

Primer name	Nucleotide sequence (5'→3')	Purpose
CXC-1F New	TGAACCCTGAGCTGAAGGCCGTGA	Real-time PCR
CXC-1R New	TGAAGGTCTGATGAGTTTGTCGTC	Real-time PCR
CXC-1R	CCTTCAGCTCAGGGTTCAAGC	Genomic PCR
CXC-2F New	GCTTGAACCCCGAGCTGAAAAACG	Real-time PCR
CXC-2R New	G TTCAGAGGTCGTATGAGGTGCTT	Real-time PCR
CXC-2F	CAAGCAGGACAACAGTGTCTGTGT	3'RACE
CXC-2AR	GTTGCATGATTTGGATGCTGGGTAG	5'RACE
CXC-1FSB	AACATATGTCTCCAGGCCCAACTCAAAC	Southern blot
CXC-1RSB	CTCGAGTTATTTTGCAGTGTGCAA	Southern blot
CXC1Exon1F	CAAAGTGTTTCTGCTCCTGG	Genomic PCR
<i>On</i> -CXC ₁ FOverEx	CATATGCAACTCAAACAAGCAGGACAACAGT	Overexpression
<i>On</i> -CXC ₁ ROverEx	CTCGAGTTTTTGCAGTGTGCAATTTCAA	Overexpression
<i>On</i> -CXC ₂ FOverEx	CATATGCAACTCAAACAAGCAGGACAACAGT	Overexpression
<i>On</i> -CXC ₂ ROverEx	CTCGAGCATGGCAGCTGTGGAGGGTTCCAC	Overexpression
β-actinrealtimeF	ACAGGATGCAGAAGGAGATCACAG	Real-time PCR
β-actinrealtimeR	GTA CTCTGCTTGCTGATCCACAT	Real-time PCR
M13F	AAAACGACGGCCAG	Nucleotide sequencing
M13R	AACAGCTATGACCATG	Nucleotide sequencing
UPM-long (0.4 μM)	CTAATACGACTCACTATAGGGCAAGCAGTGGTATCAACGCAGAGT	RACE PCR
UPM-short (2 μM)	CTAATAC GACTCACTATA GGGC	RACE PCR

Table S1. Nakharuthai and Srisapoom (2020)

<i>On-CXC1</i>	Nucleotide (%)		Amino acid (%)	<i>On-CXC2</i>	Nucleotide (%)		Amino acid (%)
Versus	identity	identity	similarity	Versus	identity	identity	Similarity
Teleost fish							
1. Rock bream, <i>Oplegnathus fasciatus</i> (AB703273)	64.5	49.1	68.1	<i>O. fasciatus</i>	70.7	57.7	75.4
2. Mandarin fish, <i>Siniperca chuatsi</i> (AAY79282)	63.2	48.1	68.9	<i>S. chuatsi</i>	70.5	54.0	78.8
3. Atlantic halibut, <i>Hippoglossus hippoglossus</i> (ACY54778)	52.0	39.3	51.1	<i>H. hippoglossus</i>	64.5	46.3	63.9
4. Common carp IL-8, <i>Cyprinus carpio</i> (ABE47600)	44.9	19.1	34.1	<i>C. carpio</i>	49.4	21.9	42.6
5. Rainbow trout IL-8, <i>Oncorhynchus mykiss</i> (CAC33585)	44.0	21.3	36.3	<i>O. mykiss</i>	47.3	23.7	44.4
6. Japanese flounder IL-8, <i>Paralichthys olivaceus</i> (AAL05442)	48.4	25.4	45.9	<i>P. olivaceus</i>	49.6	29.6	55.0
7. Atlantic cod IL-8, <i>Gadus morhua</i> (CAD59734)	42.2	21.5	37.0	<i>G. morhua</i>	47.6	21.4	46.3
8. Haddock IL-8, <i>Melanogrammus aeglefinus</i> (CAD97422)	43.4	20.1	38.5	<i>M. aeglefinus</i>	48.4	23.9	48.1
9. Fugu rubripes IL-8, <i>Takifugu rubripes</i> (NP001027759)	45.0	20.6	37.0	<i>T. rubripes</i>	50.3	24.6	47.2
10. Black porgy IL-8, <i>Acanthopagrus schlegelii</i> (AAY18807)	42.1	18.8	38.5	<i>A. schlegelii</i>	44.1	24.3	48.1
11. European seabass IL-8, <i>Dicentrarchus labrax</i> (CAM32186)	44.0	19.6	37.0	<i>D. labrax</i>	48.5	23.3	45.4
12. Bighead, <i>Hypophthalmichthys nobilis</i> (JN546631.1)	44.8	22.0	38.5	<i>H. nobilis</i>	46.2	25.4	48.1
13. Channel catfish CXCL10, <i>Ictalurus punctatus</i> (AAQ01586)	43.5	22.5	43.7	<i>I. punctatus</i>	46.8	27.0	55.6
14. Rainbow trout CXCL10, <i>Oncorhynchus mykiss</i> (NP001117788)	44.3	22.0	43.7	<i>O. mykiss</i>	46.7	26.3	54.6
15. Zebrafish CXCL11, <i>Danio rerio</i> (XP001339307)	42.2	20.6	40.0	<i>D. rerio</i>	46.0	24.8	50.0
16. Atlantic salmon CXCL10, <i>Salmo salar</i> (NP001134500)	38.3	23.7	37.0	<i>S. salar</i>	42.9	27.7	44.4
17. Nile tilapia CXCL14, <i>Oreochromis niloticus</i> (XP003443444)	43.3	21.4	37.8	<i>O. niloticus</i>	48.5	28.4	43.5
18. Atlantic salmon CXCL14, <i>Salmo salar</i> (NP001134297)	44.2	20.0	36.3	<i>S. salar</i>	44.6	26.7	41.7
19. Rainbow trout CXCL14, <i>Oncorhynchus mykiss</i> (CCD11011)	45.6	20.0	36.3	<i>O. mykiss</i>	46.5	26.7	41.7
20. Atlantic salmon CXCL13, <i>Salmo salar</i> (NP001134571)	46.7	19.0	41.5	<i>S. salar</i>	47.1	21.1	44.1
21. Japanese flounder CXC, <i>Paralichthys olivaceus</i> (BAF79875)	46.8	22.9	43.7	<i>P. olivaceus</i>	47.7	28.1	51.4
22. Fugu rubripes CXCL13, <i>Takifugu rubripes</i> (NP001233223)	41.4	21.3	39.3	<i>T. rubripes</i>	49.4	23.9	48.1
23. Zebrafish CXCL12, <i>Danio rerio</i> (NP840092)	44.0	17.1	38.5	<i>D. rerio</i>	46.4	20.4	49.1
24. Large yellow croaker CXCL12, <i>Larimichthys crocea</i> (ACF35274)	43.8	13.9	35.6	<i>L. crocea</i>	46.4	17.3	44.4

