

## Product datasheet for **MG227436**

### **Nr1h4 (NM\_001163504) Mouse Tagged ORF Clone**

#### **Product data:**

Product Type:	Expression Plasmids
Product Name:	Nr1h4 (NM_001163504) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Nr1h4
Synonyms:	AI957360; Fxr; HRR1; RIP14; Rxrip14
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>MG227436 representing NM\_001163504  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**GCGATCGCC**

ATGAATCTGATTGGCACTCCCATTTACAGGCTACGGACGAGTTTCTCTTTCTGAAAGCTATTTGGTA  
 TGCTAACAGAACACGCGCAGGCCCTCTGGGGCAGAATCTGGATTGGAATCGTACTCCCCATACAACA  
 TGTCCCGTTTCTCAAGTTCAGCCACAGATTTCTCCTCGTCTTACTATTCCAACCTGGGCTTCTACCCC  
 CAACAACCGGAAGACTGGTATTCTCCTGGCATCTATGAACTCAGGCGAATGCCCGCTGAGACTGGGTACC  
 AGGGAGAGACTGAGGTATCAGAGATGCCTGTGACAAAGAAGCCGCGAATGGCCGCGGCATCGGCAGGCAG  
 AATAAAAGGGGATGAGCTGTGTGTTGTCTGTGGAGACAGGGCCTCTGGTACCCTACAACGCGCTCACC  
 TGTGAGGGCTGCAAAGGTTTCTCCGAAGAAGCATTACCAAGAACGCCGTGTACAAGTGAAGAAGGGG  
 GCAACTGCGTGATGGACATGTACATGCGCAGGAAGTGCCAGGAGTGCCGGCTAAGGAAGTCAAAGAGAT  
 GGGGATGTTGGCTGAATGTATGTATACAGTGTGTTAACTGAAATCCAGTGTAAATCTAAACGGCTAAGG  
 AAAAAATGTGAAGCAGCAGCTGATCAGACAGCTAATGAGGACGACAGCGAAGGGCGTGACTTGCGACAAG  
 TGACCTCCACAACCAAGTTTTGCAGGGAGAAAACGGAACCTCACGGCAGACCAACAGACCCTCCTGGATTA  
 TATTATGGATTTCGTACAACAAACAGAGAATGCCTCAGGAAATCACAATAAAATCTTAAAAGAAGAATTT  
 AGTGCAGAAGAAAATTTTCTCATATTAACAGAAATGGCAACCAGTCATGTACAGATTCTCGTAGAATTC  
 CAAAAAGCTTCCAGGGTTTCCAGACTGGATCACGAAGATCAGATTGCTTTGCTCAAAGGGTCCGCAGT  
 GGAGGCCATGTTTCTCGTTCGGCGGAGATTTCAATAAGAACTTCTGCCGGTCATGCAGACCTGTTG  
 GAAGAAAGAATTCGAAAGAGTGGTATCTCTGATGAGTATATAACCCGATGTTGAGTTTCTATAAAAGT  
 TTGGAGAACTCAAATGACTCAGGAGGAGTACGCTCTGCTCACAGCGATCGTCATCCTCTCCAGACAG  
 ACAATACATCAAGGACAGAGAGCGGTGGAGAAGCTGCAGGAGCCCTGCTTGATGTGTACAAAAGCTG  
 TGCAAGATGTACCAGCCTGAGAACCAGCAGCATTTCGCCTGCCTCCTGGGTCGCCTGACGGAACCTCCGGA  
 CATTCAACCATCACACGCTGAGATGCTGATGCTTGGAGAGTGAATGATCACAAAGTTACCCCGCTCCT  
 CTGTGAGATCTGGGATGTGCAG

**ACGCGTACGCGGCCGCTCGAG** - GFP Tag - GTTTAA

**Protein Sequence:**

>MG227436 representing NM\_001163504  
 Red=Cloning site Green=Tags(s)

MNLIGHSHLQATDEFSLSESLFGMLTEHAAGPLGQNLDLSESPYNNVFPQVQPQISSSSYYSNLGFYP  
 QQPEDWYSPGIYELRRMPAETGYQGETEVSEMPVTKKPRMAAASAGRIKGDLCVCGDRASGYHYNALT  
 CEGCKGFFRRSITKNAVYKCKNGGNCVMDMYMRRKCQECRLRKCKEMGMLAECMYTGLLTEIQCKSKRLR  
 KNVKQHADQATANEDDSEGRDLRQVTSTTKFCREKTELADQQTLLDYIMDSYNKQRMPEITNKILKEEF  
 SAEENFLILTEMATSHVQILVEFTKCLPGFQTLDHEDQIALLKGSAAVEAMFLRSAEIFNKKLPAGHADLL  
 EERIRKSGISDEYITPMFSFYKSVGELKMTQEEYALLTAIVILSPDRQYIKDREAVEKLEPLLDVLDLQKL  
 CKMYQENPQHFACLLGRLELRTFNHHAEMLSWRVNDHKFTPLLCIEIWDVQ

