1355 | - | 54 | 4.99E-04 |
| PGM1 | chr1 | 63832102 | 63832300 | CCAGCCCGGC | 907 | - | 20 | 4.99E-04 |
| TSPAN15 | chr10 | 70909302 | 70909500 | CAATCCCATC | 967 | - | 56 | 4.99E-04 |
| FZD6 | chr8 | 104423178 | 104423376 | CGACCTCTTT | 817 | - | 56 | 4.99E-04 |
| POU3F4 | chrX | 82631297 | 82631495 | CGGGGTCTTC | 452 | - | 56 | 4.99E-04 |
| XPO4 | chr13 | 20374293 | 20374491 | CAATCCCTCC | 208 | + | 57 | 4.99E-04 |
| KIAA0020 | chr9 | 2807888 | 2807991 | CAAACATC | 977 | + | 23 | 5.28E-04 |
| DDB1 | chr11 | 60834222 | 60834419 | TGAGCTCTTT | 1472 | - | 55 | 5.28E-04 |
| MRPL23 | chr11 | 1931765 | 1931963 | CAAACATC | 682 | - | 51 | 5.28E-04 |
| B4GALT1 | chr9 | 33191015 | 33191213 | ACATCCCTTC | 42 | - | 56 | 5.28E-04 |
| HCN2 | chr19 | 550732 | 550930 | GGACCCCTTC | 371 | - | 56 | 5.28E-04 |
| SPARC | chr5 | 150986814 | 150987012 | CAAACATC | 646 | + | 56 | 5.28E-04 |
| C1orf21 | chr1 | 182752559 | 182752757 | TGAGCTCTTT | 640 | + | 56 | 5.28E-04 |
| NFKBIA | chr14 | 34936464 | 34936662 | CGAGCTCATA | 355 | - | 51 | 5.47E-04 |
| IPMK | chr10 | 59589954 | 59590152 | CCAGCTCAAC | 781 | - | 56 | 5.47E-04 |
| TRPC5 | chrX | 111133352 | 111133550 | CGATCTCTGT | 915 | + | 6 | 5.47E-04 |
| AARSL | chr6 | 44403597 | 44403795 | GGAGCACTCC | 711 | + | 56 | 5.47E-04 |
| DLGAP1 | chr18 | 3539547 | 3539745 | CATGCACTTC | 1136 | + | 56 | 5.83E-04 |
| CA8 | chr8 | 61267996 | 61268194 | TGAACCCTTC | 1246 | + | 56 | 5.83E-04 |
| CCR9 | chr3 | 45901753 | 45901951 | CTAGCTGTGC | 821 | - | 56 | 5.83E-04 |
| CSNK1E | chr22 | 37062373 | 37062570 | CGAGGCCCTC | 1060 | - | 50 | 5.83E-04 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|----------|-------|-----------|-----------|------------|------|---|----|----------|
| SAMD13 | chr1 | 84537615 | 84537813 | CAAGACCTTC | 974 | - | 56 | 5.83E-04 |
| YWHAE | chr17 | 1228022 | 1228220 | CCCGCTCTGC | 1280 | + | 64 | 5.83E-04 |
| UBE2R2 | chr9 | 33896944 | 33897142 | CGAGATCCTC | 235 | - | 55 | 5.83E-04 |
| TBC1D22A | chr22 | 45551427 | 45551527 | CGATTTCTTC | 1368 | + | 7 | 5.83E-04 |
| TMEM105 | chr17 | 76951897 | 76952095 | CGACCCCTC | 892 | - | 56 | 5.83E-04 |
| ST6GAL1 | chr3 | 188184262 | 188184398 | AGAGCTTTTC | 1476 | - | 86 | 6.04E-04 |
| C12orf12 | chr12 | 89871987 | 89872185 | CGAGCGCCGC | 167 | - | 56 | 6.35E-04 |
| ASB14 | chr3 | 57281520 | 57281718 | CTAGCTCTTA | 483 | - | 56 | 6.35E-04 |
| FUT8 | chr14 | 65320045 | 65320243 | CCAACCCATC | 701 | + | 61 | 6.35E-04 |
| COX6A1 | chr12 | 119351765 | 119351963 | CCATCGCTGC | 1448 | - | 56 | 6.35E-04 |
| BUB3 | chr10 | 124909946 | 124910144 | CGAGATGTTT | 834 | + | 56 | 6.35E-04 |
