**Additional file 2. Primers used for genotyping of *prdm12b, bhlhe22 and nkx6.1* mutant fish**

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| **Primer name** | **Sequence** | **Purpose** |
| *prdm12b-1* | GGTTCGGCTCATCATGGGTTC | Forward primer used to genotype um318, um319 |
| *prdm12b-2* | GCAAACTGACCTCCAGAGAA | Reverse primer used with primer *prdm12b-1* |
| *prdm12b-3* | TTCCAGCTTAGTTCTGCCAAGTG | Forward primer used to genotype sa9887 |
| *prdm12b-4* | CGACCTCCAAGTTCTGTTCTT | Reverse primer used with primer *prdm12b-3* |
| *bhlhe22-1* | AGAATAAACTTGGGCGGAGAC | Forward primer used to genotype um320 |
| *bhlhe22-2* | CATTGCTTACACAGGCTGGA | Reverse primer used with primer *bhlhe22-1* |
| *bhlhe22-3* | GCATCCGACTTTCTGGAGAC | Forward primer used to genotype um320  |
| *bhlhe22-4* | GCTGGAGGTGACATTGTTGAA | Reverse primer used with primer *bhlhe22-3* |
| *nkx6.1-1* | GGTCACTGTCCTGCTTCTTG | Forward primer used to genotype um321 |
| *nkx6.1-2* | CCACACCTTGACTTGACTCTC | Reverse primer used with primer *nkx6.1-1* |