

## Validated Housekeeping Genes Used for qPCR (with accession numbers)

(ALWAYS BLAST your primer sequences before ordering to check!)

Also check for more validated qPCR primers in the [Primer Bank](#)

### HUMAN:

#### **hGAPDH (Glyceraldehyde-3-phosphate dehydrogenase - NM\_002046):**

Forward 5'-CAATGACCCCTTCATTGACC-3'

Reverse 5'-GACAAGCTTCCCGTTCTCAG-3'

#### **hG6PD (Glucose-6-phosphate dehydrogenase - NM\_000402.3):**

Forward 5'-GAGGCCGTGTACACCAAGAT-3'

Reverse 5' -TCAGGGAGCTTCACGTTCTT-3'

#### **hHMBS (Hydroxymethylbilane synthase - BC019323.1):**

Forward 5'-TGCAACGGCCGGAAGAAAA-3'

Reverse 5' - AGCTGGCTCTTGCGGGTAC-3'

#### **hHPR1 (Hypoxanthine guanine phosphoribosyl transferase1 - NM\_000194):**

Forward 5' – CCTGGCGTCGTGATTAGTGAT-3'

Reverse 5' – AGACGTTCAAGTCCTGTCCATAA - 3'

### MOUSE:

#### **mGAPDH (Glyceraldehyde-3-phosphate dehydrogenase - NM 008084.2):**

Forward 5' - AGGTCGGTGTGAACGGATTTG-3'

Reverse 5' -TGTAGACCATGTAGTTGAGGTCA-3'

#### **mG6PD (Glucose-6-phosphate dehydrogenase - NM 008062):**

Forward 5' - CACAGTGGACGACATCCGAAA-3'

Reverse 5' - AGCTACATAGGAATTACGGGCAA-3'

#### **mHMBS (Hydroxymethylbilane synthase - NM 013551.2):**

Forward 5'-AAGGGCTTTTCTGAGGCACC-3'

Reverse 5'-AGTTGCCCATCTTTCATCACTG -3'

**mHPRT1 (Hypoxanthine guanine phosphoribosyl transferase1 - [NM\\_013556](#)):**

Forward 5' – TCAGTCAACGGGGGACATAAA – 3'

Reverse 5' – GGGGCTGTACTGCTTAACCAG – 3

**RAT :**

**rGAPDH (Glyceraldehyde-3-phosphate dehydrogenase – [AF\\_106860](#)):**

Forward 5' - GTG CAG TGC CAG CCT CGT C - 3'

Reverse 5' - GGC AGC ACC AGT GGA TGC AG - 3'

**rHPRT (Hypoxanthine guanine phosphoribosyl transferase1 - [XM\\_343829](#)):**

Forward 5' - GCC GAC CGG TTC TGT CAT – 3'

Reverse 5'- TCA TAA CCT GGT TCA TCA TCA CTA ATC – 3'

**rCycloB (Peptidylprolyl isomerase B (cyclophilin B) - [NM\\_022536](#)):**

Forward 5' - GGG CTC CGT TGT CTT CCT TT – 3'

Reverse 5' - GAC TTT AGG TCC CTT CTT CTT ATC GTT – 3'

**rHMBS (Hydroxymethylbilane synthase - [NM\\_013168](#)):**

Forward 5' - GGC TCA GAT AGC ATG CAA GAG A- 3'

Reverse 5'- TGG ACC ATC TTC TTG CTG AAC A- 3'