Higher vertebrates

25. African clawed frog CXCL14, <i>Xenopus laevis</i> (NP001086198)	45.8	20.0	41.5	<i>X. laevis</i>	47.8	21.2	44.4
26. African clawed frog CXCL12, <i>Xenopus laevis</i> (CAC82196)	43.5	18.7	47.7	<i>X. laevis</i>	47.7	21.4	51.9
27. Cattle IL-8, <i>Bos taurus</i> (NP_776350)	46.6	17.9	38.5	<i>B. taurus</i>	47.0	22.1	49.1
28. Sheep IL-8, <i>Ovis aries</i> (NP_001009401)	47.6	17.1	38.5	<i>O. aries</i>	46.7	21.2	49.1
29. Pig IL-8, <i>Sus scrofa</i> (NP999032)	47.9	17.1	37.8	<i>S. scrofa</i>	47.5	21.2	48.1
30. Dog IL-8, <i>Canis lupus familiaris</i> (NP001003200)	47.2	17.9	38.5	<i>C. lupus</i>	48.7	21.2	49.1
31. Domestic cat IL-8, <i>Felis catus</i> (NP001009281)	46.5	17.9	37.0	<i>F. catus</i>	45.8	21.2	46.3
32. Horse IL-8, <i>Equus caballus</i> (NP001077420)	46.5	19.3	34.8	<i>E. caballus</i>	46.6	23.0	44.4
33. Human IL-8, <i>Homo sapiens</i> (NP000575)	44.3	16.4	36.3	<i>H. sapiens</i>	46.3	20.4	46.3
34. Rhesus monkey IL-8, <i>Macaca mulatta</i> (NP001028137)	45.7	17.9	37.0	<i>M. mulatta</i>	43.9	21.2	47.2
35. Chicken IL-8, <i>Gallus gallus</i> (NP990829)	43.9	23.0	39.3	<i>G. gallus</i>	48.1	27.7	49.1
36. House mouse CXCL1, <i>Mus musculus</i> (NP032202)	43.4	18.6	36.3	<i>M. musculus</i>	45.7	21.2	45.4
37. Human CXCL3, <i>Homo sapiens</i> (NP002081)	42.4	18.4	39.3	<i>H. sapiens</i>	46.2	20.8	50.0
38. Human CXCL11, <i>Homo sapiens</i> (NP005400)	40.6	23.3	45.2	<i>H. sapiens</i>	44.7	26.3	51.9
39. Horse CXCL10, <i>Equus caballus</i> (NP001108412)	47.7	23.0	43.7	<i>E. caballus</i>	48.9	27.7	54.6
40. Pig CXCL10, <i>Sus scrofa</i> (ABD18444)	46.1	21.2	42.2	<i>S. scrofa</i>	47.1	25.5	52.8
41. Rhesus monkey CXCL13, <i>Macaca mulatta</i> (NP001028052)	44.3	17.3	40.7	<i>M. mulatta</i>	49.9	21.2	47.7
42. HumanCXCL13, <i>Homo sapiens</i> (NP006410)	44.6	17.3	40.7	<i>H. sapiens</i>	46.7	20.4	47.7

Table S2. Nakharuthai and Srisapoome (2020)

