**Supplementary Table 1** A list of genes involved in lipid metabolism pathways in salmon. Numbers after underline in gene names indicate salmon-specific gene duplicates.

|  |  |  |
| --- | --- | --- |
| **NCBI gene id** | **Gene name** | **Annotation** |
| 106603558 | *acat1* | cholesterol metabolism |
| 106604248 | *nsdhl\_1* | cholesterol metabolism |
| 106604636 | *abca1b\_1* | cholesterol metabolism |
| 106605546 | *sqlea\_2* | cholesterol metabolism |
| 100195349 | *fdps\_1* | cholesterol metabolism |
| 106605924 | *fdps\_2* | cholesterol metabolism |
| 100502556 | *srebp1b* | cholesterol metabolism |
| 106606621 | *srebp1c* | cholesterol metabolism |
| 106606632 | *srebp1d* | cholesterol metabolism |
| 106607132 | *srebp2a\_2* | cholesterol metabolism |
| 106607120 | *srebp2b* | cholesterol metabolism |
| 100380689 | *fdft1* | cholesterol metabolism |
| 100194920 | *acat2* | cholesterol metabolism |
| 106608787 | *abca1ab\_2* | cholesterol metabolism |
| 106609880 | *abca1aa\_1* | cholesterol metabolism |
| 106611642 | *abca1b\_2* | cholesterol metabolism |
| 106612199 | *nsdhl\_2* | cholesterol metabolism |
| 106613907 | *soat1b* | cholesterol metabolism |
| 106560734 | *faxdc2* | cholesterol metabolism |
| 106560930 | *lcata\_1* | cholesterol metabolism |
| 106562054 | *dhcr7\_1* | cholesterol metabolism |
| 106562275 | *mvd\_2* | cholesterol metabolism |
| 100136503 | *scarb1* | cholesterol metabolism |
| 100380797 | *hmgcraa* | cholesterol metabolism |
| 106566146 | *soat1a* | cholesterol metabolism |
| 100195087 | *sc5d\_1* | cholesterol metabolism |
| 106568727 | *hsd17b7* | cholesterol metabolism |
| 106569008 | *cyp7a1\_2* | cholesterol metabolism |
| 106571543 | *hmgcs1* | cholesterol metabolism |
| 106570209 | *cyp51\_1* | cholesterol metabolism |
| 106570829 | *hmgcrab* | cholesterol metabolism |
| 106571093 | *slc10a1a\_2* | cholesterol metabolism |
| 106573007 | *ebp\_1* | cholesterol metabolism |
| 106573639 | *lcata\_2* | cholesterol metabolism |
| 106575306 | *abcb11b* | cholesterol metabolism |
| 106579093 | *sqlea\_1* | cholesterol metabolism |
| 106577627 | *abca1ab\_1* | cholesterol metabolism |
| 106578532 | *idi1* | cholesterol metabolism |
| 100196754 | *ggps1\_1* | cholesterol metabolism |
| 100196754 | *ggps1\_2* | cholesterol metabolism |
| 106580429 | *pmvk* | cholesterol metabolism |
| 106580105 | *mvk\_1* | cholesterol metabolism |
| 106581851 | *lss* | cholesterol metabolism |
| 106581787 | *abcb11a* | cholesterol metabolism |
| 106581743 | *slc10a2* | cholesterol metabolism |
| 106584213 | *dhcr24* | cholesterol metabolism |
| 106585168 | *npc1l1* | cholesterol metabolism |
| 106585666 | *mvk\_2* | cholesterol metabolism |
| 106586453 | *lcatb* | cholesterol metabolism |
| 106587139 | *dhcr7\_2* | cholesterol metabolism |
| 100195467 | *mvd\_1* | cholesterol metabolism |
| 106588568 | *cyp51\_2* | cholesterol metabolism |