| SLC40A1 | chr2 | 190106914 | 190107111 | CGAGCTTGTC | 1312 | - | 54 | 6.35E-04 |
| AK5 | chr1 | 77643233 | 77643431 | TGATCTCTCC | 361 | - | 56 | 6.63E-04 |
| RFWD2 | chr1 | 174451258 | 174451456 | AGAGATCTTC | 84 | + | 56 | 6.63E-04 |
| ZFYVE26 | chr14 | 67322548 | 67322746 | CGAGGTTTTT | 742 | - | 56 | 6.63E-04 |
| HS6ST3 | chr13 | 95597824 | 95598022 | CGATCCCACC | 634 | - | 51 | 6.63E-04 |
| DNAJC6 | chr1 | 65623911 | 65624109 | CTAACACTTC | 270 | + | 56 | 6.63E-04 |
| KIAA1370 | chr15 | 50758054 | 50758252 | GGAGCTGTGC | 241 | - | 56 | 6.99E-04 |
| C18orf1 | chr18 | 13521537 | 13521735 | CAACCTCTCC | 206 | - | 55 | 6.99E-04 |
| TMEM63C | chr14 | 76721217 | 76721415 | CGACCCCGTC | 1141 | + | 56 | 6.99E-04 |
| ULK1 | chr12 | 130967702 | 130967897 | CGTGGCCTTC | 1062 | + | 86 | 7.28E-04 |
| GSTA4 | chr6 | 52920667 | 52920865 | CCGGCCCTGC | 95 | - | 56 | 7.28E-04 |
| OCA2 | chr15 | 25671375 | 25671573 | CGTGGCCTTC | 957 | - | 51 | 7.28E-04 |
| C20orf94 | chr20 | 10407444 | 10407642 | CCATCTCACC | 995 | - | 56 | 7.28E-04 |
| PTPRE | chr10 | 129601296 | 129601494 | CGATCACTTT | 602 | - | 46 | 7.28E-04 |
| WDR8 | chr1 | 3546472 | 3546670 | CGTGCACATC | 1167 | + | 56 | 7.76E-04 |
| CRKL | chr22 | 19630331 | 19630529 | CAATCTCAGC | 126 | + | 56 | 7.76E-04 |
| LTBP3 | chr11 | 65079852 | 65080050 | AGAACTCTGC | 217 | + | 35 | 7.76E-04 |
| SLC4A1 | chr17 | 39695144 | 39695342 | CCATCTGTGC | 166 | - | 56 | 7.76E-04 |
| HIPK2 | chr7 | 138943619 | 138943817 | CTATCCCATC | 819 | - | 44 | 7.76E-04 |
| KIAA0427 | chr18 | 44522464 | 44522662 | GGATCTGTTC | 549 | - | 56 | 7.76E-04 |
| ECE1 | chr1 | 21473582 | 21473780 | CTAGCAGTTC | 553 | + | 56 | 7.76E-04 |
| SLC30A9 | chr4 | 41738452 | 41738650 | GGATCTGTTC | 1413 | - | 56 | 7.76E-04 |
| MTDH | chr8 | 98704155 | 98704353 | CCAGTCCTTC | 865 | + | 57 | 7.76E-04 |
| NEURL | chr10 | 105296673 | 105296871 | TGAGGCCTTC | 842 | + | 48 | 7.76E-04 |
| CDC7 | chr1 | 91806329 | 91806527 | CAAGCACTTT | 233 | - | 8 | 8.14E-04 |
| NEDD4L | chr18 | 54147159 | 54147357 | CCGGCGCTTC | 354 | + | 56 | 8.14E-04 |
| RUTBC2 | chr22 | 23550369 | 23550567 | CCACCCATC | 1264 | + | 28 | 8.49E-04 |
| FLJ45187 | chr10 | 21853611 | 21853770 | CAATCCGTTC | 912 | - | 70 | 8.49E-04 |
| NR1I3 | chr1 | 159467756 | 159467954 | CCAGATCTCC | 160 | - | 56 | 8.49E-04 |
| TMSB10 | chr2 | 85016972 | 85017169 | CGATCACAGC | 1314 | - | 55 | 8.49E-04 |
| CAV3 | chr3 | 8732364 | 8732562 | CCGACTCTTC | 1488 | - | 56 | 8.49E-04 |
| ADAMTS14 | chr10 | 72144985 | 72145183 | CGAACACCTC | 74 | + | 56 | 8.87E-04 |
| NRSN1 | chr6 | 24188304 | 24188502 | AGAGCCCTAC | 1412 | - | 51 | 8.87E-04 |
