**Supplementary file 4**

Probe sequences for *in situ* hybridization

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| *Ptbp1* | ACAAAGGTCACAATGAGGCTCGGCAGCTGAGGATGGCCTGGACCCTCCGGGCTGGCCAGGGACATGGGAGAATCATGTCACTTGATTATAAGGGTGTAGGGGAGTGGCCCCAGCTCTTGCACAGCATTGGGGAGCCTATGTATAGGCCACCTGGCTCACCTGCAGGTCTAGAGACAACTGGTGGCCTTAGAGGGTGGGTGTACGGCCATGAGGCACGCTGGTTTGTAAGGCACAGAAAGCGGCTATGTTTGGGGCACCGCTGTGGCCTCACGCCTGAGCCCCTCAAGGCATGGTGCTGGGATTGACTGGGCCTCTGTGGTCCAAGCCATTTCCTGCCACTGCAGAGTGGGCTAGATTTAATTTTTTTAAAAACAGGTAAACTGATCTCTCTTTAAAAAAATAAAATCTCTGGTCTGTAAGGTCACTTCAGCTGCTTTTTAAAGTGGCTTTTCTGGAATGGTGGAAGCTGATGCAGGCCCACAGGCACCTAGATGGTGGACTTGGAAAAGGACACTCGCAGGTGGTGGTTCTCGCCCAGGTCATGGTTGTGCAGTTCAATCAGCGCCTGCAC |
| *Srsf3* | TCACTAACAGCCATAATCCTGAACTGGCTTCAACACCTAAAAAATGGCTAACTCTCATAAGTGACAAGCAAAGGGGAAAAAAAAATTCCTTCACTAATGTAGTGCTTCTCAGTTGTGTTTCTTACAAAGAATGAACTGGGTAACCAACTACTTTCCCAGGGATAAGAACAATGGCAACAGTGGTTCGCTCGACTGACTACTACACAATTATGCTAGTACTTTATTAATTCAAAAGCACTTTACAAGAAAATATAAGTATGGCTTCCAATAGGAATGTTTTACCTGGACTTGATACCAAGCTCACAGATTTTGAGTGTGCAAGGAAAAACAGGCTTTCAAGTTAAACAACAATTTGTAACCAAAACTTTAATCCCAAAGATTCTCACAAACATATTACAAATGACAGCATGAAAAACAATCTTGCACAGTAACTGAAAAGTTGAGCTCTACAATGTACCCTTAAACTGAAAGGACACTGGCATCTGAGTTTTACATTTCCAAATAAAGACGTTACAATAGCTCTGCATCCCCATAGAGAAACCAGGAAGGAACCCCTTTGCAAATCTTCAGTGTGGTTCCTACCCTTATCTGTTGGCTTGTGTTCACAGCAGCTCTTAAACACCGCTTTATCATTCCACCCACAGTGCCACAGTGTCTCAGCTACTAGAGGACTATAGCTTCTTTCAATTTCCGCCAGTTGCTTTATATCATTAGTACATCACACTTAAAACTGGGCAGGACCTAAGGTTTATTTCAGTCTATGAAAAACTAAAATTCAAAGAAAATTAAATCTTGCTTAAGGGAACATTGTAAAGTAACAATTCTTGATATCACGTGCCTCTTATGATCCATCTGAAAACCATAGAGAATTACATTGTTTTGTGTGTCACTGTTCCAAGAGACAAAACAAATTTAAACAGCTAAACCATCTTAAAAATGCACCAAGCTTATGAAGTCTCAAACAAAACTTTAATTTCCTGTACATACTCCTGTCAGATGAAGTTATTTCCTGTACACCACTTTTGCAAACTGGTCTTCTATTTCCTTTCATTTGACCTAGATCGGCTACGAGACCTAGAGAAGGATCGAGACGGCTTGTGA |
