

# CHAPTER 8: APPENDICES

## Appendix A

### Blast Analysis

<b>Locus name</b>	<b>Blast similarites (NCBI)</b>	<b>E- value</b>
SFO-VJ2-H12	-unnamed protein product [Tetraodon nigroviridis]	3E-12
	-hypothetical protein LOC100192208 [Danio rerio].	1E-4
	-PREDICTED: similar to paired box gene 6b [Danio rerio].	1E-4
SFO-VJ2-H14	-novel protein similar to vertebrate potassium voltage-gated channel, subfamily H (eag-related) family [Danio rerio].	6.3
	-PREDICTED: similar to potassium voltage-gated channel, subfamily H (eag-related), member 3 [Danio rerio].	6.3
SFO-T110-H3	-unnamed protein product [Tetraodon nigroviridis]	4E-29
	-Cdkn1bl protein [Danio rerio].	6E-19
	-PREDICTED: cyclin-dependent kinase inhibitor 1b, like [Danio rerio].	8E-19
	-unnamed protein product [Tetraodon nigroviridis].	4.E-1
SFO-T110-H6	-unnamed protein product [Tetraodon nigroviridis]	3E-19
SFO-T110-H9	-unnamed protein product [Tetraodon nigroviridis]	4E-1
SFO-T110-H10	-brain specific homeobox	5.E-28
SFO-T112-H9	-FTSH11 membrane AAA-metallocprotease [ <i>Chlamydomonas reinhardtii</i> ]	1.6
	- Mfsd8 major facilitator superfamily domain containing 8 [ <i>Rattus norvegicus</i> ]	3.5
	- FAM27D1 family with sequence similarity 27, member D1 [ <i>Homo sapiens</i> ]	2.7
	-MUT6 DEAH-box RNA helicase [ <i>Chlamydomonas reinhardtii</i> ]	1.E-3

Locus name	Blast similarities (MGRC-Synablast)	E value
SFO-VJ2-H1	Danio rerio chromosome 6 genomic contig, reference assembly (based on Zv7_scaffold586) <u>(35670 bp at 5' side: similar to novel pim oncogene family protein)</u> <u>(2000 bp at 3' side: gastrulation brain homeo box 2)</u>	1e-114
SFO-VJ2-H4	Danio rerio chromosome 4 genomic contig, reference assembly (based on Zv7_scaffold333)	0.001
SFO-VJ2-H5	Danio rerio chromosome 5 genomic contig, reference assembly (based on Zv7_scaffold416)	0.005
SFO-VJ2-H12	Danio rerio chromosome 3 genomic contig, reference assembly (based on Zv7_scaffold247) Length=5038135 <u>(similar to paired box gene 6b)</u>	9e-12
SFO-VJ2-H13	Danio rerio chromosome 8 genomic contig, reference assembly (based on Zv7_scaffold793) Length=6180980 <u>(YTH domain family, member 1)</u>	0.0
	Danio rerio chromosome 24 genomic contig, reference assembly (based on Zv7_scaffold2328) Length=4000201 <u>(YTH domain family 3)</u>	2e-126
	Danio rerio chromosome 17 genomic contig, reference assembly (based on Zv7_scaffold1711) Length=1168751 <u>(YTH domain family 2)</u>	8e-106

Locus name	Blast similarities (MGRC Synablast)	E value
SFO-VJ2-H14	Danio rerio chromosome 9 genomic contig, reference assembly (based on Zv7_scaffold913) Length=1350117 (similar to potassium voltage-gated channel, subfamily H)	4e-17
SFO-VJ2-H15	Danio rerio chromosome 17 genomic contig, reference assembly (based on Zv7_scaffold1681) Length=717845 (similar to KIAA0311)	3e-21
	Danio rerio chromosome 16 genomic contig, reference assembly (based on Zv7_scaffold1600) Length=58112	5e-41
	Danio rerio chromosome 10 genomic contig, reference assembly (based on Zv7_scaffold990) Length=1710968 (6795 bp at 5' side: hypothetical protein LOC474330)	8e-13
SFO-VJ2-H21	Danio rerio genomic contig, reference assembly (based on Zv7_NA177) Length=193181	3e-05
	Danio rerio chromosome 22 genomic contig, reference assembly (based on Zv7_scaffold2147) Length=317542 (9920 bp at 5' side: similar to fibrillin 2) (53470 bp at 3' side: translocase of inner mitochondrial membrane 44 homolog)	0.001
SFO-VJ2-H26	Danio rerio chromosome 3 genomic contig, reference assembly (based on Zv7_scaffold247) Length=5038135 (similar to paired box gene 6b)	9e-12
SFO-VJ2-H30	Danio rerio chromosome 19 genomic contig, reference assembly (based on Zv7_scaffold1896) Length=2436711 (271679 bp at 5' side: KH domain containing RNA binding signal transduction) (193209 bp at 3' side: similar to karyopherin alpha 6 (importin alpha 7)	0.004