| WDR64 | chr1 | 239929713 | 239929911 | CGATGGCTTC | 513 | - | 56 | 8.87E-04 |
| PCF11 | chr11 | 82517947 | 82518145 | TCAGCCCATC | 703 | + | 61 | 8.87E-04 |
| TMEM39B | chr1 | 32304936 | 32305134 | AGATCTCCTC | 1056 | - | 56 | 8.87E-04 |
| DRD3 | chr3 | 115311960 | 115312157 | CGGGCTTTTC | 1309 | - | 55 | 9.21E-04 |
| WWOX | chr16 | 76685249 | 76685348 | AAAACCTCTC | 1087 | - | 36 | 9.21E-04 |
| CLSTN2 | chr3 | 141229913 | 141230111 | CGGGCTTTTC | 936 | + | 56 | 9.21E-04 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|-------------|------|---|----|----------|
| SUPT3H | chr6 | 45003188 | 45003386 | CTAGCTCTGT | 533 | - | 56 | 9.21E-04 |
| MBNL1 | chr3 | 153457506 | 153457704 | CGAGCTTTTT | 1115 | + | 56 | 9.21E-04 |
| SYT9 | chr11 | 7393079 | 7393277 | CCAGCTCTTG | 540 | + | 56 | 9.70E-04 |
| PSMD14 | chr2 | 161971040 | 161971238 | AGAGCTCTTA | 1027 | - | 56 | 9.70E-04 |
| FLNC | chr7 | 128276698 | 128276896 | CCAGCTCTTG | 1100 | + | 56 | 9.70E-04 |
| CACNA2D1 | chr7 | 81859671 | 81859869 | CATCCCTTC | 341 | - | 51 | 9.70E-04 |
| STK10 | chr5 | 171544541 | 171544739 | GGAACTCATC | 292 | - | 56 | 9.70E-04 |
| SERPINB3 | chr18 | 59477414 | 59477612 | CAGGCTCATC | 889 | + | 58 | 9.70E-04 |
| KIAA1706 | chr7 | 36221217 | 36221415 | CGAGCCGAGC | 164 | + | 56 | 1.01E-03 |
| HSF2BP | chr21 | 43761463 | 43761661 | CGATCTGGTC | 369 | - | 54 | 1.01E-03 |
| CTNND2 | chr5 | 11979085 | 11979283 | CCTGCTCTAC | 1254 | - | 56 | 1.07E-03 |
| C7orf26 | chr7 | 6610718 | 6610916 | CGACCTCTTA | 194 | + | 56 | 1.07E-03 |
| ATXN7L2 | chr1 | 109834108 | 109834255 | CACTCTCTTC | 1344 | - | 55 | 1.07E-03 |
| NR1H2 | chr19 | 55572397 | 55572595 | CAAACCCTCC | 628 | - | 56 | 1.07E-03 |
| GRID1 | chr10 | 87991092 | 87991290 | ACAACCCTTC | 395 | - | 56 | 1.11E-03 |
| PDE1C | chr7 | 31771253 | 31771451 | CGATCCGATC | 1464 | + | 61 | 1.11E-03 |
| SLC8A1 | chr2 | 40236748 | 40236946 | GGAGCTCTGT | 1129 | - | 56 | 1.11E-03 |
| NEU3 | chr11 | 74407911 | 74408109 | ACAGCCCCTC | 727 | + | 56 | 1.17E-03 |
| GPR158 | chr10 | 25619503 | 25619701 | CGACCACCTC | 903 | - | 56 | 1.17E-03 |
| LOC284274 | chr18 | 71231684 | 71231882 | AGATCCCTCC | 407 | + | 67 | 1.17E-03 |
| ASPH | chr8 | 62758582 | 62758780 | CGGTCGCTTC | 1004 | + | 56 | 1.21E-03 |
| FOXP4 | chr6 | 41598419 | 41598617 | CCATCTGATC | 346 | + | 61 | 1.21E-03 |
| CCDC128 | chr2 | 48521650 | 48521848 | CGAGCGCGCC | 1032 | + | 56 | 1.21E-03 |
| LOC553158 | chr22 | 43520250 | 43520448 | CCATCTGTCC | 1017 | + | 65 | 1.21E-03 |
| ARPP-21 | chr3 | 35855974 | 35856170 | CGACCAGTTC | 1174 | + | 57 | 1.27E-03 |
