Title: Evidence from *Amphioxus* for acquisition of alternative mRNA splicing of NCoR corepressor after its duplication and divergence during vertebrate evolution.

Author: Martin L. Privalsky

Affiliation: Department of Microbiology and Molecular Genetics
College of Biological Sciences
University of California at Davis

Address: Department of Microbiology and Molecular Genetics
One Shields Avenue
University of California at Davis
Davis, California 95616

Email: mlprivalsky@ucdavis.edu

Phone: 530 752-3013

Fax: 530 754-8973

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ABSTRACT

NCoR-1 and NCoR-2 are transcriptional corepressors encoded in vertebrates by two interrelated loci and play distinct, though overlapping, roles in development, differentiation, and homeostasis. In contrast NCoR is encoded by a single locus in cephalochordates, urochordates, hemichordates, and echinoderms, with vertebrate NCoR-1 and NCoR-2 thought to be the products of a gene duplication originating near the beginning of vertebrate evolution. The structures, molecular properties, and functions of extant NCoR-1 and NCoR-2 are each substantially further diversified by alternative mRNA splicing; however it is unresolved as to whether the alternative-splicing observed in current day vertebrates reflects patterns present in the ancestral common gene or instead arose after the NCoR duplication event. This manuscript reports that *Amphioxus*, a cephalochordate considered representative of the organisms that gave rise to the vertebrate lineage, lacks the alternative NCoR splicing events characteristic of vertebrates. This, together with prior taxonomic comparisons, suggests that the patterns of corepressor splicing found in existing vertebrates arose exclusively after the NCoR duplication event. Further, given that alternative-splicing of NCoR-1 and NCoR-2 appears to have arisen by a mix of convergent and divergent evolution, it is likely that both common and distinct selective pressures were operative on these corepressor paralogs after their divergence.

INTRODUCTION

NCoR-1 and NCoR-2 are vertebrate coregulator proteins that help mediate repression by a wide variety of transcription factors [1-7]. Vertebrate NCoR-1 and NCoR-2 are encoded by two interrelated loci and play both overlapping and distinct roles in key aspects of development, differentiation, and homeostasis [2,3,8-23]. They share ~40% amino acid sequence relatedness, a general overall molecular architecture, partially related biochemical properties, and partly overlapping panels of transcription factor partners (Figure 1A, blue vs red schematics). Both NCoR-1 and NCoR-2 operate as bridging proteins that bind to their transcription factor partners through "interaction domains" (IDs) and recruit additional corepressor components through "silencing domains" (SDs), thereby assembling functional corepressor holocomplexes and tethering them to their target genes [1-7]. In contrast to vertebrates only a single NCoR locus has been identified in cephalochordates, urochordates, hemichordates, and echinoderms, with vertebrate NCoR-1 and NCoR-2 thought to represent the products of an ancestral gene duplication and subsequent gene divergence that began near the origin of vertebrate evolution [24].

Notably both NCoR-1 and NCoR-2 mRNAs are alternatively-spliced in vertebrates to generate a series of distinct corepressor variants (Figure 1A, internal white rectangles) [25-27]; different alternatively-spliced corepressor variants differ in their biochemical properties, engage in different transcription factor partnerships, exhibit different responses to a variety of cellular signaling pathways, and play different, even opposing biological roles [16,28-34]. Comparisons of different taxa suggest that many of these alternative-splicing events arose separately in NCoR-1 and NCoR-2 [35,36]; nonetheless certain of these alternative-splicing events have closely related features that may be indicative of either a retained ancestral splicing event or representative of convergent evolution [24]. To better understand the origins of these events, an examination of alternative-splicing was undertaken in the single NCoR locus found in *Amphioxus* (Figure 1B), a cephalochordate generally thought to be closely related to the ancestral organisms that gave rise to the vertebrate lineage (Figure 2) [37-40]. As reported here, no alternative-splicing was observed in *Amphioxus* NCoR corresponding to the alternative-splicing events found in either vertebrate NCoR-1 or vertebrate NCoR-2. Together with prior taxonomic comparisons the results obtained here indicate that the patterns of corepressor splicing found in existing vertebrates most likely arose separately in NCoR-1 and NCoR-2 after their duplication and divergence and that the apparently related alternative-splicing events found in both paralogs represent convergent evolution.

