**Supplemental Table 1.** The gene-panel for acute hepatic porphyrias

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Amplicon** | **Name** | **Start** | **End** | Length (bp) | **Pool ID** | **Forward primer\*** | **Reverse primer\*** | **Coverage** |
| **The *ALAS1* gene** (NM\_000688; total number of amplicons = 26) | | | |  |  |  |  | **99% of the coding region (1904bp/1923bp)** |
| 1 | AMPL7155165033 | 52233185 | 52233358 | 173 | pool 1 | tgcctgattattaacaactgttgatgtca | GGGCAGTTTTGGGCATAGAACA | intron 2 - exon 3 |
| 2 | AMPL7154003460 | 52233310 | 52233485 | 175 | pool 2 | TCTGCAGAAAGCAGGCAAATCT | cctgctccttcattgtcaatgaca | exon 3 - intron 3 |
| 3 | AMPL7155165022 | 52236384 | 52236556 | 172 | pool 1 | aaaaacacttgtgtctggatggt | GTCTGTTGGACCTTGGCCTTA | intron 3 - exon 4 |
| 4 | AMPL7153659836 | 52236505 | 52236680 | 175 | pool 2 | tccatttcctccctcagAAGACA | GCCTCTCTGATTCATCTGTGCT | intron3/exon4 - exon 4 |
| 5 | AMPL7157164486 | 52236655 | 52236788 | 133 | pool 1 | GGCAGCACAGATGAATCAGAGA | ccttcactaccactaatggttcacaa | exon 4 - intron 4 (**19 bp** in exon 4 are not covered) |
| 6 | AMPL7155165013 | 52237832 | 52238007 | 175 | pool 2 | agaatagaaagttggtcccatttgtttct | GAAGATGAGACACTCTTTCTGGTCTTT | intron 4 - exon 5 |
| 7 | AMPL7153659820 | 52237946 | 52238118 | 172 | pool 1 | CTGCTGAAGAACTTCCAGGACAT | ccagcctcaccatgcaattttatatttaat | exon 5 - intron 5 |
| 8 | AMPL7155165038 | 52238619 | 52238776 | 157 | pool 2 | agttgccaagctgagacttgtt | GGTGTGGTCATTCTTTTTCTCATCAATTTT | intron 5 - exon 6 |
| 9 | AMPL7155165039 | 52238708 | 52238875 | 167 | pool 1 | CTGTTTCCACTTTTCAGTATGATCGTT | CCAGACTGACACTTGCTTTTTGG | exon 6 |
| 10 | AMPL7155165040 | 52238818 | 52238974 | 156 | pool 2 | CCCATGGCAGATGACTATTCAGA | gccaaataacaacagtaatatttgaaagcc | exon 6 - intron 6 |
| 11 | AMPL7155165008 | 52239789 | 52239939 | 150 | pool 1 | aaaaattcacatggtgttgagaacca | CCGCTCTAAGTCCACATGGAATT | intron 6 - exon 7 |
| 12 | AMPL7155165009 | 52239880 | 52240044 | 164 | pool 2 | GGGCAGGTGGTACTAGAAATATTTCT | cttacCTGGCATCATCTTAGCCA | exon 7 - exon7/intron7 |
| 13 | AMPL7155165010 | 52239988 | 52240117 | 129 | pool 1 | GCTTTGTGGCCAATGACTCAAC | ggcttctttgttgccaatattcttgttatt | exon 7 - intron 7 |
| 14 | AMPL7157164482 | 52240506 | 52240681 | 175 | pool 2 | aaggaaaagtctgttgtctttctctagg | TCATTGTGGCGGAAGATGTACTTT | intron 7 - exon 8 |
| 15 | AMPL7157164483 | 52240622 | 52240797 | 175 | pool 1 | TCCATGATCCAAGGGATTCGAAAC | ggtttcagaggaacctctatccaca | exon 8 - intron 8 |
| 16 | AMPL7154003432 | 52242069 | 52242244 | 175 | pool 2 | cttcagagcagtctctggtctttc | GTCCATTTTTGGCATGACTCCATC | intron 8 - exon 9 |
| 17 | AMPL7153659842 | 52242140 | 52242315 | 175 | pool 1 | AGTTTGGAGCAATCACCTTCGT | ggccttgttaggataatggaattttagtgt | exon 9 - intron 9 |
| 18 | AMPL7155165043 | 52245226 | 52245399 | 173 | pool 2 | acaacaccttgctgtgtccatt | CAGAGAGGTGGTGAAGATGAAGC | intron 9 - exon 10 |