| JARID2 | chr6 | 15323170 | 15323269 | CGAGGGCTCC | 253 | + | 6 | 1.27E-03 |
| BTBD14A | chr9 | 138143615 | 138143813 | CGACCGCTCC | 569 | - | 56 | 1.27E-03 |
| C1orf198 | chr1 | 229074319 | 229074419 | AGAGCACGTC | 987 | + | 58 | 1.27E-03 |
| ITGAL | chr16 | 30432385 | 30432583 | CAATCCCTAC | 490 | - | 37 | 1.27E-03 |
| MEA1 | chr6 | 43088150 | 43088348 | CGATATCTCC | 656 | + | 56 | 1.27E-03 |
| GLIS2 | chr16 | 4303834 | 4304032 | CGACCGCATC | 319 | - | 56 | 1.27E-03 |
| SHB | chr9 | 37983187 | 37983332 | CGTTCCCATC | 1345 | - | 24 | 1.27E-03 |
| PKNOX2 | chr11 | 124726677 | 124726870 | TGATCCCATC | 1473 | - | 8 | 1.32E-03 |
| ASPH | chr8 | 62758582 | 62758780 | CGTACTCATC | 1006 | + | 56 | 1.32E-03 |
| WDR4 | chr21 | 43112224 | 43112422 | CATGGTCTTC | 583 | + | 74 | 1.32E-03 |
| SCOC | chr4 | 141500364 | 141500562 | AGAGACCTTC | 619 | + | 56 | 1.32E-03 |
| FLJ35740 | chr9 | 38561067 | 38561265 | CCAGCACCCC | 12 | - | 42 | 1.32E-03 |
| SMC6 | chr2 | 17798306 | 17798504 | CGAAGTCTCC | 950 | + | 30 | 1.32E-03 |
| GRIK5 | chr19 | 47212588 | 47212786 | CGAAGTCATC | 1132 | - | 46 | 1.32E-03 |
| AP2A1 | chr19 | 54961775 | 54961915 | CGAACCCCGC | 1350 | + | 27 | 1.32E-03 |
| LRRC3 | chr21 | 44705894 | 44706092 | CGTGACGTC | 878 | - | 54 | 1.39E-03 |
| GNAL | chr18 | 11767702 | 11767900 | TGAACTCATC | 442 | + | 61 | 1.39E-03 |
| ICAM2 | chr17 | 59436346 | 59436544 | CCTTCTCATC | 1138 | + | 56 | 1.39E-03 |
| ADAMTS18 | chr16 | 75986539 | 75986733 | CAACCCCATC | 1326 | - | 36 | 1.39E-03 |
| VLDLR | chr9 | 2634788 | 2634986 | CCAGGTTTTTC | 926 | - | 30 | 1.45E-03 |
| C9orf23 | chr9 | 34601725 | 34601923 | GGATCCGTTTC | 117 | - | 56 | 1.52E-03 |
| ECE1 | chr1 | 21473582 | 21473780 | GCAGCCCTAC | 552 | - | 56 | 1.52E-03 |
| LMCD1 | chr3 | 8498906 | 8499104 | CAATCACCTC | 1016 | - | 31 | 1.52E-03 |
| LRP1B | chr2 | 141618367 | 141618565 | AGTGCTCATC | 499 | - | 54 | 1.58E-03 |
| ADD2 | chr2 | 70827325 | 70827523 | CCTGGCCTTC | 1031 | + | 70 | 1.58E-03 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|------------|------|---|----|----------|
| RHOJ | chr14 | 62760831 | 62761029 | CAAGCTGTTT | 505 | + | 10 | 1.58E-03 |
| LRRC62 | chr22 | 36120214 | 36120412 | GGAGGCCTGC | 1429 | + | 36 | 1.58E-03 |
| NYD-SP18 | chr7 | 128152200 | 128152398 | CAAGCACTTA | 400 | + | 73 | 1.64E-03 |
| KIDINS220 | chr2 | 8839040 | 8839238 | TCAGATCTTC | 1432 | - | 48 | 1.64E-03 |
| ITPK1 | chr14 | 92495897 | 92496095 | CGATCCCAAC | 787 | + | 66 | 1.64E-03 |
| ATRN | chr20 | 3490966 | 3491164 | TGATCTCTAC | 266 | + | 56 | 1.64E-03 |
| SURF4 | chr9 | 135231349 | 135231474 | CCATCGGTTC | 1187 | - | 42 | 1.64E-03 |