RESULTS

Predicted consensus splicing differs between *Amphioxus* and vertebrate NCoRs, yet their overall organization, amino acid sequence, and relevant functional motifs are conserved. The known alternative-splicing sites in vertebrate NCoR-1 and NCoR-2 map within the C-terminal third of their coding region and are particularly prevalent over the ID regions that mediate the interactions of these corepressors with their nuclear receptor transcription factor partners (Figure 1A) [27]. In vertebrate NCoR-1 and NCoR-2 this region is dispersed over 12 consensus exons but it is condensed into 3 consensus exons in *Amphioxus* NCoR [24]. Nonetheless the overall architecture of the resulting protein product, much of the overall amino acid sequence, and key motifs such as the SD and ID domains are largely conserved between the vertebrate and cephalochordate lineages (Figure 1 and Supplemental Figure S1).

Relatively simple patterns of alternative NCoR-1 and NCoR-2 splicing occur in the more ancient vertebrate taxa, with these patterns conserved and yet more elaborate forms of alternative-splicing added in more recently evolved species [24,35,36]. Overall, three sites of alternative-splicing have been characterized in detail in vertebrate NCoR-1 (exon 28+/28-, exon 37b+/37b-, exon 45a+/45a-/45-) and five in vertebrate NCoR-2 (exon 28+/28-, exon 40b+/40b-, exon 44+/44-, exon 45+/45-, and exon 47b+/47b-/47-) (Figure 1A) [36]. The goal of this work was to determine if *Amphioxus* NCoR exhibited the equivalent of one or more of these alternative-splicing events. Given the possibility of cryptic splice donors and acceptors, alternative-splicing could not be excluded even within the condensed consensus exon structures predicted for the *Amphioxus* NCoR and this region was included in the analysis.

Alternative mRNA splicing of *Amphioxus* NCoR was not detected using methodology that revealed alternative-splicing in vertebrate NCoR-1 and NCoR-2. To characterize possible alternative-splicing in *Amphioxus* total RNA was isolated and reverse transcribed into cDNA, with three different tissues/organs studied initially: gonads, hepatic caecum, and muscle. Sequences in the *Amphioxus* NCoR locus corresponding to the alternative-splice sites in vertebrate NCoR-1 and NCoR-2 were identified by multiple-species alignment and used to design suitable primers for use in polymerase chain reaction (Supplemental Figure S1, Table 1). Due to the overlapping nature of NCoR-1 and NCoR-2, four primer pairs, designated a, b, c, and d, were sufficient to test if any of the vertebrate alternative-splicing events also occurred in *Amphioxus* NCoR (Figure 1). The resulting PCR products were analyzed by gel electrophoresis and visualized by ethidium bromide staining. This methodology yields a series of distinct sized PCR products from each alternative-splice site corresponding to each alternatively-spliced mRNA produced at that site. This method is both sensitive and reproducible, as detailed in Materials and Methods.

A strong PCR product was detected using *Amphioxus* cDNA from each of the three tissues and employing primer pairs flanking each of the alternative-splice sites characterized in vertebrate NCoR-1 or NCoR-2 (Figure 3) with only one exception: hepatic caecum cDNA and primer pair d yielded only a very faint PCR product (Figure 3). Notably the appropriately sized PCR product could be observed on extended exposure (Figure 3, insert). Probing the hepatic caecum cDNA with additional primer pairs further confirmed that this tissue expresses the anticipated NCoR mRNA sequences and no detectable alternatively-spliced variants over this region (Figure 5 and data not shown).

In each case the PCR products corresponded in size to the full-length mRNAs predicted from these sites with no products attributable to alternative-splicing detected in any of the primer pair/cDNA reactions (Figure 3). The identities of the PCR products were confirmed by DNA sequence analysis and/or use of additional primers (data not shown). Several minor PCR

products were observed in certain cDNA/primer reactions (*) but were determined to be artifacts by the same means; these typically represented misprimings within reiterative DNA sequences or primings on partially related sequences mapping to non-NCoR sequences elsewhere in the *Amphioxus* genome (see Figure legends). No PCR products were detected if reverse transcriptase was omitted from the cDNA synthesis reaction (data not shown), confirming the absence of genomic DNA contamination.

