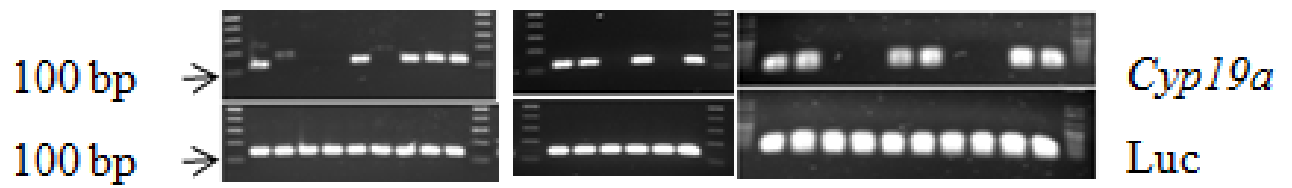


Supplemental Figure 1

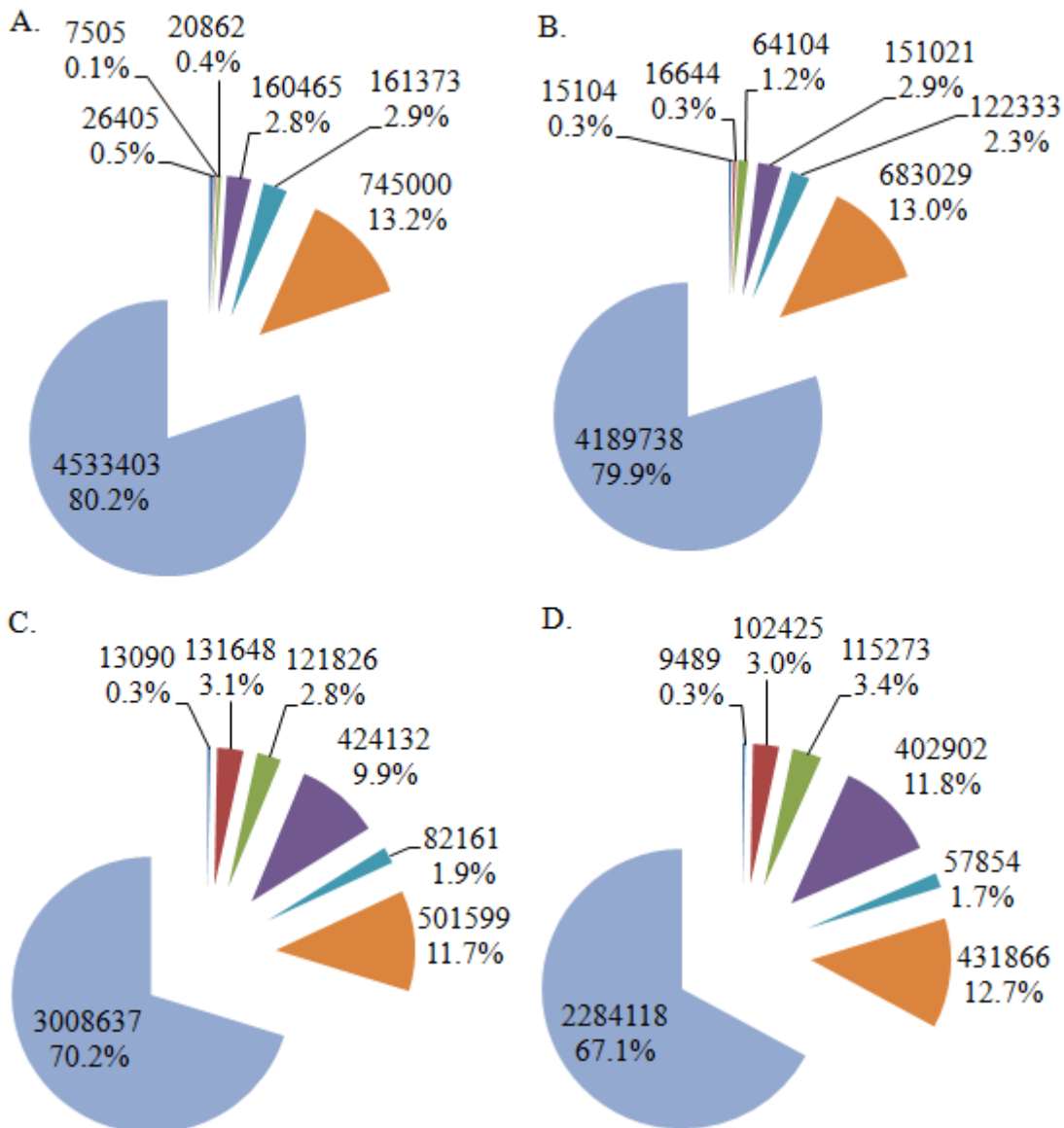
Sexing of Atlantic halibut juveniles using P450 aromatase *cyp19a* as a marker. *cyp19a* and exogenous reference gene, luciferase (*Luc*) expression is shown. Individuals without bands or weak bands were considered as males while those with strong bands were considered as females.



Supplemental Figure 2

Atlantic halibut SOLiD reads from libraries of A) ovary B) testis C) female brain, and D) male brain were mapped to rRNA, mtRNA, tRNAs, miRNAs, other non-coding RNAs and Atlantic halibut ESTs. The number of reads and their percentage mapped to each database are shown.