| GLB1 | chr3 | 33022928 | 33023126 | AGAACGCTTC | 1377 | + | 56 | 1.64E-03 |
| ARHGEF11 | chr1 | 155230127 | 155230325 | CCTGCACATC | 538 | + | 6 | 1.64E-03 |
| CBX3 | chr7 | 26208478 | 26208675 | CGACCCCGGC | 1307 | - | 45 | 1.72E-03 |
| IL28RA | chr1 | 24377351 | 24377549 | CTAGCTATGC | 744 | - | 56 | 1.72E-03 |
| CYP2R1 | chr11 | 14882363 | 14882561 | CTAGCCCTGT | 1051 | + | 70 | 1.79E-03 |
| FLJ21839 | chr2 | 27126350 | 27126548 | TGACCTCTCC | 229 | + | 56 | 1.79E-03 |
| POMC | chr2 | 25217560 | 25217759 | CGAGCCGGGC | 471 | + | 43 | 1.79E-03 |
| CTNNB1 | chr3 | 41260814 | 41261005 | GGCTCTCTTC | 1498 | - | 36 | 1.88E-03 |
| CSNK2A1 | chr20 | 472140 | 472338 | CGCGCTCCGC | 1026 | + | 58 | 1.88E-03 |
| C7orf26 | chr7 | 6610718 | 6610916 | CTAGTCCTTC | 193 | - | 56 | 1.88E-03 |
| BAT1 | chr6 | 31617611 | 31617808 | CATACCCTTC | 910 | + | 77 | 1.95E-03 |
| GLI2 | chr2 | 121506923 | 121507121 | TCAGCTCCGC | 387 | + | 41 | 1.95E-03 |
| USP25 | chr21 | 16065493 | 16065691 | AGATCTTTTC | 1067 | - | 24 | 1.95E-03 |
| MYO1E | chr15 | 57250613 | 57250712 | CGAAGTCCTC | 559 | - | 29 | 1.95E-03 |
| ISG15 | chr1 | 941397 | 941590 | CCACCTCACC | 1178 | + | 8 | 1.95E-03 |
| FLJ45964 | chr2 | 240151299 | 240151497 | CGGGCTGTCC | 351 | - | 55 | 2.04E-03 |
| ZIC2 | chr13 | 99476743 | 99476941 | GGAGGTGTTT | 830 | + | 56 | 2.04E-03 |
| GRK5 | chr10 | 121191304 | 121191502 | CGAGCTCTCG | 481 | - | 55 | 2.04E-03 |
| C10orf71 | chr10 | 50186732 | 50186930 | CGAGATCTTA | 729 | + | 56 | 2.04E-03 |
| NOVA2 | chr19 | 51171396 | 51171594 | CGAGCGATGC | 667 | - | 56 | 2.04E-03 |
| IKBKE | chr1 | 204709963 | 204710161 | GGAGCTATGC | 1451 | - | 56 | 2.04E-03 |
| PGM1 | chr1 | 63832102 | 63832300 | CTACCCCTCC | 906 | + | 57 | 2.04E-03 |
| SGIP1 | chr1 | 66876501 | 66876600 | GGAGCCCTGT | 980 | + | 7 | 2.12E-03 |
| PRKACG | chr9 | 70825079 | 70825182 | AGAGCTCTCT | 1440 | - | 6 | 2.12E-03 |
| MAPKAP1 | chr9 | 127204345 | 127204543 | GGATCTGTGC | 1243 | - | 56 | 2.21E-03 |
| FBLN1 | chr22 | 44306710 | 44306908 | TGAGCTCAAC | 876 | + | 56 | 2.30E-03 |
| DSCAML1 | chr11 | 117101416 | 117101614 | GCAGCTGATC | 55 | - | 67 | 2.30E-03 |
| APC | chr5 | 112117665 | 112117862 | TGAGCACAGC | 1387 | + | 39 | 2.30E-03 |
| SORCS2 | chr4 | 7628777 | 7628975 | CGATGACTCC | 403 | - | 45 | 2.41E-03 |
| LRP1 | chr12 | 55876133 | 55876331 | CACGCTCGTC | 963 | - | 56 | 2.61E-03 |
| SPATA5 | chr4 | 124177285 | 124177478 | CATGCACTCC | 1452 | + | 32 | 2.61E-03 |
| CHRN3 | chr8 | 42629366 | 42629564 | CTAGCTTCTC | 750 | + | 70 | 2.71E-03 |
| PHGDHL1 | chr13 | 98766611 | 98766809 | TTGGCTCTTC | 356 | - | 56 | 2.71E-03 |