nt1	CGAATCCTCACAGCACTCCTGTCAACAATCAGTCTTTAATTGTTGCTAGTCTTTCTCTGG	nt60
nt61	CTGCATTATTATCTTTGCTGCACGTTTTTCAGCACCGGTGTCATCTTGAAAACAACA ATGT	nt120
aa1		aa2
nt121	CCACCCTCATCAAAGTGTTTCTGCTCCTGGCTGTCATGGTCTGCATCTCCCAGGCCCAAC	nt180
aa3	<u>T L I K V F L L L A V M V C I</u> S Q A Q L	aa22
nt181	TCAAACAAGCAGGACAACAGTGTCTGTGTACCGTGTGTCAGGAATCGTCTCGGCATGAAGT	nt240
aa23	K Q A G Q Q C L C H R V R N R L G M K S	aa42
nt241	CTGAAATAAAGGACGTACAGATCTACCCAGCAACCAAATTCTGCAACAAAGTGGAGATTG	nt300
aa43	E I K D V Q I Y P A T K F C N K V E I V	aa62
nt301	TCGTTACCTTGAACAGTGGTCTCCGCTATTGCT TGAACCCTGAGCTGAAGGCCGTG AAAA	nt360
aa63	V T L N S G L R Y C L N P E L K A V K R	aa82
nt361	GACTCGTGACTAACATCATGGATAAAAAGCAGAAGACCACTTCCTCCCCAGTGGAACCCT	nt420
aa83	L V T N I M D K K Q K T T S S P V E P S	aa102
nt421	CCACAGCTGCCAATATAATTTT GACGACAAACTCATCAGACCTTCA TATCATTGTAGTA	nt480
aa103	T A A N I I L T T N S S D L H I I C S I	aa122
nt481	TTTTTAAAGAATATTGCTTGAAATTGCACATCAGTGCAAAA TAAT CAGCATT ACTAAAAT	nt540
aa123	F K E Y C L K L H I S A K *	aa135
nt541	ATGTCTCAGGGAAATGGAAAATATTCAAGAATTTTCCACTTGAATTAGTCCTTTAACATA	nt600
nt601	ATGAAACACAGCAGCAAC ATTTAG CACATGCAAACAGCACAGCACAGCCAGTCACACACA	nt660
nt661	GTCCTGCTATACATAACAAGAGGTAGAGGCTAAAGAAGACAAAATCAAACAAACAAACAA	nt720
nt721	GACAGTTGATTTTAAGCAGGTTTCAGTTGCTGAAAAAATGATATTCTAGAAATATGAAG	nt780
nt781	GTATGACACCAAAGGATGGTTTCCCTCTTGGAGCATGAATGTTCCCTCTAATTCTGAATT	nt840
nt841	TCATTAATTTGACCCCTGAGATGATTTT CATTTATT CTTTAGTCCTGCTCTAGTTATACT	nt900
nt901	TATTTA TACTTTTTACTTATAT ATTTA ATTAGTCCCTTCAGGATTTTACTCTCTGTATTC	nt960
nt961	CACTTTGTCCTCCTCCCATGTTAAGTTTAATTCATGTGTAAGCATTTCCTGCTGCAGTT	nt1020
nt1021	GTTGTTATTCATGTCCCACCTTTAGTTTTGTAATAATTTGTCTTCTGTGTTTCATGTTTAA	nt1080
nt1081	TTTTACTTCACGTCCTAGCTCATTGCCATTGTCTTCAACTGTGTGATTACCTTGTGTCTG	nt1140
nt1141	TTTATCCTCCTGTTTTCAATCTCCTGACATGTGTGT TATAAA TAGTCCTGTCTATGATCCA	nt1200
nt1201	TTTGGCAAAATA AAATCC ATTTGGTATCCTTGTGGTCTTCAGACAACAATTCTGACGGCT	nt1260
nt1261	TAAGAACCAAATGGGACAGACAAAAAA ATAAAATAAAATAAAATAAAATAAA TAGT	nt1320
nt1321	CCTGTCAAAAAAAAAAAAAAAAAAAAAA	nt1346

Figure S1. Nakharuthai and Srisapoome (2020)

nt1	ACATGGGATCTTTGCTGCACGTTTTTCAGCACCGGTGTCATCTTGAAACCAACA ATGTCCA	nt60
aa1		aa3
nt61	CCCTCATCAAAGTGTTTCTGCTCCTGGCTGTCATGGTCTGCATCTCCCAGGCCCAACTCA	nt120
aa4	<u>L I K V F L L L A V M V C I</u> S Q A Q L K	aa23
nt121	AACAAGCAGGACAACAGTGTCTGTGTCACCGTGTGTCAGGAATCGTCTCGGCATGAAGTCTG	nt180
aa24	Q A G Q Q C L C H R V R N R L G M K S E	aa43
nt181	AAATAAAGGACGTACAGATCTACCCAGCAACCAAATCATGCAACAAAGTGGAGATTCTCG	nt240
aa44	I K D V Q I Y P A T K S C N K V E I L V	aa63
nt241	TTACCTTCAACAGTGGTCTCCGCTATT GCTTGAACCCCGAGCTGAAAAACG TGAAAAGAC	nt300
aa64	T F N S G L R Y C L N P E L K N V K R L	aa83
nt301	TCGTGACTAACATCATGGATAAAAAGCAGAAGACCACTTCCTCCCCAGTGGAACCCTCCA	nt360
aa84	V T N I M D K K Q K T T S S P V E P S T	aa103
nt361	CAGCTGCCATG TGA TTGTCTTTTAAGCTGCCTGAAAGAAA AAGCACCTCATACGACCTCT	nt420
aa104	A A M *	aa106
nt421	GAAC CCTCAACAAAGTCACTTTGACAAAAACAAAAAAACAAACATGGACATGAAATGAT	nt480
nt481	TGTAGTTTTTTTTT ATTTA TTTTTTTTTATACATGCTTTT ATTTTAT CTCCACTCTTTTGTA	nt540
nt541	TCCTGTTTTTATTCTACTGTGTTTTTGTAAATAGACGAATGCCTCTTTCTATCTTTTGAT	nt600
nt601	ATTTTTTT AATAAA ATTCTAACTCTAAAAAAAAAAAAAAAAAAAAAAAAAAAA	nt653

Figure S2. Nakharuthai and Srisapoome (2020)

