Table S1 The Product Numbers of Commercial Assay kits.

Enzyme	Kit No.	Manufacturer
Amylase (AMS)	C016-1-1, C016-2-1	Nanjing Jiancheng Bioengineering Institute
Glucose-6-phosphate dehydrogenase (G-6-PD)	A027-1-1	Nanjing Jiancheng Bioengineering Institute
Malic enzyme (ME)	BC1125	Solarbio Life Sciences
pyruvate kinase (PK)	A076-1-1	Nanjing Jiancheng Bioengineering Institute
Acyl-CoA oxidase (ACO)	H232	Nanjing Jiancheng Bioengineering Institute
Lipase (LPS)	E1019	Applygen Technologies Inc.
Fatty acid synthase (FAS)	H231	Nanjing Jiancheng Bioengineering Institute
Carnitine-acylcarnitine translocase (CACT)	SEB657Ra	Wuhan Cloud-Clone Corp.
Acetyl-CoA carboxylase (ACC)	H232	Nanjing Jiancheng Bioengineering Institute
Superoxide dismutase (SOD)	A001-3-1	Nanjing Jiancheng Bioengineering Institute
Phospholipid hydroperoxide glutathione peroxidase (GSH-PX)	A005-1-1	Nanjing Jiancheng Bioengineering Institute
Catalase (CAT)	A007-1-1	Nanjing Jiancheng Bioengineering Institute
Lipoprotein lipase (LPL)	A067-1-1	Nanjing Jiancheng Bioengineering Institute
malondialdehyde (MDA)	A003-1-1	Nanjing Jiancheng Bioengineering Institute

Table S2 Primers Used for Detection of DEGs

Gene	Primer name	Primer sequence (5′ -3′)	Purpose	Amplification efficiency (%)	Correlation coefficient
ghrb	*ghrb F*	AGCAACCCCATATCCCCTCT	RT-qPCR	95.30	0.998
	ghrb R	AGAGGTAGTGGCAGGACAGG	RT-qPCR		
igfbp4	*igfbp4 F*	AGCAATATCCGGTGCAGTCC	RT-qPCR	101.35	0.995
	igfbp4 R	AGCAATATCCGGTGCAGTCC	RT-qPCR		
vtgB	*vtgB F*	CTGGTATGGCAGGTTGCTGA	RT-qPCR	100.08	0.998
	vtgB R	CTCAACCTGGAAATCCAGAAAAC	RT-qPCR		
apoF	*apoF F*	AGTTCCTGCACTTTCCAGCA	RT-qPCR	96.84	0.998
	apoF R	GTCCTGTGATTTTGAGTTTCAGCA	RT-qPCR		
apoB-100	*apoB-100 F*	TCTATTTGGGAAGCAGCTCTGA	RT-qPCR	94.92	0.997
	apoB-100 R	GGAATGTTAGGAAGGAAGGCA	RT-qPCR		
apoE	*apoE F*	GCAGGGTGAAGTGCATCGTT	RT-qPCR	103.53	0.996
	apoE R	AGGTTGACTATGCAGAAGGTTGA	RT-qPCR		
apoEb	*apoEb F*	ATGAGGACACGTTTCGACCC	RT-qPCR	101.77	0.993
	apoEb R	TCAGGGTGGTGATCTTTGCC	RT-qPCR		
ggct	*ggct F*	AGACTCACCCCTTCCTGGTT	RT-qPCR	99.25	0.999
	ggct R	CAACTGGCAAATCCTTCGGC	RT-qPCR		
gpx1a	*gpx1a F*	TGCATCAGAAACTCCCCTCAC	RT-qPCR	98.84	0.998
	gpx1a R	ATGGCTGTTGGAGAGATAGCC	RT-qPCR		
gstt3	*gstt3 F*	GAAGGAACACGGGGGAAGTG	RT-qPCR	94.54	0.992
	gstt3 R	CTCAAAGGGAATCCCGACCG	RT-qPCR		
β-actin	*β-actin F*	GCAGGAGTACGATGAGTCCG	Reference gene	99.25	0.998
	β-actin R	AGGCATGTATGCAGAGCCAG	Reference gene		

Table S3 Assembly results statistics

Length Range	Transcript	Unigene
200-300	9,934(16.75%)	8,600(23.57%)
300-500	9,177(15.48%)	6,677(18.30%)
500-1000	12,006(20.25%)	6,866(18.82%)
1000-2000	14,881(25.09%)	7,460(20.45%)
2000+	13,303(22.43%)	6,879(18.86%)

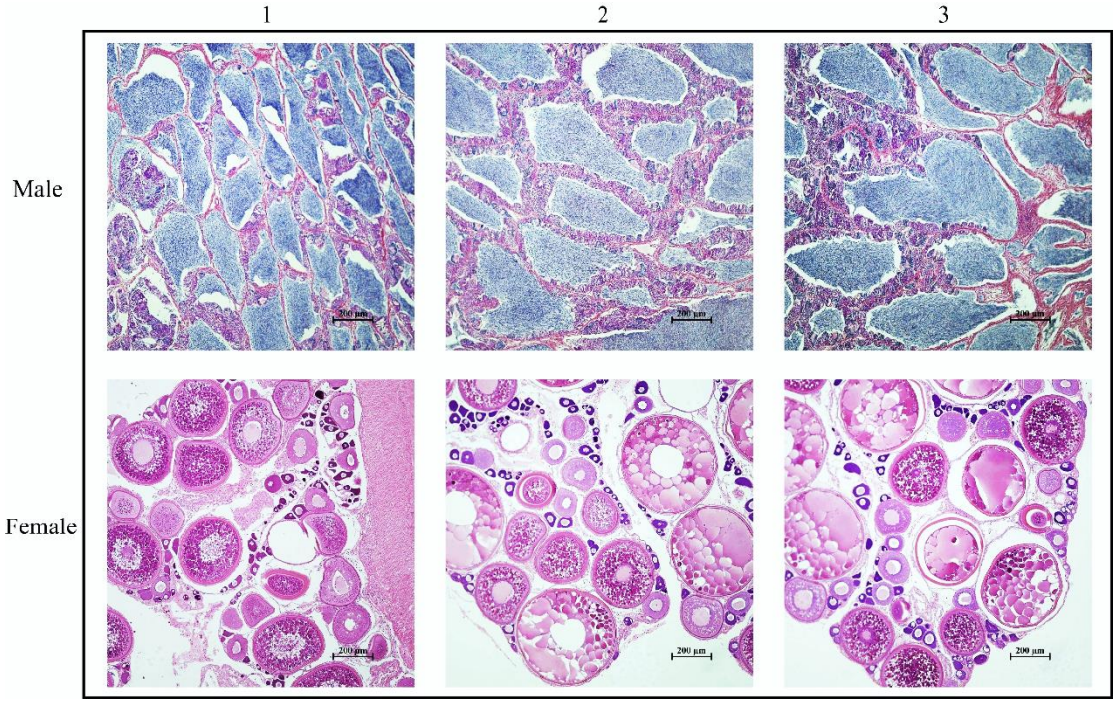

Figure S1: Histological identification of male and female yellowfin tuna gonads. Scale bar: 200 µm.