| AP2A1 | chr19 | 54961775 | 54961915 | CGATCTTTTT | 1349 | + | 38 | 2.82E-03 |
| HIPK2 | chr7 | 138948281 | 138948479 | CCCTCTCTCC | 612 | - | 69 | 2.82E-03 |
| SPTBN1 | chr2 | 54741570 | 54741673 | CAATGGCTTC | 1074 | - | 46 | 2.94E-03 |
| BAI3 | chr6 | 69930646 | 69930844 | GGTGCTCTTT | 573 | + | 56 | 3.06E-03 |
| CNTN4 | chr3 | 2202052 | 2202250 | AGTTCTCTGC | 939 | - | 39 | 3.06E-03 |
| RP1L1 | chr8 | 10468283 | 10468481 | CTAGCTTGTC | 1007 | - | 56 | 3.19E-03 |
| FLNC | chr7 | 128276698 | 128276896 | CATGCTGTGC | 1098 | - | 46 | 3.19E-03 |
| USMG5 | chr10 | 105139829 | 105140027 | AAAGCTCTTA | 1082 | - | 54 | 3.19E-03 |
| NXT2 | chrX | 108713208 | 108713406 | CTGGCTCTAC | 1240 | - | 56 | 3.32E-03 |
| ITPK1 | chr14 | 92495897 | 92496095 | CCATCTGAGC | 788 | - | 8 | 3.32E-03 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|-----------|-------|-----------|-----------|-------------|------|---|----|----------|
| HIPK2 | chr7 | 138922786 | 138922984 | GTAGCTCACC | 1201 | + | 86 | 3.32E-03 |
| HECTD1 | chr14 | 30774368 | 30774566 | GGATCTGTCC | 725 | - | 56 | 3.32E-03 |
| GLYCTK | chr3 | 52287771 | 52287946 | CGAGACGTGC | 1181 | + | 37 | 3.46E-03 |
| HNT | chr11 | 131136881 | 131137079 | CGAGCCTGGC | 900 | + | 66 | 3.46E-03 |
| BRE | chr2 | 28163532 | 28163730 | CGTGCAATTC | 434 | - | 1 | 3.46E-03 |
| TRIM24 | chr7 | 137772960 | 137773059 | AGAGCGTTTC | 1427 | - | 85 | 3.57E-03 |
| ZNF428 | chr19 | 48807927 | 48808125 | TCAGGTCATC | 1275 | + | 61 | 3.57E-03 |
| AKAP7 | chr6 | 131525716 | 131525914 | CACGCTCTTT | 655 | + | 56 | 3.57E-03 |
| ESX1 | chrX | 103434903 | 103435101 | CGAAATCCTC | 1091 | - | 41 | 3.57E-03 |
| ROCK1 | chr18 | 16772019 | 16772216 | CATTGTCTTC | 1214 | - | 27 | 3.86E-03 |
| LOC399744 | chr10 | 38828622 | 38828809 | CGAGTCCTTT | 1475 | - | 67 | 3.86E-03 |
| B3GALT1 | chr2 | 168433850 | 168434048 | CGAGTTCTTA | 1272 | - | 54 | 4.03E-03 |
| EMCN | chr4 | 101589972 | 101590170 | CGAGTTCTTA | 983 | + | 56 | 4.03E-03 |
| FBXO34 | chr14 | 54877683 | 54877881 | AGACCCCTC | 1288 | - | 56 | 4.19E-03 |
| ENTPD6 | chr20 | 25133440 | 25133543 | TCACCCCTGC | 399 | - | 5 | 4.34E-03 |
| ATF7IP | chr12 | 14381001 | 14381199 | GCCGCACTTC | 590 | - | 48 | 4.34E-03 |
| NFIC | chr19 | 3385234 | 3385432 | AGAACGCTGC | 887 | + | 87 | 4.34E-03 |
| ADAM10 | chr15 | 56829436 | 56829634 | CCAAGTCGTC | 895 | + | 56 | 4.51E-03 |
| GHR | chr5 | 42695070 | 42695268 | CTACCCCTAC | 365 | + | 56 | 4.51E-03 |
| LOC375449 | chr5 | 66048493 | 66048691 | GGTACTCTGC | 1219 | - | 15 | 4.68E-03 |
| FRAS1 | chr4 | 79304320 | 79304518 | CAAACGGTTC | 1114 | - | 15 | 4.85E-03 |