No vertebrate-like alternative-splicing was detected in NCoR in a broader survey of *Amphioxus* tissues. To test if alternative-splicing might occur in tissues others than those tested above, *Amphioxus* were dissected into 4 broad anterior to posterior segments (denoted AP1/4, AP2/4, AP3/4, and AP4/4); mRNA was isolated from each section and was subjected to the same RT-PCR analysis as above (Figure 4). All 4 sections yielded results identical to the individual tissues studied above: single RT-PCR products corresponding to the full-length transcripts predicted, with no evidence of alternative-splicing detected over these regions (Figure 4).

A wider survey using ordered sets of primer pairs did not detect alternative mRNA splicing in other regions of *Amphioxus* NCoR. The RT-PCR methodology was repeated using cDNAs pooled from the AP1/4, AP2/4, AP3/4, and AP4/4 sections and a series of ordered primer pairs designed to probe the *Amphioxus* transcript more broadly (Figure 1B). Only RT-PCR products corresponding to the full-length consensus transcript were detected with a single exception (Figure 5). Probe k amplified a 943bp product (red bar) instead of the 684bp (black bar) product predicted by the consensus splicing. Sequence analysis revealed inclusion of an additional 185bp and 74 bp of genomic sequence at consensus splice boundaries 5270bp and 5478bp within the predicted *Amphioxus* transcript (data not shown). Notably none of the predicted consensus 684bp product, nor any additional NCoR-related product, was observed indicating that this phenomenon was not alternative-splicing resulting in multiple transcripts but rather non-consensus splicing resulting in a single transcript. These results indicate that the cephalochordate NCoR mRNA is not detectably alternatively-spliced within the limits of this survey (please see the Discussion).

DISCUSSION

The duplication and divergence of NCoR into NCoR-1 and NCoR-2 during vertebrate evolution enhanced the diversity of actions available to these paralogs versus the ancestral single copy gene, with NCoR-1 and NCoR-2 displaying distinct molecular properties and mediating distinct biological roles [1-7]. Further, vertebrate NCoR-1 and NCoR-2 are both alternatively-spliced to create an extensive series of corepressor protein variants that differ in abundance in different tissues, preferentially associate with different transcription factor partners, respond to signal transduction pathways in divergent ways, and play distinct, even opposing, biological roles [16,28-34]. Thus alternative-splicing further broadens the diversity created by the duplication and divergence of the NCoR locus itself. Understanding the appearance of these alternative-splicing events over evolution therefore provides insights into the biological roles of the different extant splice variants and how they responded to different selective pressures in different species.

The sites and patterns of species-specific expression of six of the vertebrate alternative-splice sites are consistent with their arising independently by divergent evolution in the two paralogs: NCoR-1 exon 28+/28-, NCoR-1 exon 45a+/45a-/45-, NCoR-2 28b+/28b- (unrelated to NCoR-1 exon 28b+/b- in location and sequence), NCoR-2 exon 44+/44-, NCoR-2 45+/45-, and NCoR-2 exon 47b+/47b-/47-. In contrast the NCoR-1 exon 37b+/37b- and NCoR-2 exon 40b+/40b- alternative-splicing events map within overlapping, interrelated sequences within these two paralogs and insert or omit a conserved "ID3" domain in both that controls their interaction with their nuclear receptor/transcription factor partners. The NCoR-1 exon 37b+/37b- alternative-splice is observed exclusively in placental mammals whereas the NCoR-2 exon 40b+/40b- is present in all vertebrates examined [35,36]. Although this is suggestive of a later evolutionary acquisition of the former, and thus convergent evolution, it was also possible that these alternative-splice events preceded the NCoR duplication event but were selectively lost in NCoR-1 until their reappearance later in evolution [24]. It was therefore decided to further evaluate this phenomenon and the possibility of other examples of vertebrate-like alternative-splicing in *Amphioxus*.

The experiments reported here demonstrated that neither the NCoR-1 exon 37b+/37b- nor the NCoR-2 exon 40b+/40b- variants, nor any of the other vertebrate alternative-splicing events studied here, were detected in *Amphioxus*. Taken together with the taxonomic analyses previously reported these results provide additional support for the proposal that the alternative-splicing observed in extant NCoR-1 and NCoR-2 arose independently in these corepressor paralogs after their duplication and subsequent divergence during vertebrate evolution. Given both divergent and convergent events appear to have occurred in these different paralogs, this conclusion further suggests that NCoR-1 and NCoR-2 have been subject to a mix of shared and distinct selective pressures that differed in the different vertebrate lineages. Notably in this regard NCoR 37b+/37b- alternative splicing plays a key role in murine lipid and glucose metabolism [32,34]; it is tempting to speculate that its convergent acquisition in placental mammals after the acquisition of the NCoR-2 exon 40b+/40b- alternative splice reflects the unique metabolic needs of eutherian mammals.