| 106589694 | *abcg5* | cholesterol metabolism |
| 106589695 | *abcg8* | cholesterol metabolism |
| 106590825 | *msmo1* | cholesterol metabolism |
| 106599162 | *cyp7a1\_1* | cholesterol metabolism |
| 106594019 | *abcb4* | cholesterol metabolism |
| 100502557 | *srebp2a\_1* | cholesterol metabolism |
| 106591920 | *ebp\_2* | cholesterol metabolism |
| 100502556 | *srebp1a* | cholesterol metabolism |
| 106602602 | *abca1aa\_2* | cholesterol metabolism |
| 106603135 | *tm7sf2* | cholesterol metabolism |
| 106603829 | *acsl6\_2* | fatty acid metabolism |
| 106603912 | *fabp6\_1* | fatty acid metabolism |
| 106604299 | *acsl4b* | fatty acid metabolism |
| 106604515 | *elovl6\_1* | fatty acid metabolism |
| 100195992 | *adh5a\_1* | fatty acid metabolism |
| 106605182 | *fabp10a\_2* | fatty acid metabolism |
| 106605645 | *aldhm* | fatty acid metabolism |
| 106606271 | *eci1c* | fatty acid metabolism |
| 106606772 | *fatp4c\_1* | fatty acid metabolism |
| 106607075 | *gcdha\_2* | fatty acid metabolism |
| 106608305 | *abcd4b* | fatty acid metabolism |
| 106608385 | *hadhb* | fatty acid metabolism |
| 106608508 | *fabp2b* | fatty acid metabolism |
| 106610271 | *fasn\_2* | fatty acid metabolism |
| 100306814 | *acox3* | fatty acid metabolism |
| 106609116 | *abcd1\_2* | fatty acid metabolism |
| 106609495 | *cd36\_2* | fatty acid metabolism |
| 106610011 | *fabp2a\_2* | fatty acid metabolism |
| 106610003 | *acsl1a\_2* | fatty acid metabolism |
| 106610339 | *hadh* | fatty acid metabolism |
| 100136433 | *elovl5\_2* | fatty acid metabolism |
| 106611334 | *hadha\_1* | fatty acid metabolism |
| 106611586 | *elovl6\_2* | fatty acid metabolism |
| 100195398 | *aldh3a2a* | fatty acid metabolism |
| 106612015 | *acsl1b* | fatty acid metabolism |
| 106613112 | *acsl3e* | fatty acid metabolism |
| 106613121 | *acsl3b\_2* | fatty acid metabolism |
| 106613311 | *aldh16a1a\_2* | fatty acid metabolism |
| 106613536 | *elovl8b* | fatty acid metabolism |
| 100195361 | *elovl1b\_2* | fatty acid metabolism |
| 106561537 | *fatp4a\_1* | fatty acid metabolism |
| 106613839 | *acsbg2b\_2* | fatty acid metabolism |
| 106560431 | *cpt2* | fatty acid metabolism |
| 100195073 | *aldh9a1* | fatty acid metabolism |
| 106560707 | *cpt1aa* | fatty acid metabolism |
| 106560816 | *got2ab\_2* | fatty acid metabolism |
| 106561238 | *cpt1b\_2* | fatty acid metabolism |
| 106562243 | *got2aa\_1* | fatty acid metabolism |
| 106562860 | *fatp2d* | fatty acid metabolism |
| 106563087 | *acads\_1* | fatty acid metabolism |
| 106563252 | *fabp1b* | fatty acid metabolism |
| 106564571 | *gcdhb* | fatty acid metabolism |
| 100380782 | *acox1a* | fatty acid metabolism |
| 106568363 | *acads\_2* | fatty acid metabolism |
| 106567475 | *fabp6\_2* | fatty acid metabolism |
| 106567519 | *acsl6\_1* | fatty acid metabolism |
| 100380405 | *acsl4a\_2* | fatty acid metabolism |
| 100380405 | *acsl4* | fatty acid metabolism |