| PTEN | chr10 | 89615819 | 89616017 | AAACCTCTCC | 279 | - | 55 | 4.85E-03 |
| GABRG3 | chr15 | 24910190 | 24910387 | CGTTCCCGC | 1418 | - | 45 | 4.85E-03 |
| UTRN | chr6 | 144879477 | 144879675 | AGGTCACTTC | 1249 | - | 56 | 5.02E-03 |
| TMEM117 | chr12 | 42910073 | 42910187 | CAAGCCCCTA | 1358 | + | 41 | 5.02E-03 |
| MBNL2 | chr13 | 96638562 | 96638665 | CGTTCCATTC | 1364 | + | 42 | 5.24E-03 |
| CD24 | chrY | 19593375 | 19593573 | CAAACCTGCTC | 1234 | - | 55 | 5.24E-03 |
| PASK | chr2 | 241728637 | 241728835 | CGGACCCGTC | 299 | - | 56 | 5.43E-03 |
| MTX2 | chr2 | 176842276 | 176842377 | CGCGCCGTCC | 691 | - | 79 | 5.43E-03 |
| COX10 | chr17 | 13969188 | 13969386 | CTGTCGCTTC | 585 | - | 56 | 5.43E-03 |
| WDR31 | chr9 | 115142278 | 115142473 | GAATCACTCC | 1323 | + | 54 | 5.43E-03 |
| TBC1D22A | chr22 | 45551427 | 45551527 | CGCGCTCTGA | 1369 | - | 48 | 5.66E-03 |
| KCNK12 | chr2 | 47600744 | 47600843 | CGACCTGACC | 1456 | + | 75 | 5.86E-03 |
| WWOX | chr16 | 76685249 | 76685348 | CATTCCGTTC | 1084 | + | 71 | 6.08E-03 |
| PCBD2 | chr5 | 134288771 | 134288953 | CCACATCATC | 1180 | - | 49 | 6.08E-03 |
| PTPRE | chr10 | 129601296 | 129601494 | CGATCCCGGT | 603 | - | 46 | 6.28E-03 |
| STT3A | chr11 | 124967436 | 124967629 | AAATATCTTC | 1495 | + | 16 | 6.28E-03 |
| SEC24B | chr4 | 110603704 | 110603902 | CGAGTGCCTC | 526 | + | 56 | 6.52E-03 |
| GLB1 | chr3 | 33022928 | 33023126 | AGAGCCATCC | 1374 | - | 49 | 6.52E-03 |
| ABCD3 | chr1 | 94674246 | 94674444 | CTGACACTTC | 594 | + | 56 | 6.52E-03 |
| STT3A | chr11 | 124967436 | 124967629 | AGAACACGTC | 1496 | - | 65 | 6.75E-03 |
| COL18A1 | chr21 | 45724034 | 45724232 | AGTGCTCTTA | 1018 | - | 54 | 6.75E-03 |
| MBIP | chr14 | 35824619 | 35824817 | GTATCCCGTC | 188 | - | 52 | 7.01E-03 |
| RASSF8 | chr12 | 25963808 | 25963920 | CAATCTACTC | 1504 | + | 12 | 7.01E-03 |
| GLIS3 | chr9 | 4295190 | 4295388 | CGAGACCATT | 1455 | - | 75 | 7.28E-03 |
| NCOA1 | chr2 | 24810830 | 24810929 | TGAACCTTTC | 1441 | + | 22 | 7.28E-03 |
| PKP4 | chr2 | 159290667 | 159290865 | CTAGATATTC | 766 | - | 56 | 7.80E-03 |
| ATP8B1 | chr18 | 53528764 | 53528882 | TTAGCCATTC | 1066 | - | 73 | 8.06E-03 |
| GLB1 | chr3 | 33022928 | 33023126 | CATTCTATTC | 1376 | + | 61 | 8.35E-03 |
| RABL4 | chr22 | 35509036 | 35509234 | CATTCTATTC | 807 | + | 26 | 8.35E-03 |

TCF4 binding regions in colorectal cancer cells

| | | | | | | | | |
|----------|-------|-----------|-----------|------------|------|---|----|----------|
| IL1RAPL1 | chrX | 29336839 | 29337037 | CCTGATCCTC | 1481 | - | 28 | 8.35E-03 |
| OPLAH | chr8 | 145177345 | 145177542 | CATTCCCTTT | 1407 | + | 83 | 8.64E-03 |