A more extensive series of primer pairs surveying broader regions of *Amphioxus* mRNA failed to detect alternative splicing even outside of the regions that correspond to alternative splice sites in NCoR-1 or NCoR-2 in vertebrates. However the current survey was not comprehensive and it remains possible that alternative splicing events exist in *Amphioxus* NCoR that are unique to this cephalochordate and that do not correspond to those in vertebrates.

Limitations to these studies: although our methodology can detect alternatively-spliced products as low as 5% of total it cannot be excluded that some splice variants may be expressed at levels below this limit; such low levels of expression, if they occur, would be of unclear biological significance. Similarly although no alternative mRNA splicing was detected in any of the tissues tested, including broad sections of the *Amphioxus* body plan, it is conceptually possible that *Amphioxus* NCoR mRNA is alternatively-spliced in a very minor tissue or cell type such that its expression level is diluted within the broader tissues samples to below the detection limit. The hypothetical inclusion of very large introns into the *Amphioxus* consensus splicing pattern (i.e. significantly longer than those seen in vertebrates) might be difficult to detect given the reduced efficiency of Taq polymerase on very long templates. Finally given that a single mutation can eliminate a splice donor or acceptor site [24] it remains possible that the *Amphioxus* lineage lost one or more alternative splicing events during its evolution that were operative in the pre-vertebrate predecessor. Nonetheless the simplest interpretation of the data as a whole supports the proposal that the alternative slicing observed in extant NCoR-1 and NCoR-2 arose only after the appearance of vertebrates.

MATERIALS AND METHODS

Sources, isolation of RNA, cDNA synthesis, and PCR analysis. Adult *Amphioxus* (*Branchiostoma floridae*) were obtained from Gulf Specimen Marine Laboratories. *Amphioxus* were euthanized by immersion in 200 mg/liter Tricaine methanesulfonate (MS-22) in sea water until all movement ceased for a minimum of 10 minutes, followed by decapitation and mechanical ablation of the neural bulge. The animals were then dissected into four sections from anterior to posterior, or the gametes, hepatic caecum, and muscles were individually removed. Samples were stored at -80 °C in RNeasy Lysis Buffer (Life Technologies, Grand Island, NY). Total RNA was subsequently isolated from approximately 30 µg of each tissue using "bead beating" homogenization and an RNeasy mini-kit (Qiagen, Hilden, Germany) following manufacturer's directions.

Up to 1 µg of RNA from each sample was converted into cDNA using a QuantiTect Reverse Transcription Kit and manufacturer's directions (Qiagen, Hilden, Germany); a DNA-wipeout pre-step was included to avoid genomic contamination. Two to four µl of each 120 µl cDNA preparation were amplified by PCR using oligonucleotide primer pairs flanking each alternative splice-site (Supplemental Table S1), GoTaq enzyme, GoTaq buffer, and the manufacturer's recommendations (Promega, Madison WI). PCR was typically performed at 94 °C for 2 mins. followed by 34 cycles of 30-60 secs. at 94 °C, 30-60 secs. at 53 °C, 60-120 secs. at 72 °C, followed by a 5 min. final extension step at 72 °C. The PCR products from each primer pair were resolved by electrophoresis in a 2% agarose gel in 1X Tris-Acetate-Ethylenediaminetetraacetate buffer, the DNA bands were visualized with ethidium bromide, and were documented by use of a digital camera. NCoR-2 was previously referred to as SMRT (an alternative nomenclature); the exon numbering system here is as in [35].