| 106568426 | *fatp4a\_2`* | fatty acid metabolism |
| 100194754 | *aldh7a1* | fatty acid metabolism |
| 106568892 | *abcd3a\_1* | fatty acid metabolism |
| 106571348 | *elovl7ba* | fatty acid metabolism |
| 106568845 | *acsl3a\_1* | fatty acid metabolism |
| 106571818 | *fatp6b* | fatty acid metabolism |
| 106571805 | *fatp6a* | fatty acid metabolism |
| 100194550 | *adadm* | fatty acid metabolism |
| 106570598 | *fabp3\_2* | fatty acid metabolism |
| 100196877 | *fabp7a* | fatty acid metabolism |
| 106571493 | *elovl4b* | fatty acid metabolism |
| 106573415 | *cpt1b\_1* | fatty acid metabolism |
| 106573756 | *got2ab\_1* | fatty acid metabolism |
| 100286454 | *elovl1b\_1* | fatty acid metabolism |
| 106575476 | *acadsba* | fatty acid metabolism |
| 106575817 | *acadl* | fatty acid metabolism |
| 106575983 | *abcd1\_1* | fatty acid metabolism |
| 106576427 | *cd36\_1* | fatty acid metabolism |
| 100194570 | *echs1* | fatty acid metabolism |
| 106578507 | *aldh2* | fatty acid metabolism |
| 106577431 | *acadsb2* | fatty acid metabolism |
| 106578486 | *abcd3b\_1* | fatty acid metabolism |
| 100196721 | *peci\_2* | fatty acid metabolism |
| 106579121 | *acsl5* | fatty acid metabolism |
| 100192341 | *elovl2* | fatty acid metabolism |
| 106579756 | *acaa1a* | fatty acid metabolism |
| 106579772 | *acaa1b* | fatty acid metabolism |
| 106580039 | *acsbg2a\_1* | fatty acid metabolism |
| 106580430 | *thim\_1* | fatty acid metabolism |
| 106580590 | *elovl7bb\_1* | fatty acid metabolism |
| 106581298 | *acsl3b\_1* | fatty acid metabolism |
| 106581311 | *acsl3c* | fatty acid metabolism |
| 106582922 | *fabp10a\_1* | fatty acid metabolism |
| 100286782 | *aldh3a2c* | fatty acid metabolism |
| 100195275 | *ehhadhb* | fatty acid metabolism |
| 100195275 | *ehhadha* | fatty acid metabolism |
| 106584374 | *acsbg2b\_1* | fatty acid metabolism |
| 106584725 | *fatp2e* | fatty acid metabolism |
| 100136441 | *Δ6fads\_1* | fatty acid metabolism |
| 100329172 | *Δ6fads\_3* | fatty acid metabolism |
| 100136383 | *Δ5fads* | fatty acid metabolism |
| 106584797 | *Δ6fads \_2* | fatty acid metabolism |
| 106585161 | *elovl7bb\_2* | fatty acid metabolism |
| 100380562 | *acox1b* | fatty acid metabolism |
| 106585052 | *thim\_2* | fatty acid metabolism |
| 106587404 | *got2aa\_2* | fatty acid metabolism |
| 106587782 | *cpt1ab* | fatty acid metabolism |
| 106587894 | *fatp2f* | fatty acid metabolism |
| 100136444 | *fabp3\_1* | fatty acid metabolism |
| 106589612 | *fasn\_1* | fatty acid metabolism |
| 100192340 | *elovl5\_1* | fatty acid metabolism |
| 106590083 | *peci\_1* | fatty acid metabolism |
| 106590647 | *abcd3b\_2* | fatty acid metabolism |
| 100136416 | *cpt1ae* | fatty acid metabolism |
| 106593544 | *fatp2g* | fatty acid metabolism |
| 106596253 | *eci1b* | fatty acid metabolism |
| 106592647 | *eci1a* | fatty acid metabolism |
| 106599146 | *abcd3a\_2* | fatty acid metabolism |