| RNF157 | chr17 | 71721486 | 71721684 | CTATGCCGTC | 1414 | - | 52 | 8.96E-03 |
| EFHA1 | chr13 | 20949542 | 20949641 | GCATCATTTT | 991 | - | 46 | 9.62E-03 |
| ENG | chr9 | 129639605 | 129639803 | AGAGCAGTTT | 705 | + | 86 | 9.93E-03 |
| BTBD3 | chr20 | 11823568 | 11823667 | TTATCTCACC | 1421 | - | 34 | 1.14E-02 |
| SERPINH1 | chr11 | 74963243 | 74963441 | CGATCTGTAT | 636 | + | 56 | 1.14E-02 |
| AMY2B | chr1 | 103908725 | 103908923 | AGACCCCTTA | 1419 | - | 12 | 1.14E-02 |
| STK10 | chr5 | 171544541 | 171544739 | CGAGTCCATT | 291 | + | 45 | 1.30E-02 |
| METRNL | chr17 | 78636811 | 78637009 | GGGGCGCGTC | 630 | - | 56 | 1.30E-02 |
| ADAM22 | chr7 | 87576277 | 87576376 | CAGGCGTTTC | 1225 | - | 59 | 1.34E-02 |
| MBNL1 | chr3 | 153457506 | 153457704 | CGCACACTAC | 1117 | - | 56 | 1.62E-02 |
| BARHL2 | chr1 | 90967805 | 90968003 | CGATCGTCGC | 905 | + | 66 | 1.84E-02 |
| GRIN2A | chr16 | 9890403 | 9890601 | CCAGCTATAT | 1224 | - | 91 | 1.84E-02 |
| SLIT2 | chr4 | 20043314 | 20043417 | CCTGCACGAC | 1400 | + | 79 | 1.90E-02 |
| DEFB115 | chr20 | 29269739 | 29269935 | CTTTCGCGTC | 1175 | - | 55 | 2.08E-02 |
| EMCN | chr4 | 101589972 | 101590170 | GAATATATTC | 985 | + | 58 | 4.59E-02 |

TCF4 binding regions in colorectal cancer cells

Table S5. TF binding sites in the TCF4 binding regions

| Term | Count | % | P Value | Genes | List Total | Pop Hits | Pop Total | Fold Enrichment |
|--|-------|-------------|-------------|---|------------|----------|-----------|-----------------|
| GO: 0030528~transcription regulator activity | 97 | 11.52019002 | 0.001866848 | HMX2, HOXD13, CBX3, CITED2, CTNNB1, HOXC9, GATA6, ZNF397, CREB3L1, RARB, ATOH8, RXRA, BARHL2, SIX2, ZNF193, ZNF236, CAMTA1, TSHZ1, ELL, ELK3, SOX9, SOX8, NR1H2, TCERG1, MEIS2, MAML3, SLC30A9, NKX2-2, RUNX3, SUB1, LMCD1, NR4A1, NEUROG1, SKI, EN2, ESX1, NEUROG3, FOXP4, USF2, ATF6, NR1I3, LASS3, TRPS1, CRYM, TAF1A, SOX21, NR6A1, PAX6, PAX5, GLI2, SKAP1, ZNF207, GTF2A1, PAX7, FOXB1, NRG1, MKL1, ATF7IP, ELP3, SOX12, LEF1, TLE1, ZFP37, BRWD1, NCOA1, TAF12, NCOA2, ZMIZ2, NAB1, HIPK2, ZNF711, KCNH8, ZFPM2, GLIS3, SUPT3H, GLIS2, CDH1, NFYB, ZBTB16, PRDM16, TSC22D1, NR1D1, BCL2, POU3F4, LIMD1, ETV6, NFATC1, JARID2, TBX5, TRIM24, PKNOX2, PKNOX1, IRF5, IRF2, IRF4, NFIC, NFIA | 620 | 1512 | 12983 | 1.343393711 |
| GO: 0016563~transcription activator activity | 34 | 4.038004751 | 0.002291256 | SUPT3H, GLIS2, CDH1, PRDM16, SOX9, GLI2, SKAP1, CITED2, CTNNB1, NR1H2, TCERG1, HOXC9, GTF2A1, GATA6, BCL2, MAML3, RARB, MKL1, NFATC1, SUB1, TBX5, RXRA, LEF1, NR4A1, TRIM24, NEUROG3, USF2, ATF6, NCOA1, NR1I3, TAF12, NCOA2, ZMIZ2, IRF4 | 620 | 410 | 12983 | 1.736514555 |