Accuracy of the RT-PCR methodology. Although not favored for quantitation of absolute levels of nucleic acids, the end-point RT-PCR technique as adapted here is reproducible, sensitive, and accurate for the determination of the relative abundances of the different splice variants produced at a given alternative-splice site. A more detailed justification is presented in [36], but briefly: (a) The RT-PCR methodology is internally-controlled, with all splice variants from a given splice site amplified in parallel in the same tube under identical conditions using the same primers and analyzed in a single lane in an electrophoresis gel. This method is relatively insensitive to non-uniformities in primer or reaction efficiency, pipetting, temperature, ramp-rate, lane-loading, electrophoresis, staining or destaining. (b) The primers were designed to minimize as much as possible hybridization temperature and size differences between the potential alternative-splice products produced from each splice site (with the goal of minimizing differences in the efficiency of their amplification). (c) Experimental tests of this approach yielded high reproducibility and low standard deviations in repeated experiments. For mRNAs that are alternatively-spliced the relative ratios of the corresponding RT-PCR products from each given alternatively-spliced site are not significantly altered over a wide range of cycle numbers and input cDNA concentrations.

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DECLARATIONS

Ethical approvals and considerations: Although *Amphioxus* do not fall under the guidelines required for use of vertebrate animals all studies reported here were carried out under the vertebrate animal guidelines and restrictions mandated by the University of California at Davis Animal Use committee for teleost fish. This work has not been submitted or published elsewhere.

Competing interests: The author declares that there are no competing interests or conflicts.

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Author's contributions: MLP performed the experiments, the analysis, and the assembly and writing of this manuscript.

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FIGURE LEGENDS

Figure 1. Schematic of vertebrate and *Amphioxus* NCoR corepressor proteins. Shown are the longest known splice forms of vertebrate NCoR1 and NCoR2 as well as the predicted consensus splice form of *Amphioxus* NCoR. Silencing Domains (SDs) and Interaction Domains (IDs) are depicted. Known alternative spliced exonic sequences are depicted as internal white rectangles within the vertebrate schematics and labeled above by exon number in blue or red. Although also depicted in the *Amphioxus* NCoR schematic for orientation, whether these alternative splice sites are utilized in the cephalochordate is the subject of this investigation. The primer pair probes employed in the RT-PCR experiments are shown below.

Figure 2. Photographs of a *Pikaia* fossil from the Burgess Shales deposit and a living *Amphioxus* species. Permission was generously provided for use of the fossil images (USNM 83940) by Dr. Thomas Jorstad, National Museum of Natural History USA and for the whole mount image of *Amphioxus* by Dr. Diane Jokinen, Loyola University.

Figure 3. RT-PCR analysis of mRNAs from different *B. floridae* tissues; regions of NCoR locus alternatively-spliced in vertebrate NCoR1 or NCoR2. mRNAs from the three tissues indicated were tested. The locations of the primer pair probes are indicated in Figure 1. The PCR products from probes b and c and the associated molecular weight markers were resolved on a single gel; this one marker lane was therefore duplicated and attached to both of these panels. Inset: over-exposed and enhanced probe d RT-PCR from hepatic caecum. Asterisks indicate background bands generated by misprimings on reiterative DNA sequences upstream of the probe b hybridization site or amplification by primer pair d of an *Amphioxus* gene transcript unrelated to NCoR.

Figure 4. RT-PCR analysis of mRNAs from different *B. floridae* body sections; regions of NCoR locus alternatively-spliced in vertebrate NCoR1 or NCoR2. mRNAs from *B. floridae* body sections AP1, AP2, AP3, and AP4 were tested. The locations of the primer pair probes are indicated in Figure 1. The PCR products from probes b and c and the associated molecular weight markers were resolved on a single gel; this one marker lane was therefore duplicated and attached to both of these panels. These samples and molecular weight markers were also resolved on the same gel as in Figure 3; the molecular weight marker lane for probes b and c is therefore also identical in both figures. Asterisks indicate background bands generated by misprimings on reiterative DNA sequences upstream of the probe b hybridization site or amplification by primer pair d of an *Amphioxus* gene transcript unrelated to NCoR.

Figure 5. RT-PCR analysis of mRNAs from different *B. floridae* sections; general survey of NCoR transcript. mRNAs from pooled *B. floridae* body sections AP1, AP2, AP3, and AP4 were tested. The locations of the primer pair probes are indicated in Figure 1. Lanes 1 to 9 shared the molecular weight markers in lane 10; lanes 11 to 13 shared the molecular weight markers in lane 14; lane 15 utilized the molecular weight marker in lane 16. Red bar in lane 7 indicates actual 943bp RT-PCR product (red bar); black bar indicates 684bp predicted by the consensus splicing (see text). Asterisk indicates a background band generated from *Amphioxus* gene transcripts unrelated to NCoR.