| 19 | AMPL7155165044 | 52245337 | 52245510 | 173 | pool 1 | CGAGTTCTCTGATTGACACCGTA | CATCTGTCTCATGAGTTTGACGTTG | exon 10 |
| 20 | AMPL7157164481 | 52245428 | 52245597 | 169 | pool 2 | GTCTGTGCGGATCCTGAAGAG | cggcaagtccaatcagagacag | exon 10 - intron 10 |
| 21 | AMPL7155165017 | 52246153 | 52246326 | 173 | pool 1 | gcatgtgttgctacagtctggt | TGTCTGCTCATTAGTTCATCACAGAC | intron 10 - exon 11 |
| 22 | AMPL7153659832 | 52246266 | 52246441 | 175 | pool 2 | aacttagGTTGCAGATGCTGCTA | ctcacCAAGGAAGTAGTTCATCATCTG | intron10/exon11 - exon11/Intron11 |
| 23 | AMPL7155165018 | 52246369 | 52246495 | 126 | pool 1 | GGAGAAGAGCTCCTACGGATTG | tgcaaagacagctttatgcaactc | exon 11 - intron 11 |
| 24 | AMPL7153660183 | 52247891 | 52248066 | 175 | pool 2 | ggtggacatttggttgtttctcttg | CCCACTTGCTTCCATGTGACT | intron 11 - exon 12 |
| 25 | AMPL7153660184 | 52248020 | 52248170 | 150 | pool 1 | actgtttctcctcagAGAATCTGCT | TCAAGCCTGAGAAATAGGACTTCTCT | intron 11 - exon 12 |
| 26 | AMPL7155165049 | 52248111 | 52248251 | 140 | pool 2 | GAGGCCACTGCATTTTGAAGTG | AGACCATCTGGATATGATAATGGCCT | exon 12 |
|  |  |  |  |  |  |  |  |  |
| **The *HMBS* gene** (NM\_000190; total number of amplicons = 29) | | | |  |  |  |  | **100% of the coding region (1035bp/1035bp)** |
| 1 | AMPL7153660229 | 118955470 | 118955645 | 175 | pool 1 | gctgcactacttgctcatgtca | ACCCGAGGTCGTCCTACA | 5'-UTR - exon 1 |
| 2 | AMPL7156918676 | 118955605 | 118955765 | 160 | pool 2 | CTGCGGAGACCAGGAGTCAGA | CCGCATTGCCGTTACCAGA | exon 1 |
| 3 | AMPL7156918709 | 118955713 | 118955887 | 174 | pool 1 | CCACACACAGCCTACTTTCCAA | aaaaagatagccgttctgacCAA | exon 1 - intron 1 |
| 4 | AMPL7156918710 | 118955843 | 118955989 | 146 | pool 2 | GTTGCCATCCTCAGTCGTCTA | cagtatcaccgctctctgatttcc | exon 1 - intron 1 |
| 5 | AMPL7153660236 | 118958658 | 118958824 | 166 | pool 1 | actgacaactgccttcctcaag | tactccaaggctggtcccttta | intron 1 |
| 6 | AMPL7153606244 | 118958903 | 118959078 | 175 | pool 2 | gacaaggtgttgaggaacactaga | gatgctgtgagcatcataactgttc | intron 1 - intron 2 (low reads) |
| 7 | AMPL7153364368 | 118959256 | 118959430 | 174 | pool 1 | cccttcaggatctgcctaacct | ccagaaaactcacTGATTTCAAACTGC | intron 2 - exon 3 |
| 8 | AMPL7156879173 | 118959372 | 118959497 | 125 | pool 2 | TGGCAACATTGAAAGCCTCGTA | gcaaagccagaaatgttgtgttctc | exon 3 - intron 3 |
| 9 | AMPL7160553353 | 118959732 | 118959900 | 168 | pool 1 | gctaggctcagtaaatgctgatca | atcccttcagggaaggaaagaaga | intron 3 - intron 4 |
| 10 | AMPL7153364366 | 118959872 | 118960041 | 169 | pool 2 | ccactcttctttccttccctgaa | gcatactagggtcccagcaaga | intron 4 - intron 5 |
| 11 | AMPL7153606232 | 118960252 | 118960427 | 175 | pool 1 | tgctcctgagatcttgagaaggt | GCAGGTCCTTCAAGGAGTGAAC | intron 5 - exon 6 |
| 12 | AMPL7156879171 | 118960373 | 118960528 | 155 | pool 2 | ccctctcccatctctatagAGTGGA | ggcaaaggttcacatgatgccta | intron5/exon5 - intron 6 |