Locus name	Blast similarities (MGRC Synablast)	E value
	Danio rerio chromosome 17 genomic contig, reference assembly (based on Zv7_scaffold1712) Length=4649994 <u>( 60060 bp at 5' side: similar to protein kinase D1)</u> <u>(11806 bp at 3' side: hypothetical protein LOC368848)</u>	2e-21
SFO-VJ2-H34	Danio rerio chromosome 7 genomic contig, reference assembly (based on Zv7_scaffold717) Length=2772546 <u>(similar to putative serine/threonine kinase SADA alpha)</u>	0.001
SFO-VJ2-H36	Danio rerio chromosome 10 genomic contig, reference assembly (based on Zv7_scaffold1034) Length=413261 <u>(hypothetical protein)</u>	2e-07
SFO-VJ2-H37	Danio rerio chromosome 6 genomic contig, reference assembly (based on Zv7_scaffold586) Length=669280 <u>(35670 bp at 5' side: similar to novel pim oncogene family protein)</u> <u>(2000 bp at 3' side: gastrulation brain homeo box 2)</u>	9e-116
SFO-VJ2-H41	Danio rerio chromosome 6 genomic contig, reference assembly (based on Zv7_scaffold586) Length=669280 <u>(35670 bp at 5' side: similar to novel pim oncogene family protein)</u> <u>(2000 bp at 3' side: gastrulation brain homeo box 2)</u>	5e-113
	Danio rerio chromosome 17 genomic contig, reference assembly (based on Zv7_scaffold1712) Length=4649994 <u>(60060 bp at 5' side: similar to protein kinase D1)</u> <u>(11806 bp at 3' side: hypothetical protein LOC368848)</u>	2e-21
SFO-VJ2-H42	Danio rerio chromosome 7 genomic contig, reference assembly (based on Zv7_scaffold717) Length=2772546 <u>(similar to putative serine/threonine kinase SADA alpha)</u>	0.005

Locus name	Blast similarities (MGRC Synablast)	E value
SFO-BP8-H1	Danio rerio chromosome 17 genomic contig, reference assembly (based on Zv7_scaffold1747) Length=194841	0.004
SFO-BP8-H2	Danio rerio chromosome 23 genomic contig, reference assembly (based on Zv7_scaffold2249) Length=481531 <u>(similar to pol polyprotein)</u>	0.005
SFO-BP8-H3	Danio rerio chromosome 1 genomic contig, reference assembly (based on Zv7_scaffold54) Length=1059805 <u>(65544 bp at 5' side: lymphocyte enhancer binding factor 1)</u>	0.001
SFO-BP8-H4	Danio rerio chromosome 1 genomic contig, reference assembly (based on Zv7_scaffold54) Length=1059805 <u>(65544 bp at 5' side: lymphocyte enhancer binding factor 1)</u>	0.001
SFO-BP8-H7	Danio rerio chromosome 10 genomic contig, reference assembly (based on Zv7_scaffold1013) Length=3691107 <u>(Iglon2</u> <u>hypothetical protein LOC678534)</u>	0.004
SFO-BP8-H10	Danio rerio chromosome 15 genomic contig, reference assembly (based on Zv7_scaffold1492) Length=2670667 <u>(neuro-oncological ventral antigen 2)</u>	0.005

## Appendix B

Allele sizes and allele frequency comparison over six populations of *Channa striata*

Locus	Allele (bp)	N. Sembilan	Johor	Penang	Selangor	Terengganu	Kedah
SFO-T112-H4	A (167)	0.67	0.78	0.82	0.92	-	0.78
	B (197)	0.33	0.22	0.18	0.08	-	0.22
SFO-T112-H6	A (268)	0.28	-	-	-	-	-
	B (278)	0.72	-	-	-	-	-
SFO-T112-H6I	A (160)	0.77	0.57	0.82	0.71	0.77	0.67
	B (196)	0.23	0.43	0.18	0.29	0.23	0.33
SFO-T112-H6F	A (256)	0.72	0.92	0.83	0.96	-	0.97
	B (296)	0.28	0.08	0.17	0.04	-	0.03
SFO-BP8-H1	A (250)	0.77	0.95	0.78	0.69	0.93	0.85
	B (270)	0.20	0.00	0.00	0.00	0.00	0.00
	C (280)	0.03	0.05	0.22	0.00	0.07	0.15
	D (300)	0.00	0.00	0.00	0.31	0.00	0.00
MFW 5	A (176)	0.00	0.82	0.00	0.00	0.00	0.00
	B (192)	0.53	0.18	0.00	0.00	0.00	0.00