| *Pfkfb1* | GAGAACAAGGCCAGCAGTTCCTACAGGAGGAAGGTAGTGAGAACAGAGACAATCTGATCACTTGAAAAGGGCTCAGTAATGGGCAGGGACAGTGTCCAGGGCTTCCTCGGGTTCACGGGTGATGTCCACATTCTCAGGCTTGTCCCGGTGTGTGTTCACAGCCTCCACATTCAGGTAGATGGACTCCACTCTGCAGCCATAAGCCACAGGTGTGAGTTTGAGCACTGTATGCAGAGGACACTTGAGATAGGGCAGCTCATCTGAACTTTTATCCAGGAAGTATGCTAGAAGGCACCGCATGACAGCCTGGTGACAGATCACCAGTACATTTTCTTGCCGTTCTAGCTCCATTATAACTGGCTCAAGACGCTGAACCAGATCCTCATAGGACTCTCCCTTGGGATAGCGGTAACGATATTTATCCTGGTCCCGTAGTGCAAATTCTTCAGGGTAGTGTTCCTGAATTTCTTCATAAGTCATCTCTTCACAGACACCCGCATCAATCTCATTCAGGGCCTTCCACTGTTCATAGGGGACGCCTAGGGCTTCAGCTGTCTGAATGGTCCTCTTCATGTGGCTAGTCCACACCTTCAGGGAGCTGATGCTTTGAGACCGAATGAAGTTGGCCAGGGCATAGGCATACTGCTTGCCCCGAGCTGAGAGGCCAGAGTCACCTCCAATGCGGCCTCTAAGGTTGAGTTCACTCTCACCATGTCGGCATAGGTAGATAGATCGAGGTGTGACATGGATGTTCATGAGGTAGTAGGCTGTACGGCTTTGAACGTGGTCTTGCACTCGATTTACCATGTAGCGTGTGCCCACATCGAAGATCTTGATGTAGGACAGGTGGCTGTCCAATTCCTCATCCAAAGGCTGGTAGTTGATCTCATAGCACTCAATTCTCTTTAGAAAGTCTTCTAAAACCTTTTCTTGGTCACAGTCTATGTAATCAGGACTGCCGAGTTTCACTTGCTTGATGTTTTCTGCAATGATGTCTGGGTCATTACAAATAGACTCAATAAAGAAGACCTTGTAACCATGTTCTTTAGCAAACTGCAGAATCAATGATCGTCGTTCTCTGGTAGTGTTGGTGGCATCAAAAACCGCAACGTGACCTTCCTCACGGCTGAGATACTTATGGACATCCTTTAGGGCTGCTAGAGCACACTGCTTCCTGATAAGTTGGGCCTCCATGTTGTCTGGGCGAAAGAATTCATAGTTCCTGTAGCTCACTGCCTCTCGTCGATACTGACCTAAATTAAACACTTTAGTCGGTGTTCCTATCCAGTTGAGATAGCGTGTGAGCTTCGTAGAGATGTAGGTCTTGCCTCGAGCTGGTAAAC |
| *Pfkfb2* | CTCCCCACCAGGGTATCGGTACAGATACTTCTCTTGATCTCGGAGTGCAAATTCCTCTGGGTACCGTTGCTCAATCTCTGAATATGTCATCTCCTCACACACGCCAGCATCAATCTCATTGAGGATCTTCCACTGCTCATAGGTCACCCCAAGAGACTCAGCAGTCTGAATTGTCCTCTTCAACTGGCTCGTCCACACTTTAAGGTCCTGGATCTCCTGTTCCTCCAGAAACTTCTTCAGAGCATGAGCAAACTGCTTTCCTCGCACGGAGAGGCCAGAGTCACCCCCAATCTTCCCCAAAAGGTTGAACTCGCTCTCGCCGTGCCGGCAAAGGTAGATGGTGCGAGGATGGACGTGGATATTCATCAGGTAGTAGACAATCTTACTCTGGATGTAGTCCTGAACTCTGTTGACCAGGAATCTCTGGCCTACATTTATCACCTTTATGAAAGAAAGATCCTTATCATAGTTGTCTGGGTCAAGGGGCTGGTAAGTGACCTTGTAGCACTCAATTCTCTTCAGGAAGTCCTCCATCACATTCTCCCTATTCCTTTCGGGGTAGTCAGGGCTCGACACTTTTACCTC |