| 13 | AMPL7156879174 | 118960588 | 118960762 | 174 | pool 1 | actggtggcagaaaactcaaga | GTTTCTAGGGTCTTCCCAACAAATTTTG | intron 6 - exon 7 |
| 14 | AMPL7153606238 | 118960701 | 118960866 | 165 | pool 2 | GGGAAAACCCTCATGATGCTGT | actaggcagtcactgttcctttc | exon 7 - intron 7 |
| 15 | AMPL7153606234 | 118960847 | 118961022 | 175 | pool 1 | ggaacagtgactgcctagtgtt | tctccgtcactcttccaaaagg | intron 7 - intron 8 |
| 16 | AMPL7153364360 | 118962018 | 118962190 | 172 | pool 2 | gactgaaagtcagccagctaga | GCCAGGATGATGGCACTGAA | intron 8 - exon 9 |
| 17 | AMPL7156879172 | 118962144 | 118962282 | 138 | pool 1 | TTCGGAAGCTGGACGAGCA | aaaggagatgcagatgagctgg | exon 9 - intron 9 |
| 18 | AMPL7153606248 | 118962767 | 118962942 | 175 | pool 2 | tctcactgccaggtgcttttag | agacaagattcttggttgagaaca | intron 9 - intron 10 |
| 19 | AMPL7153606239 | 118963071 | 118963238 | 167 | pool 1 | gggaaagatcaggcctgatgt | cctacCAGGTGCCTCAGGAA | intron 10 - exon11/intron11 |
| 20 | AMPL7156879175 | 118963177 | 118963335 | 158 | pool 2 | ACGATCCCGAGACTCTGCTT | gagttagcactgtatacagagcattca | exon 11 - intron 11 |
| 21 | AMPL7153606231 | 118963413 | 118963576 | 163 | pool 1 | ggtcacagggtggtgttaagag | aagaaatgaaacagtcctccttt | intron 11 - intron12 |
| 22 | AMPL7156879177 | 118963551 | 118963710 | 159 | pool 2 | ggaaaggaggactgtggcattt | AGCCTGCATGGTCTCTTGTATG | intron 12 - exon13 |
| 23 | AMPL7156879178 | 118963654 | 118963792 | 138 | pool 1 | CTGGAGGAGTCTGGAGTCTAGAC | gtgagaacaagagattatatgcactcttgt | exon13 - intron 13 (low reads) |
| 24 | AMPL7153606245 | 118963769 | 118963944 | 175 | pool 2 | tgcatataatctcttgttctcaccaaatcc | CCTTTGCTCAGCAACAAGTTGG | intron 13 - exon 14 |
| 25 | AMPL7156879179 | 118963857 | 118964001 | 144 | pool 1 | CATCACTGCTCGTAACATTCCAC | CAAACCAG**TTA**ATGGGCATCGTTAA | exon14 (stop codon in ***bold*** and *underlined*) |
| 26 | AMPL7156879180 | 118963942 | 118964117 | 175 | pool 2 | GGAGCCAAAAACATCCTGGATGT | TTGAACCCTGCAGTTCAGTCTC | exon 14 |
| 27 | AMPL7156918673 | 118964024 | 118964166 | 142 | pool 1 | TGCTGTCCAGTGCCTACATC | AGGCAAGGCAGTCATCAAGG | exon 14 |
| 28 | AMPL7156918674 | 118964111 | 118964259 | 148 | pool 2 | GTTCAAGCCTTCCAGGGATTTG | acaccttcagaactggtttattagtaggat | exon 14 - 3'UTR |
| 29 | AMPL7156918675 | 118964196 | 118964322 | 126 | pool 1 | AGAAGTCCAAGCAACAGCCTTT | gtaaggatgaaagggctttgtgtttg | exon 14 - 3'UTR |
|  |  |  |  |  |  |  |  |  |
| **The *CPOX* gene** (NM\_000097; total number of amplicons = 16) | | | |  |  |  |  | **76% of the coding region (1042bp/1365bp)** |
| 1 | AMPL7153660149 | 98312049 | 98311874 | 175 | pool 2 | GATGTTGCCTAAGACCTCGGG | CTCCAGAATCAGCAGCTCCAT | exon 1 (the first **320 bp** starting form ATG and additional **3 bp** in exon 1 are not covered) |
| 2 | AMPL7153660145 | 98311913 | 98311738 | 175 | pool 1 | GGCGACATGAAGACCAAGATG | gaacctgaccctttttccctgt | exon 1 - intron 1 |