On-CXC1

MSTLIKVFLLLLAVMVCISQAQLKQAGQQCLCHRVNRNLGMKSEIKDVQIYPATKFCNKVEIVVTLNSGLRYCLN

On-CXC2

MSTLIKVFLLLLAVMVCISQAQLKQAGQQCLCHRVNRNLGMKSEIKDVQIYPATKSCNKVEILVTFNSGLRYCLN

*****:****:*****

On-CXC1

PELKAVKRLVTNIMDKKQKTSSPVEPSTAANIILTNSSDLHIICSIFKEYCLKLHISAK

On-CXC2

PELKNVKRLVTNIMDKKQKTSSPVEPSTAAM-----

On-CXC1	Nucleotide	Amino acid	
VS	Identity (%)	Identity (%)	Similarity (%)
On-CXC2	76.0	73.7	76.3

Figure S3. Nakharuthai and Srisapoome (2020)

CattleIL-8	-----MTS-----	KLAVALLAAFLLSAALCEAAVLSRMS-----	TELRCQCIKTHSTPFFHPKFIKELRVIESGPH	CENSEIIVKLT----	NGNEVC	CLNPKEKWVQKVQVQVFKRAEKQDP-----	101
SheepIL-8	-----MTS-----	KLAVALLAAFLLSAALCEAAVLSRMS-----	TELRCQCIKTHSTPFFHPKFIKELRVIESGPH	CENSEIIVKLT----	NGKEVC	CLDPKEKWVQKVQVQAFILKRAEKQDP-----	101
DogIL-8	-----MTS-----	KLAVALLAAFLLSAALCEAAVLSRVS-----	SELRCQCIKTHSTPFFHPKYIKELRVIDSGBP	CENSEIIVKLF----	NGNEVC	CLDPKEKWVQKVQVQIFLKKAEKQDP-----	101
PigIL-8	-----MTS-----	KLAVAFLLAVFLLSAALCEAAVLARVS-----	AELRCQCIKTHSTPFFHPKFIKELRVIESGPH	CENSEIIVKLV----	NGKEVC	CLDPKEKWVQKVQVQIFLKRTEKQQQQQ-----	103
Domestic_catIL-8	-----MTS-----	KLAVALLAAFLLSAALCEAAVLSRIS-----	SELRCQCIKTHSTPFFNPKLKELTVIDSGPH	CENSEIIVKLV----	NGKEVC	CLDPKQKWVQKVVEIFLKKAEKQNA-----	101
HorseIL-8	-----MTS-----	KLAVALLAVFLLSAALCEAAVSRIT-----	AELRCQCIKTHSKPFPNPKLIKEMRAIESGPH	CENSEIIVKLV----	NGAEVC	CLNPHTKWVQIIVQAFILKRAEGQNP-----	101
HumanIL-8	-----MTS-----	KLAVALLAAFLISAALCEGAVLPRSA-----	KELRCQCIKITYSKPFFHPKFIKELRVIESGPH	CANTEIIVKLS----	DGREIC	CLDPKENWVQVRVVEKFLKRAENS-----	99
Rhesus_monkeyIL-8	-----MTS-----	KLAVALLAAFLLSAALCEGAVLPRSA-----	KELRCCEIKITYSKPFFHPKFIKELRVIESGPH	CANTEIIVKLS----	DGREIC	CLDPKEPWWQVRVVEKFKVRAENQNP-----	101
ChickenIL-8	-----MNG-----	KLAVALLLVSAALSQGRITLVKMG-----	NELRCQCIKTHSKFIHPKSIQDVKLTPSGPH	CNVEI IATLK----	DGREVC	CLDPTAPWVQLIVKALMAKQLNSDAPL-----	103
Common_carpIL-8	-----MHC-----	KIFLVSVIVFLGLTTGEGMSLRGLG-----	VDPRCRCIETESRRIG-KHIESVELFPPSSH	CKDTEI IATLKI----	SGKEIC	CLDPTAPWVKVIEKIIANKAP-----	98
Bighead	-----MNC-----	KIFSVMVTVAVAFITISEGMSLRGLG-----	VDLRCRCIKTESRRIG-KHIESVELYPPSPH	CKDTEI IATLKE----	GKQEIC	CLDPTAPWVKVIEKILANKAP-----	98
Zebra_fishIL-8	-----MTS-----	KVFATSVIVFLAFLTIIIEGMSLRGLA-----	VDPRCRCIETESRRIG-KHIKSVLEFPSPH	CKDLEI IATLMT----	TGQEIC	CLDPSAPWVKKIIDRIIVK-----	95
Rainbow_troutIL-8	-----MSI-----	RMSASLVVLLALLTITEGMSLRGMG-----	ADLRCRCIETESRRIG-KLIKKVEMFPSSH	CRDTEI IATLSK----	SGQEIC	CLDVSAPWVKRVIEKMLANNK-----	97
Black_porgyIL-8	-----MSS-----	RVFVATIVGLLAFLAISE-----ASLG-----	VELHRCRCIQTESKPIG-RHIEKVELIPANSH	CEETEI IATLKR----	TGQEVCL	CLDPEAPWVKVQIKILSNARR-----	94