	C (210)	0.47	0.00	0.00	0.00	0.00	0.73
D (226)	0.00	0.00	0.00	0.00	0.00	0.00	0.27
E (246)	0.00	0.00	0.67	0.73	0.22	0.00	
F (276)	0.00	0.00	0.33	0.27	0.78	0.00	
MFW 1	A (168)	0.75	0.00	0.00	0.00	0.00	0.78
	B (172)	0.00	0.00	0.87	0.71	0.00	0.00
	C (176)	0.25	0.72	0.00	0.00	0.00	0.00
	D (180)	0.00	0.02	0.00	0.00	0.00	0.00
	E (182)	0.00	0.00	0.13	0.00	0.67	0.22
	F (188)	0.00	0.27	0.00	0.29	0.00	0.00
	G (210)	0.00	0.00	0.00	0.00	0.33	0.00
MFW 7	A (176)	0.43	0.13	0.00	0.00	0.00	0.00
	B (188)	0.00	0.87	0.28	0.00	0.00	0.00
	C (194)	0.57	0.00	0.72	0.00	0.87	0.00
	D (204)	0.00	0.00	0.00	0.00	0.13	0.00
	E (246)	0.00	0.00	0.00	0.90	0.00	0.93
	F (268)	0.00	0.00	0.00	0.10	0.00	0.00
	G (274)	0.00	0.00	0.00	0.00	0.00	0.07

MFW 15	A (151)	0.00	-	0.23	0.00	0.00
	B (167)	0.00	0.00	0.00	0.83	0.00
	C (171)	0.00	0.38	0.00	0.00	0.13
	D (176)	0.43	0.00	0.00	0.00	0.87
	E (181)	0.00	0.38	0.00	0.17	0.00
	F (194)	0.57	0.00	0.00	0.00	0.00
	G (231)	0.00	0.00	0.13	0.00	0.00
	H (251)	0.00	0.00	0.87	0.00	0.00
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MFW 2	A (167)	0.72	0.82	0.82	0.94	0.82
	B (181)	0.28	0.18	0.18	0.06	0.18
						0.20

## APPENDIX C

### Sequences of an Isolated Fragment of *Channa striata*

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GTAGTACAAATCATCATCATCATCTGTACTATACTGTAAGACGGGGCAGTAGCAGTAACAGATTAAA  
GAAGAACATTAAACGTTAACATTCTGAATAGATGACTTTAAAAATACGTATTACACACATTGTAC  
AGATTCTAAATGGGAAAGATTATTAGCAGACACTGATAATGCTTCATGCTCCCTCATGCTTGAA  
TCAGATTAAACTTCAATTGCTGCTATGCATCAAATCAGTGTCTGTAATAAACATGGAAAGCTGC  
TCTGTTACAGTGGTTAAGAGAACATCACGGATGCAAAACACTTAATATTCAAAATCCTTAGAGA  
TTTAAACACACCTGCAACAGCTCAACTCTGTATTGTTGTTCTGTCAAACACACTTCATTGCTGTTA  
TTGTGGTAGAGGGTAGCGTACGGAACATAACAACACTAAACTAAACACACTATGAGCAACACATCTATCAG  
TGGGATGTTAACCTGTAGATGTAAGGAAAGTTGATGTCGCTGAATTAGATGCGATGGGACAC  
AACACTAAATGAATTAAACCGAGGTCAAGGGGGTGTGAAGAGAAACAGGAAGTGATGAGTGA  
AGAGTCACCATGGCAGCATTGTCATTAGTGTGCTGATCTGTCAACATGTTCTTACCCATG  
ACACCTGGAGTGCAAGAAAAGTGTGTGTGTAGATAAGAGAAAGCCAGAGATAGGGAGA  
ACCATAACTTGATGACGCCACTGCTGAGTTCAGCTCACIGGGTGTAAAAATTATCATTATGATGAT  
GATGATCGGTAAGGG
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Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-T112-H4)

Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-T112-H6)

Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-T112-H6I)

CCCTAAGGGATCATCATCATTAAACCTTCCCTCCTAGACATCGCAGTGGTGGACA  
TGAGCGACGTGTTCCGCCAGCCCTCGTTATTCTACCCACCTGGGCGTGAGGGAGACTTCGACA  
TGGCCAATAATGTCATCCTGTACCACGACACTGACCCACAGTCACTGAAGGTAA  
CACACACACACACACACATGCACACAGCACACACACACACACACACACACAC  
ATTCCCTCACAGTTCCTTGGAAACAAAGTGAATCCGCTTAAGTTATTACAGACA  
GTAAATACTGGTCAGGCTCGACTGAGCTGCCGGCTGTTGCCAGCAGACTGCAGC  
TCAAAAACACACACAAGAACGCACACATACGGCGCTCCGATGTTGGACCCAGTCTCACAGC  
TGTITGTCTCCCTGAGGACATGGTGGCACAGAAAACACAGTAAGTTCTGAGTGGCTGCGT  
GTGATITACGGCACGGCTCTGTCGGTGTGCTATITGTGGAATAATAATTCGGACAAGTGCTGTTG  
GTCTCTCATGCACACATGCTTACATGAATTCATGCTTACACGCTTCCCTCTCTCTCA  
TGCATCCACATTAC  
**AC****A**ACAAAACATGTGTGG**CAGACCTTGTGTAATAGTGTG**TGAAAAAATAACATTAAACACATAA  
CCTTACTTTATTGGGGTGTATGGGTGTTGTTGTTGCTGCGTGCCTGCTGCTGTTTCAGTT  
GTGTGTGTGTGTGTGGAAATAGGCTCGCTCGTTCCAGCATTAGGTTTCATGGGTTCA  
GCCTCCAGAGTACAGAGGGCTCTGGATTGGCAAAAAGTAGGTACCGTTCTGCAGGCAAAGCAT  
GCTGGGAGGTTACCGAAAACTTAACTACTAATAATAGCAAACATGGAGGGCTCCAGGCCA  
CTGACCTCCCCATGGGATGTTGTTGAAACAAAAATGAAAATCCCCTTAAACAAACAT  
GGCAACTCCTAAAGCACCGGGAAAACAAATTGGAATGAGTTGGACCGTGGAGATATC  
CGGTGTTTGGAAAGAAAAGAAGAATTGGCCCCACACGGGA

Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-T112-H6F)

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CGAATTCCAAGCTTAAGGTTTGTGTTGCTGTTAGCAGAGCAAGTATA  
GAAAATAGACACATTATCTACTGTATAATGGCATATGTTGCAGGATGTCAGTGGCTCAACAATGAATG  
AGGTCACTCATGTCCAGTTGAGTTGCACAAAAGATCCCCCTGCCACCAGAAAAGAAAATTCAA  
ACACACAATAAAATTAAACTGACCTGCCCTGACAAATGTTGGTGTGAAACTGGGAATTAA  
TAACAGTAACAAACAAAAAAATGGTGCAAAATATTCCAGAGATGAAAGATTCTGCTTACAA  
CTCGACAAGAGATGAAAGCCAAAGTTTGTGACCAGGGCGGCTGCAGGTTGCTCCCAGTGA  
CCCCCAGGGCCTCGATTCACTGACCCAGTACAGTTACTGACTCACGAGTAGGGCTGCAA  
CGACTTCACCGTCACCTAACCTTTTATGTTGGGGTACTGGTGA  
AAACAGGCTGAAATTAACTTCTCTTGTGGGACATGACCATTATCTATCTCTAAGGC  
AAAACACTTATGGACCACAGACAGCTCAGCTATTTCACCTCTCTC  
AAAAAACTTATGGACCACAGACAGCTCAGCTATTGGA  
GCTTTCTTTCTTGGTTAAACTTAATTGGTAGTGTAGA  
GTCAGGACTTTAACAGGTCTTCTCAGATGTTGCACAAAGCACC  
ACGGCTCTGCGCCAAAAAATTGAGATGAAACAGTGGTATCCAGATT  
CAACAAACAAATA
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Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-BP8-H1)