| 100196775 | *fatp2b* | fatty acid metabolism |
| 106599520 | *acsl3a\_2* | fatty acid metabolism |
| 106592274 | *acsl3d* | fatty acid metabolism |
| 106595315 | *fatp2i* | fatty acid metabolism |
| 106592234 | *cpt1ac* | fatty acid metabolism |
| 106600509 | *adh5b* | fatty acid metabolism |
| 106595539 | *abcd4a* | fatty acid metabolism |
| 106600758 | *aldh16a1b* | fatty acid metabolism |
| 106600940 | *cpt1ad* | fatty acid metabolism |
| 100196775 | *fatp2a* | fatty acid metabolism |
| 106594640 | *fatp2h* | fatty acid metabolism |
| 106601351 | *gcdha\_1* | fatty acid metabolism |
| 100196775 | *fatp2c* | fatty acid metabolism |
| 106601639 | *fatp4b* | fatty acid metabolism |
| 106601642 | *fatp4c\_2* | fatty acid metabolism |
| 106603767 | *hadha\_2* | fatty acid metabolism |
| 106602733 | *fabp2a\_1* | fatty acid metabolism |
| 100380286 | *acsl1* | fatty acid metabolism |
| 100380286 | *acsl1a\_1* | fatty acid metabolism |
| 106602820 | *acadvl* | fatty acid metabolism |
| 106602847 | *aldh3a2b* | fatty acid metabolism |
| 106603377 | *acsl4a\_1* | fatty acid metabolism |
| 100196767 | *sar1ba\_1* | Lipoprotein formation |
| 106605691 | *apoa4c\_2* | Lipoprotein formation |
| 106605692 | *apoa4b\_2* | Lipoprotein formation |
| 106607045 | *ldlraa\_2* | Lipoprotein formation |
| 106608453 | *sar1a\_1* | Lipoprotein formation |
| 106609996 | *mtp\_2* | Lipoprotein formation |
| 106611125 | *apoba* | Lipoprotein formation |
| 100196111 | *apoa1\_2* | Lipoprotein formation |
| 106560851 | *sar1bb\_1* | Lipoprotein formation |
| 106564497 | *ldlrab\_1* | Lipoprotein formation |
| 106565466 | *lrp1a\_1* | Lipoprotein formation |
| 106569632 | *apoa4a\_2* | Lipoprotein formation |
| 106567057 | *lrp1b\_1* | Lipoprotein formation |
| 106567531 | *sar1ba\_2* | Lipoprotein formation |
| 100136579 | *apobc* | Lipoprotein formation |
| 106571178 | *apobb* | Lipoprotein formation |
| 106572649 | *lrp1d* | Lipoprotein formation |
| 106572662 | *lrp1b\_2* | Lipoprotein formation |
| 106577499 | *apoa4b\_1* | Lipoprotein formation |
| 106577505 | *apoa4c\_1* | Lipoprotein formation |
| 106577216 | *sar1a\_2* | Lipoprotein formation |
| 106577347 | *sar1bb\_2* | Lipoprotein formation |
| 100136573 | *apoa1\_1* | Lipoprotein formation |
| 106583141 | *lrp1a\_2* | Lipoprotein formation |
| 106586541 | *apoa4a\_1* | Lipoprotein formation |
| 106590115 | *ldlrab\_2* | Lipoprotein formation |
| 106592319 | *lrp1c* | Lipoprotein formation |
| 106601326 | *ldlraa\_1* | Lipoprotein formation |
| 106602715 | *mtp\_1* | Lipoprotein formation |
| 106603538 | *dgat2\_1* | PL and TAG metabolism |
| 100195689 | *mogat2\_1* | PL and TAG metabolism |
| 106605098 | *lpcat3\_2* | PL and TAG metabolism |
| 106606425 | *pcyt2b* | PL and TAG metabolism |
| 106606443 | *pcyt2c\_2* | PL and TAG metabolism |
| 106606828 | *plpp3d* | PL and TAG metabolism |