| 3 | AMPL7158677967 | 98310046 | 98309872 | 174 | pool 2 | ttgcacatactcttacattctctccttttt | ACTTTTCCTCTGCTTCTCATTTGTTTTG | intron 1 - exon 2 |
| 4 | AMPL7158677966 | 98309940 | 98309794 | 146 | pool 1 | AGCATTTCTGTTGTTCATGGAAATCTTTC | acttgtgggcaaaataaggtttgc | exon 2 - intron 2 |
| 5 | AMPL7158677965 | 98309630 | 98309463 | 167 | pool 2 | caaggtaactgaatatagctcatgactcat | tgagacccttacCATCAGCTTCT | intron 2 - exon3/intron3 |
| 6 | AMPL7154293563 | 98309527 | 98309352 | 175 | pool 1 | GCTCCTACTATCCATTTCAACTACAGATAC | cattgcctcctgaaagacctaattaaga | exon 3 - intron 3 |
| 7 | AMPL7162259993 | 98307731 | 98307600 | 131 | pool 2 | tccacattagaatcccatgtcttgattt | AGCCTCCTTCAGAGTTCTGTGA | intron 3 - exon 4 |
| 8 | AMPL7154293566 | 98307662 | 98307487 | 175 | pool 1 | TCACTCCAACATACTTGAATCAAGAAGAC | cataatagttgccttcagaaggaacaga | exon 4 - intron 4 |
| 9 | AMPL7153659966 | 98304572 | 98304418 | 154 | pool 2 | ggctcacattgattttcatgtctgttttt | GGACGGAGAGTCAAGATCATCAAAAA | intron 4 - exon 5 |
| 10 | AMPL7157160519 | 98304504 | 98304329 | 175 | pool 1 | gGTGTGATGATTACTTCTTTATAGCCCAT | GAGTCATCACAGTGCTTTTTCACAA | exon5 |
| 11 | AMPL7158677963 | 98304384 | 98304244 | 140 | pool 2 | CCAGGGCTGTAGTTCCTTCTTAC | cccacttagccatgaaagaattcg | exon 5 - intron 5 |
| 12 | AMPL7158677962 | 98300391 | 98300250 | 141 | pool 1 | gctggcccttaatgttatttgatgtattt | CGGGCAGTTAGAGGTAAAGACA | intron 5 - exon 6 |
| 13 | AMPL7157160512 | 98300308 | 98300138 | 170 | pool 2 | TCTTCACTCCAGGATCCAGAATTGA | tcaaaactaacaaagacctaggcacaa | exon 6 - intron 6 |
| 14 | AMPL7157160517 | 98299747 | 98299573 | 174 | pool 2 | cacagtagagacaaagaagtataaggcttt | CTTCTTTGGAATTCTCTGAGGGTGAA | intron 6 - exon 7 |
| 15 | AMPL7157160516 | 98299637 | 98299511 | 126 | pool 1 | gcttttgttttggacatgcatagATGG | GCCATTCTGCCTGCA**TCA**AC | intron 6 - exon 7 (stop codon in ***bold*** und *underlined*) |
| 16 | AMPL7157160515 | 98299565 | 98299404 | 161 | pool 1 | CTGGAAGTTCTACGCCATCCAA | GGGTGCAGAGTGGAGAAGACTA | exon 7 |
|  |  |  |  |  |  |  |  |  |
| **The *PPOX* gene** (NM\_000309; total number of amplicons = 24) | | | |  |  |  |  | **90% of the coding region (1295bp/1434bp)** |
| 1 | AMPL7158215672 | 161136106 | 161136277 | 171 | pool 1 | gcctctgccagttcaatgtttt | ACAAGTGCTTCAAATCCGCTACT | 5'UTR - exon 1 |
| 2 | AMPL7158215673 | 161136160 | 161136326 | 166 | pool 2 | ccgccaatccagatgtagga | AGTACGCCTGAGTTCTGAGGT | 5'UTR - exon 1 |
| 3 | AMPL7158818651 | 161136272 | 161136425 | 153 | pool 1 | CTTGTTGGCCTACAGAGGTGT | GAGATCGAGGTCCTAAGACCGTA | exon 1 (non-coding exon) |
| 4 | AMPL7158818652 | 161136367 | 161136528 | 161 | pool 2 | GGCCCTTATCTGCACCCA | ggaaactaagtgtgcacggatg | exon 1 - intron 1 |
| 5 | AMPL7159023348 | 161136594 | 161136764 | 170 | pool 1 | cggtctgcctgtccatatcg | cattaaatgaagctccctctggca | intron 1- intron 2 |