| *Pfkfb3* | CAATGCCATAAAGCCGACAAGGATGCTTTTCTACACTGGGGGTGACTCCTCAAGATGGCCAGCATGGTGGTATGAGGCATACAGCAGCAGACACTTGGCCAAAATATGCGGACAGCTCTGAGCAGGCGGCCTGACATGAGCCTTCCTTGGGCCACCGTCCCTTCTTGAACAATGGGAGTGAAGTTGAAGGCTCTTAGACTCCCCATCTTAAAGACACCCCAACTCCTCCCATTCAGAAGCTGCAAGCCTCCAAGGGCCAGCACCCTAGGTTCTTGAAGTGAGGTGTGGGGAGGGAGGGAAGGAAGGAGAGAAGAAGAGAAGGAAGGAGGGAGGAAGGAAGGAAGGAAGGAAGGAAGGAAGGAAGGAAGGAAGGAAAGAAAGAAGGAAAAGTGCAAACAAACAGCCAACAACAGAATCTACTCAGGTGCCTCCAGGCCCAAGGTGAAGAACAGAAGGCCTAAGGGACTCTGGGAAGAGGGGAGCCCTGGTTATTTTTTTCTGAAAAATCCTTCCTTCCACTGATACAACCAGTCTGTCCCTTAACTTGGGACCCAGAAGACATGTGGACCTGTAGAGGAGTCAGGGCAAGTCATTGCTCAGCTGACCAGTAGGCCTCAGCTCAAGGTTTCCTCAGGAGGAGAAATCCCATACCCAATGCAGCAATGCCCAAGCCTCTTGTCTCTGAGGCCTCCTCCTAGGCCAAGATGCATAAAAGCCACATGAGAATGTGCAACTTGTCCCTGAGCCTCTGGCAAGTGGGGTCTAACTCTGAATCTCAGGGTTCCCTGCCACTCTTATCTTCTGACTATCGACATGCCAGGCCAGGATCCAAAGAAACAAAACAAAACAGCGTGGCGGTGTCCAGGGCCCCCACTTAGGGGTCTGATCTCACCTCCTCTAGAACTATAGCCCTCCCCAAGCTTTGGAAGGGCCTGAGAGGTCAGACAGCCCTGGAAGTCGAAAGAGAACAGAGCGTAGGAAGGTCTGCTGCTCTACACAGGAAGCTGGGATCTGTACAACTTCCTAGTTGTCTTTGCCACCCCAACATTTCAGTGGGGGGAAGGGCTTCTACTCTTCAACATGCCGACCTCCATTCTCCCGAGTCCAGAAGTCCTTGCGATCACTTGGCCTCGAGAAGATGAGCAGGCACAAGGCAGGCTGTGGAAATGGAATGGAACCCACATCTCGGCTTTAGTGCTTCTGGGAAGAGTCGGCACCGCTCCGGGAGCTCTTCATGTT |
| *Pfkfb4* | GCAGGGCCACAGTGGAATGTCTTAGTGAGAGTTTTTTGTCTCAGTGTCTCATTTAAGGTTGCAAACGTCATGAAGCAGCCAGCCTGGTGAGTGGACTGCTCGAGTGCTGTAGCAGAGGGGCTGGCAGCAGAGCACATAGCCCAGGGATTCTCAGCAGCCATACCCAACCTGTCACTGGTGGTCAACAAAGAGGCCGGTGGGCCAGGCTGAAGGTTCTGAGTGTTGCTAGCCACCCATGGCTTCAGGAGTGTTCCTGCATGGTGGCACCATCAGTACAGCAAACACAAGATGGCCTGGAGTGACCCCTCTGACAGAGGTCAGGGTCACTGGTGAGCAGGGACTGTGACAAGGGCTTCCTCTGAAGGCCTGGATATGTCTACATTCTGAGGTCTGTCTCGGTGAGTGTTCACAGCTGCCACGTTCAGGAATATGGACTCCACTTTACAACCGTAAGCCACGGGTGTGAGCTTCAGGACTGTGTGCAAGGGGCATTTGAGGTAGGGCAGCTCTTCAGCTGCCTTGTCAAGGAAGTAGGCCAGGAGGCAGCGCATGACAGCCTGGTGGCAAATGACCAACACATTCTCCTGCCTCTCCAGTTCCATGATGACGGGCTCCAGCCGCTGCACCAGGTCTTCATAGGACTCACCCTTCGGGTACCGGTACCGGTACTTGTCCTGATCCCGCAGGGCAAACTCCAGCGGGTAGTGATCCTGGATTTCTTCGTAGGTCATTTCCTCACAGACGCCCGCATCGATCTCGTTGAGGACCTTCCACTGCTCATAAGGGACGCTCAGCGCCTCGGCTGTCTGGATCGTCCTCTTCATCTGGCTCGTCCAGACCTTCAGATCCTTAATGTTCTGGTCACTGATGAACTGGGCCAGATGCTTGGAAAACTCCCGGCCCCGGGGGGACAGTCCAGGATCCCCACCAATCCGGCCCTTGAGGTTTAGCTCGCTCTCCCCATGCCGGCAGAGGTAGATGGAGCGGGGTGTCACATGGATGTTCATGAGGTAATAAACGATGCGACTCTGGATGTGATCAGCAACACGGTTCACCACATAGCTCTGGCCCACGTCCATGATCTTGATGTAGGACAGATCC |
| *Ldha* | TATTTGGCATGACACTTGGGTGGTTGGTTCCATCATCCATATGCAGATCTTACATCTCACATAATATTGCAATGCACACTACAGACACATATAATATATAAAATATCCTGTACAACATTTATGCACAAGATATGCATCATGGACGTACACACTGGAGCCAGGTTATACGACTTAACTGGGAACTCGTCGGCCTAGGCATGTTTGGTGCAGGGCAGCAATGCAGCAGGCTCACAGGGGTAATCGAAGCCTGCAGTTGGCAGTGTGTCTCAGAGACAGTGGGACTGTCACACTAACCAGGTCACCACTACACAAGTACCACTTGGCAGCAGGGCAGAGCTGTGGGGAGTGAGATGTTTCCCCACACCATCTCAACACCACTGTACTAACCACAGCTCAGACGAGAAGGGTGTGGTCTGCCTAGAAGCCCTGCTGCAGCCTGGACAGTGAAGTGCTAGGACACGGGGAAGACTTTA |
| *Ldhb* Probe#1 | GCTGCAATTGCTAACTTTATTTGATCAGGAGCTCCTAGTGCAAACATCAAACAAGCCTGGGCTTTGATCTGTGAGCTCATATCACATGTCAGGGAAGAAGCAAACTGTGACCTACATACATGGCTGAAGACTAAAGGTTCATGGTCACATTGGAGGTTTGTGTTCTACAGCCTAGAGACTGGCAGTCACAGGTCTTTGAGGTCTTTCTGGATGTCCCACAGGGTGTCCGCACTCTTCCTGAGCTGAGCGACCTCATCGTCCTTCAGCTTCTGATTGATGACGCTGGTCA |
| *Ldhb*  Probe#2 | GCTGCAATTGCTAACTTTATTTGATCAGGAGCTCCTAGTGCAAACATCAAACAAGCCTGGGCTTTGATCTGTGAGCTCATATCACATGTCAGGGAAGAAGCAAACTGTGACCTACATACATGGCTGAAGACTAAAGGTTCATGGTCACATTGGAGGTTTGTGTTCTACAGCCTAGAGACTGGCAGTCACAGGTCTTTGAGGTCTTTCTGGATGTCCCACAGGGTGTCCGCACTCTTCCTGAGCTGAGCGACCTCATCGTCCTTCAGCTTCTGATTGATGACGCTGGTCAGCCCCCGAGCATTGAGGATGCACGGGAGACTGAGGAAGACTTCATTCTCAATGCCGTACATTCCCTTCACCATGGTAGACACGGGGTGAATCCGGGAGAGGTTTTTCAGCATGGACTCGATGA |
| *Pkm* M1-specific | CTGCCAGACTCCGTGAGAACTATCAAAGCTGCTGCTAAACACTTATAAGAGGCCTCCACGCTGCCCATGGCCATGGCCTCCATGAGGTCTGTGGAGTGACTGGAGGCTCGCACAAGCTCTTCAAACAGCAGACGGTGGAACATGGCTGCCTCAGCCTCCCGAGCTAT |
| *Pkm*  M2-specific | CTGCCAGACTTGGTGAGCACGATAATGGCCCCACTGCAGCACTTGAAGGAGGCCTCCACGGCACCCACGGCGGCAGCTTCTGTGGGGTCGCTGGTAATGGGCGCCAGGCGGCGGAGTTCCTCGAATAGCTGCAAGTGGTAGATGGCAGCCTCTGCCTCTCGGGCAAT |