**TRTRPLE** - GFP Tag - V

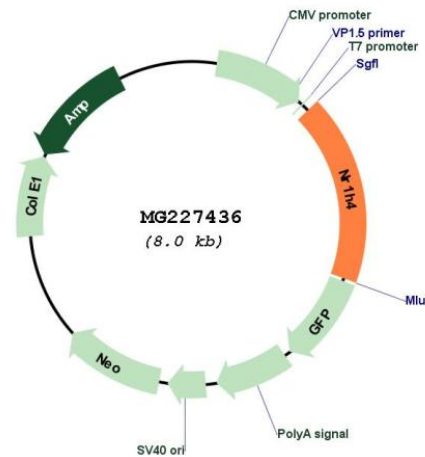
**Restriction Sites:**

Sgfl-MluI

Cloning Scheme:



Plasmid Map:



ACCN: NM\_001163504

ORF Size: 1422 bp

OTI Disclaimer: The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

Components: The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

**Reconstitution Method:**

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

**RefSeq:** [NM\\_001163504.1](#), [NP\\_001156976.1](#)

**RefSeq Size:** 2189 bp

**RefSeq ORF:** 1425 bp

**Locus ID:** 20186

**UniProt ID:** [Q60641](#)

**Cytogenetics:** 10 44.98 cM

**Gene Summary:** Ligand-activated transcription factor. Receptor for bile acids (BAs) such as chenodeoxycholic acid (CDCA), lithocholic acid, deoxycholic acid (DCA) and allocholic acid (ACA). Plays an essential role in BA homeostasis through the regulation of genes involved in BA synthesis, conjugation and enterohepatic circulation. Also regulates lipid and glucose homeostasis and is involved in innate immune response (PubMed:11030617, PubMed:21383957, PubMed:22820415). The FXR-RXR heterodimer binds predominantly to farnesoid X receptor response elements (FXREs) containing two inverted repeats of the consensus sequence 5'-AGGTCA-3' in which the monomers are spaced by 1 nucleotide (IR-1) but also to tandem repeat DR1 sites with lower affinity, and can be activated by either FXR or RXR-specific ligands. It is proposed that monomeric nuclear receptors such as NR5A2/LRH-1 bound to coregulatory nuclear responsive element (NRE) halfsites located in close proximity to FXREs modulate transcriptional activity (PubMed:20091679, PubMed:20483916). In the liver activates transcription of the corepressor NR0B2 thereby indirectly inhibiting CYP7A1 and CYP8B1 (involved in BA synthesis) implicating at least in part histone demethylase KDM1A resulting in epigenomic repression, and SLC10A1/NTCP (involved in hepatic uptake of conjugated BAs). Activates transcription of the repressor MAFG (involved in regulation of BA synthesis) (PubMed:21383957, PubMed:25651182, PubMed:25545350). Activates transcription of SLC27A5/BACS and BAAT (involved in BA conjugation), ABCB11/BSEP (involved in bile salt export) by directly recruiting histone methyltransferase CARM1, and ABCC2/MRP2 (involved in secretion of conjugated BAs) and ABCB4 (involved in secretion of phosphatidylcholine in the small intestine) (PubMed:21383957). In ileal enterocytes activates FABP6/IBABP (involved in cytosolic transport), SLC51A/OSTA and SLC51B/OSTB (involved in secretion of conjugated BAs to the portal blood), and repressor NR0B2/SHP thereby indirectly inhibiting SLC10A2/ASBT (involved in BA uptake) (By similarity). In the intestine activates FGF15 expression and secretion leading to hepatic CYP7A1 repression; the function also involves the coordinated induction of hepatic KLB/beta-klotho expression (PubMed:16213224, PubMed:26505219). Transcriptional activation of FABP6/IBAP and SCD1 but not of ABCB11 is isoform-specific (PubMed:12393883). Regulates transcription of liver UGT2B4 and SULT2A1

involved in BA detoxification; binding to the UGT2B4 promoter seems to imply a monomeric transactivation independent of RXRA (By similarity). Modulates lipid homeostasis by activating liver NR0B2/SHP-mediated repression of SREBF1 isoform SREBP-1C (involved in de novo lipogenesis), expression of PLTP (involved in HDL formation), SCARB1 (involved in HDL hepatic uptake), APOE, APOC1, APOC4, VLDLR and SDC1 (involved in the hepatic uptake of LDL and IDL remnants), and inhibiting expression of MTTP (involved in VLDL assembly) (PubMed:12421815, PubMed:15146238). Increases expression of APOC2 (promoting lipoprotein lipase activity implicated in triglyceride clearance) (PubMed:11579204). Transrepresses APOA1 probably involving a monomeric competition with NR2A1 for binding to a DR1 element (PubMed:21804189). Also reduces triglyceride clearance by inhibiting expression of ANGPTL3 and APOC3 (both involved in inhibition of lipoprotein lipase) (PubMed:12891557, PubMed:15146238). Involved in glucose homeostasis by modulating hepatic gluconeogenesis through activation of NR0B2/SHP-mediated repression of respective genes. Modulates glycogen synthesis (inducing phosphorylation of glycogen synthase kinase-3). Modulates glucose-stimulated insulin secretion and is involved in insulin resistance (PubMed:15564327, PubMed:16446356, PubMed:16557297, PubMed:16410358, PubMed:20447400). Involved in intestinal innate immunity. Plays a role in protecting the distal small intestine against bacterial overgrowth and preservation of the epithelial barrier (PubMed:16473946, PubMed:21242261). Down-