| 106607581 | *lpgat1\_2* | PL and TAG metabolism |
| 106607658 | *mboat2b\_2* | PL and TAG metabolism |
| 100196731 | *lpcat4\_1* | PL and TAG metabolism |
| 106609326 | *etnk1\_2* | PL and TAG metabolism |
| 106609452 | *chpt1\_1* | PL and TAG metabolism |
| 100196235 | *agpat4\_2* | PL and TAG metabolism |
| 106612554 | *agpat5\_2* | PL and TAG metabolism |
| 106610702 | *mboat2a\_2* | PL and TAG metabolism |
| 106610734 | *lpin1\_2* | PL and TAG metabolism |
| 100380610 | *pgs1\_1* | PL and TAG metabolism |
| 106612410 | *pcyt1aa* | PL and TAG metabolism |
| 100195687 | *plpp2b\_2* | PL and TAG metabolism |
| 106561845 | *plpp1b\_1* | PL and TAG metabolism |
| 106560230 | *plpp3a\_2* | PL and TAG metabolism |
| 106560699 | *ptdss2* | PL and TAG metabolism |
| 106560813 | *chka\_2* | PL and TAG metabolism |
| 106561237 | *chkb* | PL and TAG metabolism |
| 106563657 | *gpat3a\_2* | PL and TAG metabolism |
| 106562418 | *lpcat2\_2* | PL and TAG metabolism |
| 100380789 | *lpcat2\_1* | PL and TAG metabolism |
| 106562956 | *agpat2\_1* | PL and TAG metabolism |
| 106563023 | *pisd\_1* | PL and TAG metabolism |
| 106563634 | *pcyt1bb\_2* | PL and TAG metabolism |
| 106565215 | *lpin3\_2* | PL and TAG metabolism |
| 100194840 | *cept1a\_1* | PL and TAG metabolism |
| 106565623 | *etnk2\_2* | PL and TAG metabolism |
| 100380321 | *pisd\_2* | PL and TAG metabolism |
| 106568861 | *agpat2\_2* | PL and TAG metabolism |
| 106566938 | *cept1b\_1* | PL and TAG metabolism |
| 106566507 | *mboat2a\_1* | PL and TAG metabolism |
| 106567949 | *mogat2\_2* | PL and TAG metabolism |
| 106567948 | *dgat2\_2* | PL and TAG metabolism |
| 100196460 | *gpat3a\_1* | PL and TAG metabolism |
| 106568407 | *plpp1b\_2* | PL and TAG metabolism |
| 106568933 | *pcyt1ab\_1* | PL and TAG metabolism |
| 106569302 | *plpp3b\_1* | PL and TAG metabolism |
| 106570327 | *lpcat1a* | PL and TAG metabolism |
| 106570407 | *dgat1a\_1* | PL and TAG metabolism |
| 106570478 | *ptdss1c\_1* | PL and TAG metabolism |
| 106570052 | *lpin1\_1* | PL and TAG metabolism |
| 106570914 | *cds1a* | PL and TAG metabolism |
| 106571011 | *ept1\_b* | PL and TAG metabolism |
| 106571200 | *lpgat1\_1* | PL and TAG metabolism |
| 106571255 | *mboat2b\_1* | PL and TAG metabolism |
| 106572169 | *cept1b\_2* | PL and TAG metabolism |
| 100286735 | *pss* | PL and TAG metabolism |
| 106572982 | *taz\_2* | PL and TAG metabolism |
| 100196028 | *taz\_1* | PL and TAG metabolism |
| 106573758 | *chka\_1* | PL and TAG metabolism |
| 106574312 | *agpat3a\_2* | PL and TAG metabolism |
| 106574497 | *plpp2a\_1* | PL and TAG metabolism |
| 100195109 | *agpat3a\_1* | PL and TAG metabolism |
| 106575392 | *plpp2a\_2* | PL and TAG metabolism |
| 106577207 | *lpiat1* | PL and TAG metabolism |
| 106576151 | *etnk1\_1* | PL and TAG metabolism |
| 106576273 | *chpt1\_2* | PL and TAG metabolism |
| 106577939 | *lpcat4\_2* | PL and TAG metabolism |