European_seabassIL-8	-----MMSS-----	KVPATSVIVLLAFLAISEGMSLRSLG-----	VELHRCRCIQTESKPIG-RHIGKVELIPANSH	CEETEI IATLKK----	TGQEVCL	CLDPEAPWVKVQIKILSNARR-----	99
Fugu	-----MCS-----	RVFLTSLVVLLAFLAISNGMSLRSLG-----	VEQHRCRCIQTESRPIG-RHIGKVELIPPNSH	CEETEI IATLKM----	SGQEVCL	CLDPKAPWVKRVINKIMSSRRQ-----	98
Japanese_flounderIL-8	-----MSS-----	RVIVVAVMVLASLAISEAVLSRLSG-----	VSLHRCRCIETESRPIG-RYIKSVEIIPSNH	CKDTEI IATLKD----	TGVEIC	CLDPEAPWVKRVINKILSKRRLSRWREMSEAV-----	109
Atlantic_codIL-8	-----MKMTSG-----	KIPIGSLVLVLLTITEGRSLRGLG-----	MELRCRCIQTESRQIG-RHIGMVEIIPANSH	CEETEI IATLKR----	TGQEVCL	CLDADAPWVKVNIERMISSRRH-----	101
HaddockIL-8	-----MKMTSG-----	KIPISLLVLVLLSITIEGKSLRGLG-----	MELRCRCIQTESRPIG-RHIGKMEIIPANSH	CESEI IATLKK----	TGQEVCL	CLDGEAPWVKRLIAKMSSRRR-----	101
HumanCXCL3	-----MAHATLSAASN-----	PRLLRVALLLLLLVAASRRAGASVVT-----	ELRCQCLQTLQ-GIHLKNIQSVNVRSPGPH	CAQTEVIATLK----	NGKKA	CLNPASPMVKIIEKILNKGSTN-----	107
PigCXCL2	-----MASAAIAASPCA-----	PRFLRAALLLLLLVAAGRRTAGAPVGG-----	ELRCQCLQTVQ-GIHLKNIQDLKVTPSGPH	CQTEVIATLK----	NGQEVCL	CLNPAPMVKKIIEKMLNKSSAN-----	107
House_mouseCXCL1	-----MIPAT-----	RSLLCAALLLL-----ATSLATGAPIAN-----	ELRCQCLQTMAGIHLKNIQSLKVLPSGPH	CQTEVIATLK----	NGREAC	CLDPEAPLVQKIVQKML-KGVPK-----	96
HumanCXCL7	-----MSLRDLTPSCNSARPLHALQVLLLSLLLTALASSTKGQTKRNLAKGKEESLSDLYAE	ELRCMCIKTTS-GIHPKNIQSLVIGKGTSH	CNQVEVIATLK----	DGRKI	CLDPDAPRIKKIVQKKLAGDESAD-----	128	
House_mouseCXCL4	MSVAAVFRGLRPS-----	PELLLLGLFLPAVVAVTSAGPEESDG-----	DLSCVCVKTISSGIHLKHITSLEVIKAGRE	CAVPOLIAATLK----	NGRKIC	CLDRQAPLYKKVIKKILES-----	105
Channel_catfishCXCL10	-----	MKSAAVFVV-FACLLIVHVQGGARTSVR-----	RCCLQGGPAANGVRLQRIDKIEIHPASAT	CNKIEI IVTLKN----	GAGKIC	CLNPESEFTKKYITAALEKRSV-----	95
Rainbow_troutCXCL10	-----	MTNTMTSTVLISF-LACLLLANVEGQVGHSKA-----	RCQCNGLVNRVKPLHIEKLEVYTSSSH	CNRMEI IVTLKN----	GEEKIC	CLNPEAPFAKKTIEKIMKKQRSVQ-----	100
ZebrafishCXCL11	-----	MKTVTALL-LVSLAVVAIEGQHMKSG-----	RCVCLGLAGLMNVKPVLEKIEILPSSPS	CGHMEVIATLKN----	GAGKIC	CLNPKSKFTKKIIDKIEKNRNR-----	94
HumanCXCL11	-----	MSVKGMAIAL-AVILCATVVQGFPMFKRG-----	RCCLIGPGVKAVKVADIEKASIMYPSNN	CKIEVI ITLKE----	NGKQIC	CLNPKSKQARLIIEKVERKNF-----	94
Atlantic_salmonCXCL10	-----	MRTATLILL-CVTVFAGFAQFPPGGRSE-----	KCLCRGLKMQSVRIKRIQKLEVYPSNVE	CAKTEI IATMKN----	GK-KK	CLNPEGKLGKGRFLMRKR-----	88
HorseCXCL10	-----	MNQSAVLILC-LIFLTLSGTQGIPLSRTA-----	RCTGINISDRPIPPRSLEKLEMIPASQS	CORVEI IATMKK----	NGEKK	CLNPESKTVKNLLKAISKQRS-----	94
PigCXCL10	-----	MNQSAVLIFC-LILLTLSGTQGIPLSRTV-----	RCTGIKISDRPVNPRSLEKLEMIPASQS	CPHVEI IATMKK----	NGEKK	CLNPESKAIKNLLKAISKERS-----	94
HumanCXCL9	-----	MKKSGVFLFLGIIILLVLIGVQGTVPVVRKG-----	RCSISTNQGTIHLQSLKDLKQFAPS	CEKIEI IATLK----	NGVQIC	CLNPDSADVKELIKKWEKQVSQKKKQKNGKKHQKKV-----	110
