**Table S1.** Detailed information of Japanese silver eels used in this study

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample name | Sex | Body length (mm) | Body weight (g) | Ocular index (OI) | Fin-index (FI) | Skin coloration | Application | Source |
| FPF1 | Female | 785  | 675  | 6.36 | 5.05 | Black on the back and pectoral fins; silver/bronze on the belly | RNA-seq | Bought from Pingtung |
| FPF2 | Female | 796 | 710  | 6.12 | 5.14 | Black on the back and pectoral fins; silver/bronze on the belly | RNA-seq | Bought from Pingtung |
| MPF1 | Male | 710 | 550  | 6.55 | 5.21 | Black on the back and pectoral fins; silver/bronze on the belly | RNA-seq | Bought from Pingtung |
| MPF2 | Male | 715 | 575  | 6.18 | 5.40 | Black on the back and pectoral fins; silver/bronze on the belly | RNA-seq | Bought from Pingtung |
| F1 | Female | 826 | 810  | 5.99 | 5.32 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| F2 | Female | 815 | 790  | 6.03 | 5.20 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| F3 | Female | 830 | 900  | 5.95 | 5.18 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| F4 | Female | 788 | 705  | 5.72 | 5.06 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Tainan |
| F5 | Female | 775 | 658  | 5.84 | 5.12 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Tainan |
| F6 | Female | 650 | 420  | 5.54 | 4.93 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Feminized eel |
| F7 | Female | 698 | 560  | 5.76 | 5.04 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Feminized eel |
| M1 | Male | 708 | 530  | 6.46 | 5.24 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| M2 | Male | 696 | 520  | 6.20 | 5.43 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| M3 | Male | 680 | 460  | 5.87 | 5.21 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Pingtung |
| M4 | Male | 736 | 618  | 5.93 | 5.36 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Tainan |
| M5 | Male | 692 | 489  | 6.01 | 5.38 | Black on the back and pectoral fins; silver/bronze on the belly | RT-qPCR | Bought from Tainan |