| 106578451 | *pcyt1ba\_1* | PL and TAG metabolism |
| 106578699 | *lpin2\_1* | PL and TAG metabolism |
| 100196273 | *pemt* | PL and TAG metabolism |
| 106579146 | *gpat1* | PL and TAG metabolism |
| 100195147 | *gpat4b\_2* | PL and TAG metabolism |
| 106580447 | *gpat2* | PL and TAG metabolism |
| 106580500 | *cds2\_1* | PL and TAG metabolism |
| 106580584 | *gpat3b\_1* | PL and TAG metabolism |
| 106580570 | *plpp1a\_1* | PL and TAG metabolism |
| 106583352 | *lpcat3\_1* | PL and TAG metabolism |
| 106582438 | *agpat3b\_1* | PL and TAG metabolism |
| 106583121 | *etnk2\_1* | PL and TAG metabolism |
| 106583483 | *cept1a\_2* | PL and TAG metabolism |
| 106583597 | *lpin3\_1* | PL and TAG metabolism |
| 106584209 | *plpp3a\_1* | PL and TAG metabolism |
| 106584410 | *plpp2b\_1* | PL and TAG metabolism |
| 106585174 | *plpp1a\_2* | PL and TAG metabolism |
| 106585165 | *gpat3b\_2* | PL and TAG metabolism |
| 106585108 | *cds2\_2* | PL and TAG metabolism |
| 106585610 | *gpat4b\_1* | PL and TAG metabolism |
| 106585948 | *cds1b* | PL and TAG metabolism |
| 106586274 | *agpat3b\_2* | PL and TAG metabolism |
| 106588913 | *ptdss1c\_2* | PL and TAG metabolism |
| 106588986 | *dgat1a\_2* | PL and TAG metabolism |
| 106589751 | *agpat4\_1* | PL and TAG metabolism |
| 106589814 | *agpat5\_1* | PL and TAG metabolism |
| 106589835 | *pgs1\_2* | PL and TAG metabolism |
| 106590143 | *lpin2\_2* | PL and TAG metabolism |
| 100380284 | *pcyt2a* | PL and TAG metabolism |
| 106592432 | *plpp3c* | PL and TAG metabolism |
| 106590970 | *ptdss1b* | PL and TAG metabolism |
| 106593135 | *mogat3a* | PL and TAG metabolism |
| 106592264 | *lpcat1b\_1* | PL and TAG metabolism |
| 106599064 | *pcyt1ab\_2* | PL and TAG metabolism |
| 100380602 | *crls1* | PL and TAG metabolism |
| 106600418 | *plpp3b\_2* | PL and TAG metabolism |
| 106600754 | *cdipt* | PL and TAG metabolism |
| 106601632 | *lclat1* | PL and TAG metabolism |
| 106594620 | *ept1\_a* | PL and TAG metabolism |
| 106595791 | *ptdss1a* | PL and TAG metabolism |
| 106601930 | *pcyt2c\_1* | PL and TAG metabolism |
| 106603074 | *pcyt1bb\_1* | PL and TAG metabolism |
| 106606082 | *rxrba\_2* | Signalling |
| 100136415 | *pparab\_1* | Signalling |
| 106561422 | *fxr\_1* | Signalling |
| 106561932 | *lxra\_2* | Signalling |
| 106563228 | *rxraa\_1* | Signalling |
| 106565394 | *rxraa\_2* | Signalling |
| 106566754 | *pparg\_2* | Signalling |
| 106566994 | *ppardb\_1* | Signalling |
| 106568909 | *rxrgb\_2* | Signalling |
| 106569952 | *rxrba\_3* | Signalling |
| 100136393 | *pparg\_1* | Signalling |
| 100136536 | *ppardb\_2* | Signalling |
| 106573302 | *fxr\_2* | Signalling |
| 106583866 | *pparg\_3* | Signalling |
| 106584489 | *pparab\_2* | Signalling |
| 106585776 | *rxraa\_3* | Signalling |
| 100270809 | *lxra\_1* | Signalling |
| 106588394 | *rxrba\_1* | Signalling |
| 106599103 | *rxrgb\_3* | Signalling |
| 106596748 | *rxrgb\_1* | Signalling |