TAATTAGAGACTCCTCCTCCTTACGCACAGCAGCTCATGTCCTACCTCCAGGCT  
AAAGCAATGTCAAATCATTTCAAAATTAAAGCAGAAAATCAATAACCTCCTATCAACCGGCTA  
TGTATGAAATTACCCCCGGTGGGCCATTATTGATTAGCAGAAAATTAAATGCTGCTGGAA  
GTGGGGCTCGTTCGGGCTCACGGGGCTGTTAAAAGGAAAATTCAATAACCAAGACGGTAAAGAAA  
GGGGGGAAATTAAATAGAGGAGGACCGAACCCCTGAATTAGCTCAGTAAACCAATCAACCCAAATA  
CTTCCCCGGACTCGTTGGTGGCGCTCTGTTGAGGGTGACACCGACGGAGGCCACGTG  
GCCCGCTGATTGCATTGTGAACCTCCCTACAGCGACAGTCCTTAAAAGAACTCGGCAAAACT  
CGCGTCCCGTCCAGCAAACGCCCTAAATGTGTGAAACACAACGCAGGGTGCAGAGTTCAAAAGGT  
GTTCCCATGAGCCATAACCCTCGTCTCGAATTTTCTAATTAAATTGTCACGGACGCAAATT  
GTCTAAATTATAACGTCCCTAGCAAATCAGAGAAAGTGCCTCGTTCCGGTTTAAATTTAGTCTG  
CAGTGCACAAACGTTCCAGCCTCGTGTGATGACATTAGGCATAAAATCTACACAAACACA  
CATAAAACACACACTCTGCTGTTACCTGTTATGGCGTGGATAAAAGTAAACCGTCGGC  
ATTGCTGGAGAGGCATTGTTGTCGGATAAAAGTGTCCGGCATCAAACGCATCCCTGTCCT  
GTCCTCTGTCCTCCATGCGGGGCCACCAAGGTAGTTGGACGGTATAGCGTTAACCCCCCATCCC  
TCGAATGCAACCAACTCAGCAAANACTCGAACAGGGAGGGAGGAATCTGAAAAGAGAT  
CTGGATCCCTCAAAGTCACCTGCAAGGCATGCAACCTGGCTAATCTGGTCTAGCTGTTCCCTGGT  
AAATGTTATCCGCTCCAATTCCC

Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-VJ2-H38)

TCAGTGAAAGTTGTTGTTGGCTTGTGACTTTAAGGACAAGGGAAAATCAATTCAA  
TAATTCAAATCATATTGATCTGTATTGATTAACTGAAGTATTGCTTACATGCCAAAACATGTTTCT  
TACTCTGCATTGCCCTTCTTGTATACTAGTACCAATAAACCGGATTGTAAAGTCTGTCTCT  
ATTCAATTATAAACACAATTTCCTGGCCGACATTCTTAAGTGAATAAGAAACTTTGTT  
ATGGAGCAATATGAATCTTATAAAATTAGCTACGTGGCAATTAACTATGTAT  
CAAACAGCTTCAACCCCCGTGTTCTCCCCAGGTGAAACCTCTCAGCTTACAGTTCCA  
AAGTCTGGCTACCTGTCTCAGAGCAAGGGACAAGCAAAGCAGAAAGAAGGGAAATGAG  
AGAAAGAGACAGTCATGGCTTAGCCAATGAATTCAGACAAAGGGCAAGCAGGGAGACACTG  
TCTGAGGGAAAGGGAGGAGAAAAGTGTCTGTGTTATGATAAGCAACAATTAGTAAATT  
ACACAAAGCATTAAAAGAATGGTCACTGAGGGAGATGGAAAATCGTAGGCCATCAAAAA  
GTCAATGGGAGCAGTGAGATCATAAAGTGGACAAAGGCAGTAAAAGTGCCAAACGATAAGGAA  
GATATGAAAATCTAAGCTTGTATCATGTACATGTTAGCATGAGAGGCTGACAG  
AGCTCCAGAGTCGACAGTGACACAGGTGTGCTACTAACACCAGGGAAAGAGGAGACAGGGTCGT  
AACACTGTCACGGTGTGGGACACTGACGTTGTTGATTCTTTGTAAGGCCCTTCTCT  
**CCTTAGTGTGTGGTCATTGTCTGGCTGTACTGGCTGAATGTGTGTGTGTGT**  
**GTGTAAAATGTGATATCGITGGCATCATGGTGCCTTACATGCTTCAAGTCCCCTCCA**  
**CTCGCTGCATGTGAATTTCCTTCAAAATATGACAATCCAGTCAAAACGTATTCCCTGTTCT**  
**TGAACGTCAT**

Sequence of an isolated fragment, containing microsatellites (indicated in red). The positions of primers are indicated in blue.

(Primer SFO-BP8-H2)