Atlantic_salmonCXCL14	-----	MHRCTTAALLLLI IALYS-----LQAEAY-----	KCRCTRKGPKIRY-KDVQKLEIKPKHPH	CEKMI FVTMENVS	RFGQEM	CLHPKLQSTKNLVKWFRI-----WKDKHRVYEA-----	100
Nile_tilapiaCXCL14	-----	MRGCTT-VLLLLMVALCC-----LSAEAY-----	KCRCTRKGPKIRY-KDVQKLEIKPKHPH	CEKMI FVTMENVS	RFGQEM	CLHPKLQSTKNLVKWFRI-----WKDKHRVYEA-----	99
African_clawedfrogCXCL14	-----	MRPITAALLILLVAVST-----LHVEGS-----	CKCKSRKGPKIRF-TDVQKLEIKPKYPY	CEERMI IVTMQNVSRFRGQQM	CLHPKLHSTKKFLKWTYI-----	WKDKNRVYED-----	99
Rhesus_monkeyCXCL13	-----	MKFISASLLMLLVSSLSPVQGVLEVYYTH-----	LRRCQVQESSVFIPRRFIDRIQISPRGNC	PRKEI IVWKK-----	NKSVVC	CLDPAEWIQRIMEMLRKKSSSTPPVPVFKRKIP-----	109
HumanCXCL13	-----	MKFISTSLMLLVSSLSPVQGVLEVYYTS-----	LRRCQVQESSVFIPRRFIDRIQILPRGNC	PRKEI IVWKK-----	NKSVVC	CLDPAEWIQRIMEVLRKKSSSTLPVPVFKRKIP-----	109
Japanese_flounderCXCL	-----	MMKQLKPLLLAALTLCCLIDTLHAFRQ-----	RGCHCIRTTPDKVPVRFIKKLEVIPISGQ	CRTEI IITKR-----	NGYKIC	CLVAPEEKWIKDLLGYLQSENETTDKTSISTHSPAPD-----	110
Fugu_rubripesCXCL13	-----	MMVKPPTLLVVMTLCCCLITADAFF-----	GCHCLRTIRKPIPLNVIEKIEMLPISGHC	RRPEI IITRK-----	NGSKIC	CLDPNQKWFKDLLNKMKEGERP-----SSTTAPV-N-----	100
Atlantic_salmonCXCL13	-----	MLFKPHYLLVVLTLCC-FAALHAFPMGGFA-----	PRRTCRCIRTSSAFISPMRFHKLILPAGSH	CRBIEI IVTKK-----	DKTIVC	CLNPEARWINKVIALLQRNKASAG-VPISTTTDGIN-----	112
HumanCXCL12	-----	MNAKVVVVLVLVLT--ALCLSDGKPVLSY-----	RCPCRFFES-HVARANVHKLILN-TPNCA-LQIVARLKN-----	NNRQVC	CLPKLWQIYEYLEKALNKRFKM-----	93	
African_clawedfrogCXCL12	-----	MDIRTLALLSILLG--TLCLTEGKPVSLVY-----	RCPCRFFES-NVPKSNIKHLKILS-TSNCB-LQIVARLKH-----	NGKQIC	CLDPKTKWQIYEYLEKALNKKAKKT-----	94	
ZebrafishCXCL12	-----	MDLKVIVVVALMAVAIHAPISNAKPSILVE-----	RCWCRSTVN-TVPQYSIRELKLFLH-TPNCP-FQVIAKLKN-----	N-KEVC	CLNPETKWLQYLYKNAINKMKKAQQQQV-----	99	
Large_yellow_croakerCXCL12	-----	MDVKLLAVVVAFMV-IYAPPSQAKPSILVE-----	RCWCRSTVN-NIPRGYIRELRFTH-TPNCP-FQVIAKLKT-----	S-KEVC	CLNPETKWLQYLYKNAINKMKRSQGN-----	97	
Mandarin_fish	-----	MSSIMKVFLLLAVMVCISQAQLHQSGQ-----	RCCLNRRIRSLAFKSEVKDQIYIPVNI	CKNKVEI IVTLK-----	RGRFYC	CLDPKLSMKKLLANI-K-QK-TSTTARPTLTSTPG-----	106
Rock_bream	-----	MSGILKVFLLLAVMVCISQAQLHESGQ-----	QCCLRSVRKGIDSKTVKVDQIYPATAT	CKDKEI IVVTNN-----	SGRLYC	CLDPKMQTVKKLVANVMK-QKRSSTTVRPTSTSTSG-----	107
Atlantic_halibut	-----	MDCQRTYNSTDG-SDLKDQIYPATAT-----	NCLCQRTYNSTDG-SDLKDQIYPATAT	CKDKEI IVVTG-----	AGHRYC	CLNHRAKAVKAVIRILR-----	100
On-CXC2	-----	MSTLIKVFLLAVMVCISQAQLKQAGQ-----	QCCLHRVRNRLGMKSEIKDVQIYPATKS	CKNKVEI IVTFN-----	SGRLYC	CLNPCLKNVKRLVTNIMETDKKQKTTSSPVPSTAA-----	108
On-CXC1	-----	MSTLIKVFLLAVMVCISQAQLKQAGQ-----	QCCLHRVRNRLGMKSEIKDVQIYPATKS	CKNKVEI IVTIN-----	SGRLYC	CLNPCLKNVKRLVTNIMD--KKQKTTSSPVPSTAA-----	106