■ rRNA                      ■ Mitochondrial Transcript    ■ tRNAs                      ■ miRNAs  
■ Other non-coding RNAs    ■ ESTs                      ■ Unmapped



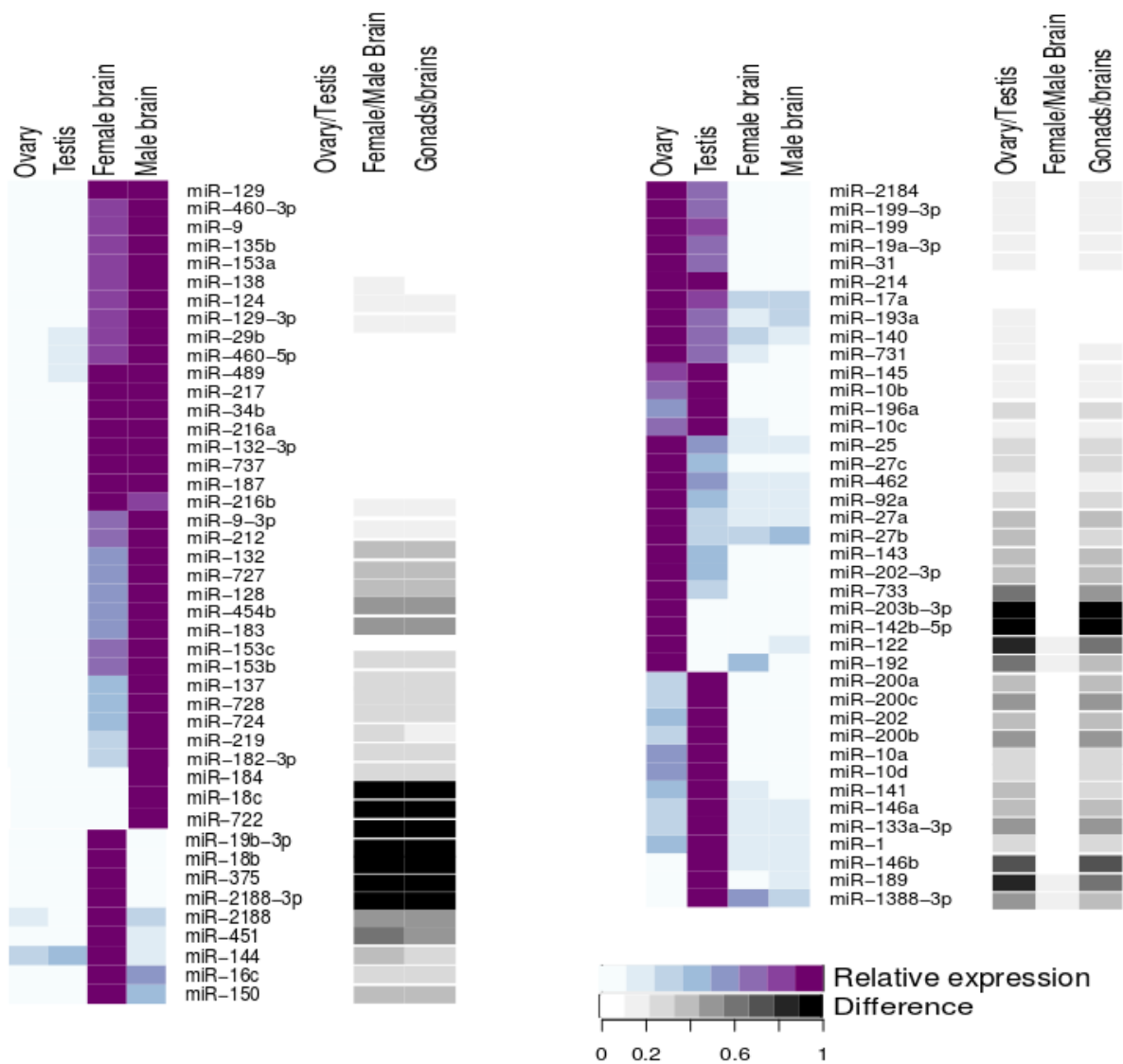
### Supplemental Figure 3

Heatmap of miRNA expression in Atlantic halibut ovary, testis, female brain, and male brain. Blue and purple squares represent the expression score of normalized reads in a given tissue. Gray-scale squares represent the difference score, which is the ratios of relative normalized reads of ovary (Ro), testis (Rt), female brain (Rfb) or male brain (Rmb) divided by the ratio of their sum minus the ratio of the relative normalized reads of the opposite sex or the other tissue; i.e.,

$$Ovary \setminus Testis = (Ro - Rt) \div (Ro + Rt + Rfb + Rmb)$$

$$Femalebrain \setminus Malebrain = (Rfm - Rmb) \div (Ro + Rt + Rfb + Rmb)$$

$$Gonads \setminus Brains = [(Ro + Rt) - (Rfb + Rmb)] \div (Ro + Rt + Rfb + Rmb)$$



Supplemental Figure 4

Amplification curve of let-7a, miR-19b, miR-24, and miR-202-3p (A), miR-143 (B), miR-145 (C), and endogenous control U6 (D) in skin, muscle, gut and kidney of Atlantic halibut juveniles using RT-qPCR. For the detail of the RT-PCR conditions see Materials and Methods. For visualization purpose both biological and technical replicates were removed. Fig 5A shows late amplification of let-7a in gut, and miR-24 in kidney and skin.