| 6 | AMPL7153659916 | 161136799 | 161136972 | 173 | pool 2 | ggccctctgaatatgcctcttc | CCAAGCTCAAAGATAGCACCATTAGG | intron 2 - exon 3 |
| 7 | AMPL7157098792 | 161136891 | 161137056 | 165 | pool 1 | GGTCCTAGTGGAGAGCAGTGA | aacctctcctagacatcccacaa | exon 3 - intron 3 |
| 8 | AMPL7157098790 | 161137094 | 161137242 | 148 | pool 2 | ggaagtatgtttggtgggtcagat | CCACGTAGAGGAACCTGTTCTG | intron 3 - exon 4 |
| 9 | AMPL7157098791 | 161137170 | 161137317 | 147 | pool 1 | TTGGCTTGGATTCAGAAGTGCT | ggatgagggcacagtaaaaggag | exon 4 - intron 4 |
| 10 | AMPL7161148188 | 161137676 | 161137831 | 155 | pool 2 | gtcagccttcccagcaaaagga | CCCAAAACAGAGGTTTGGAGAAG | intron 4 - exon 5 |
| 11 | AMPL7157098794 | 161137760 | 161137885 | 125 | pool 1 | ctcactatgcctttctccatgca | GCACAGTCTCATCAGGCTCTTTG | intron 4 - exon 5 (**55 bp** in exon 5 are not covered) |
| 12 | AMPL7157098802 | 161138189 | 161138352 | 163 | pool 2 | tttcgctccttagtcctagtctca | AGGCCCAGTAATATGGAACGATG | intron 5 - exon 6 |
| 13 | AMPL7157098803 | 161138296 | 161138421 | 125 | pool 1 | TGCTTTCCCAGTCTCTTCCAAG | tccctcactttggcagtacttaatattttc | exon 6 - intron 6 |
| 14 | AMPL7153659926 | 161138740 | 161138906 | 166 | pool 2 | actgcatccagcctcaatgattc | CTACTAGTCAGGTGGGTTTCAAGG | intron 6 - exon 7 |
| 15 | AMPL7157098796 | 161138847 | 161139010 | 163 | pool 1 | TCACTTCGTGGAGGTCTAGAGATG | cactgacaggttcattacactcca | exon 7 - intron 7 |
| 16 | AMPL7157098801 | 161139402 | 161139571 | 169 | pool 2 | atcaaattctcattttctgggtctctca | ggtatagcttttgcttctcactggta | intron 7 - intron 8 |
| 17 | AMPL7153659937 | 161139599 | 161139772 | 173 | pool 1 | ccctgaactggtcatctctatgg | AGCTACAGACACTGCAGTGATG | intron 8 - exon 9 |
| 18 | AMPL7157098799 | 161139682 | 161139840 | 158 | pool 2 | gcctgatctctagTGCTCAGTGA | ccagcctctccgtcccttta | intron8/exon9 - intron 9 |
| 19 | AMPL7157098800 | 161140166 | 161140340 | 174 | pool 1 | tccttctgacgcatgaatgtcc | atgccactaggcaaagtttcct | intron 9 - intron10 |
| 20 | AMPL7157098797 | 161140304 | 161140479 | 175 | pool 2 | TGACTgtgaggaggaggaaactt | GAAACAGCTCCTGAGATAAGACACAG | exon10/intron10 - exon 11 |
| 21 | AMPL7157098798 | 161140419 | 161140587 | 168 | pool 1 | GAGGTTCCTGGTTACAGACACTG | gagctgagggaagtttatcccaa | exon 11 - intron 11 |
| 22 | AMPL7153660107 | 161140642 | 161140817 | 175 | pool 2 | aggcctaggacatcaataataaacttttcc | ggaaaggatgaaaggaatgttttagctg | intron 11 - intron 12 |
| 23 | AMPL7157160505 | 161140708 | 161140857 | 149 | pool 1 | CAGTATACACTAGGTCACTGGCAA | AACCTGTGAGCAGTCAGGAATT | exon 12 - exon 13 |
| 24 | AMPL7159023349 | 161140889 | 161141048 | 159 | pool 2 | GAGTTGCTGTTAATGACTGTATAGAGAGTG | cattcttatgcctataggtgatagaacagc | exon 13 (**84 bp** in exon 13 are not covered) |

\*All sequences are in the 5’ to 3’ orientation in the human genome reference GRCh38. The exonic and intronic sequences are in *upper* and *lower* cases, respectively.