Figure S4. Nakharuthai and Srisapoome (2020)

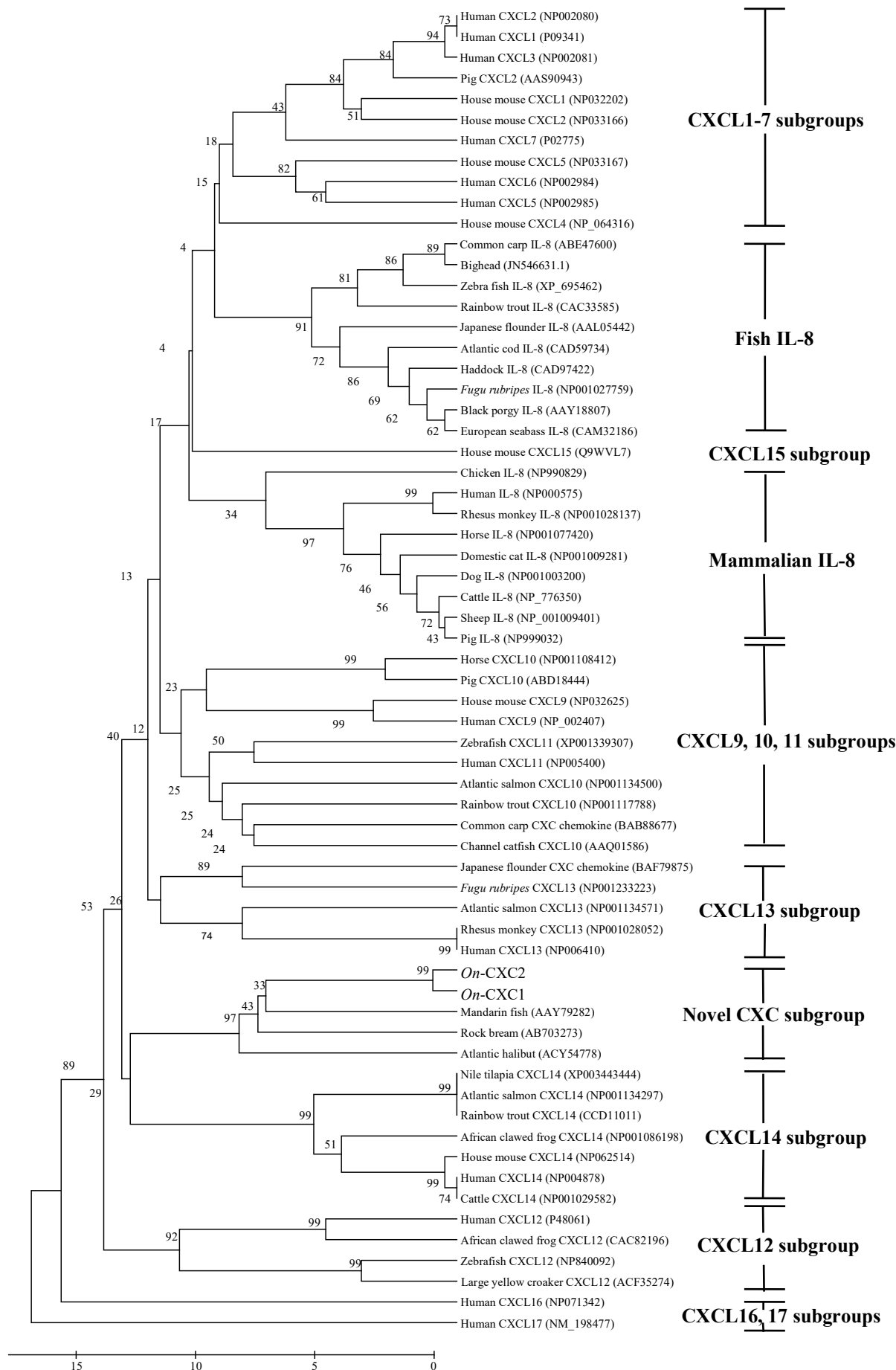


Figure S5. Nakharuthai and Srisapoome (2020)

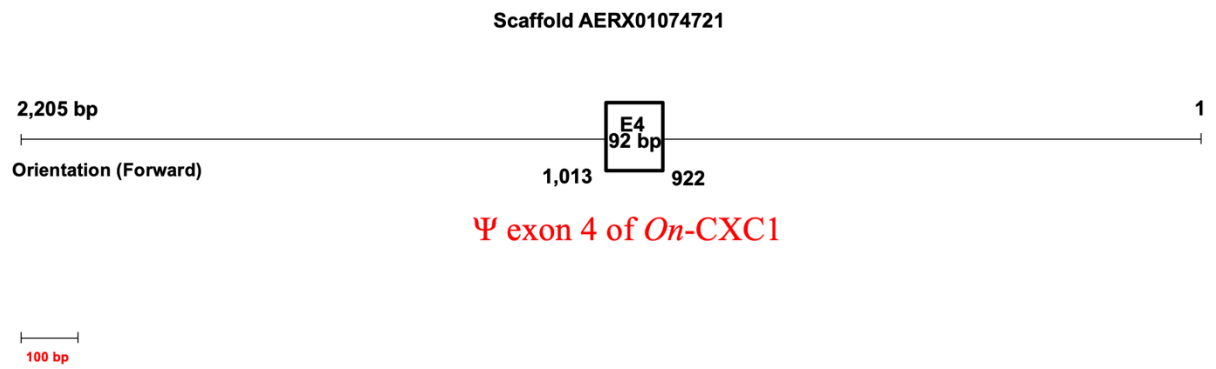


Figure S6A. Nakharuthai and Srisapoom (2020)

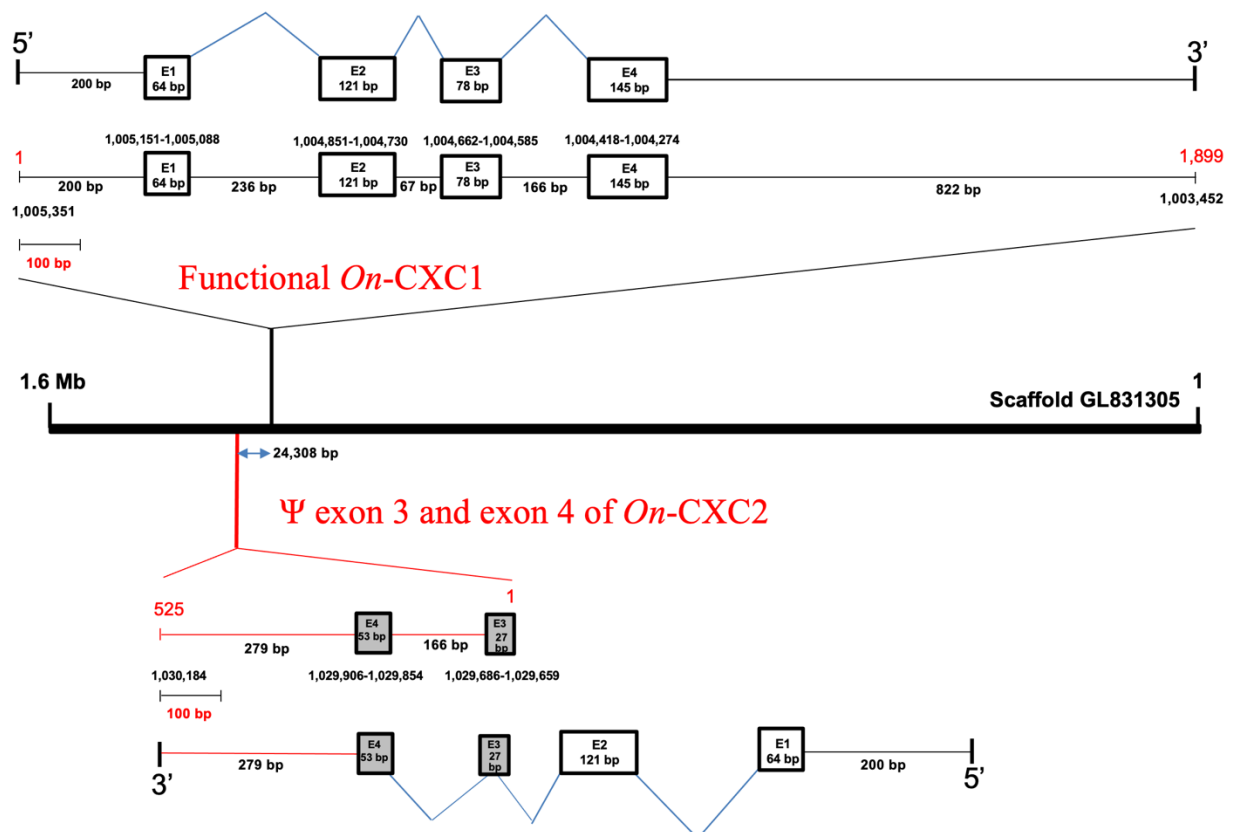


Figure S6B. Nakharuthai and Srisapoom (2020)

Supplementary Materials

Table S1. Oligonucleotide primers used in this study

Table S2. Homological analyses of nucleotide and amino acid sequences of *On*-CXC1 and *On*-CXC2 against CXC chemokines of other vertebrates.

Figure S1. Nucleotide and deduced amino acid sequences of the Nile tilapia CXC chemokine (*On*-CXC1) cDNA represented by the upper and lower lines, respectively. The start (ATG) and stop (TAG) codons are in bold. The signal peptide cleavage sites are underlined. Four cysteine residues are circled. Polyadenylation sites (ACTAAA, TATAAA and AATAAA) are underlined with a double line, and the 4 instability motifs (ATTTA) are underlined. The shaded letters indicate the (GAA)₁₂ microsatellite sequences.

Figure S2. Nucleotide and deduced amino acid sequences of the Nile tilapia CXC chemokine (*On*-CXC2) cDNA represented by the upper and lower lines, respectively. The start (ATG) and stop (TAG) codons are in bold. The signal peptide cleavage sites are underlined. Four cysteine residues are circled. Polyadenylation sites (AAAAAG, AAAACA, AATAGA and AATAAA) are underlined with a double line, and two instability motifs (ATTTA and ATTTTA) are underlined. The shaded letters indicate the (GAA)₅ microsatellite sequences.

Figure S3. Sequence alignment between *On*-CXC1 and *On*-CXC2. The four conserved cysteines (C) residues are boxed. The comparisons of the nucleotide and amino acid sequences of *On*-CXC1 and *On*-CXC2 are shown in the table.

Figure S4. Multiple sequence alignment of *On*-CXC1 and *On*-CXC2 with other known CXC chemokines from various species. The four conserved cysteine residues are boxed and marked with asterisks. Gaps in the alignment are represented with dashes (-), and the ELR motif is shaded.

Figure S5. Phylogenetic tree showing the relationships between the Nile tilapia CXC chemokine (*On*-CXC1, *On*-CXC2) amino acid sequences and other known CXC chemokines from various species. The numbers at the relevant branches refer to bootstrap values (1,000 replicates).

Figure S6. Genomic structure and organization comparison of the Nile tilapia CXC chemokine genes with other known CXC chemokines of other vertebrates. (A) Scaffold AERX01074721 and (B) scaffold GL831305. The four exons are indicated by rectangles and the three introns by lines. The sizes of exons are indicated in the rectangles.