Figure 1

Pikaia fossil, Burgess Shales, British Columbia, Canada

Extant cephalochordate *Amphioxus*

Figure 2

Figure 3

Probe a

Probe b

Probe c

Probe d

Figure 4

Figure 5

SUPPLEMENTAL MATERIALS

Supplemental Table S1. Primers employed in RT-PCR. Oligonucleotide sequence and position in *Amphioxus B. floridae* cDNA.

Probe	Location/ Sequence Up Primer	Location/Sequence Down Primer
a	5501up: CTCCTCCCCTCATCTCGAAA	6051down: ACAGGTCCCCTTTGATCCT
b	7491up: CCCTGGCTACCCTATGATGA	8225down: AGGGTGATCTGCTGCACTTT
c	8250up: CCACCAAGACTACAGCCAGA	8666dn: ATCAGAGCCTTGCGGATGAT
d	8410up: ACTCCTCCAGGAGCAACATC	9436dn: CGTTTTGAAATTCTATTCTATATTCTAAC
e	918up: GGAACAATGACGGGGCTGTA	1509dn: GTCAGGCACAATGCTGCAAA
f	1490up: TTTGCAGCATTGTGCCTGAC	1983dn: GGCTCTTGCAGGACTTCCAT
g	2315up: CTGCTATCCTCCACCACCTC	3138dn: CTCCGGACCGTTTCGAGTAC
h	3559up: GGACCAGCGAAGGATCAAGT	4067dn: CGTAGAACTCGGCCAGATTC
i	4048up: GAATCTGGCCGAGTTCTACG	4657dn: CTCTGACTCCGCCTCGTTTT
j	4638up: AAAACGAGGCGGAGTCAGAG	5083dn: GGATATGATCGGCTTCACGT
k	5030up-TCAGTAAGAGTTCCGCTGCA	5714dn-TGGATGATGGAGCCTTCGTT
l	5498up: CCTCCTCCCCTCATCTCGAA	5986dn:CATCTCCTGCCCCGTTTTCT
m	6032up: AGGATCAAAGGGGACCTGT	6856dn: GCGATGTGAGAAAATCCGCC
n	6837up: GGCGGATTTTCTCACATCGC	7385dn: CTGGACGTGACCTCTGAACC
o	7364up: GGTTCAGAGGTCACGTCCAG	8125dn: GGACGAGCTCTCCTGACTCT
p	8206up: AAAGTGCAGCAGATCACCT	8632dn- TGCCGACTCTAGGGGATGAA
q	8608up: TTCATCCCCTAGAGTCGGCA	9436dn: CGTTTTGAAATTCTATTCTATATTCTAAC

Supplemental Figure 1. Multispecies alignment of NCoR cDNA sequences. Species are indicated on left. Sequences were aligned using Clustal Omega (<https://www.ebi.ac.uk/Tools/msa/clustalo/>) and reformatted using Mview (<https://www.ebi.ac.uk/Tools/msa/mview/>). Color text identifies amino acid class. Dashes are gaps in alignment. Consensus sequences are at bottom. Blue bars at top of sequences represent NCoR-1 regions alternatively spliced in one or more vertebrate; red bars represent NCoR-2 regions alternatively spliced in one or more vertebrate.

Reference sequence (1): Amphioxus(B-floridae)NCoR
Identities normalised by aligned length.
Colored by: identity

	cov	pid	1	80
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%	MEEES	CWS
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%	GNRFTLILSVEKPLIWNDNFILILSDVFTKLELVQTLTGKERKELKSLDDLFNPDVTGLSKTIPRCILIEGE	
3 HagfishNCoR	41.0%	14.4%		
4 ZebrafishNCoR1	57.4%	17.6%		
5 XenopusNCoR1	57.8%	17.1%		
6 TurtleNCoR1	58.8%	18.3%		
7 AlligatorNCoR1	58.3%	10.3%		
8 MouseNCoR1	58.5%	17.7%		
9 OpossumNCoR1	57.9%	18.0%		
10 HumanNCoR1	57.4%	17.8%		
11 ZebrafishNCoR2	56.1%	16.1%		
12 OpossumNCoR2	57.7%	14.1%		
13 XenopusNCoR2	59.2%	16.8%		
14 MouseNCoR2	56.7%	17.0%		
15 HumanNCoR2	58.3%	16.9%		
16 AlligatorNCoR2	59.0%	17.5%		
17 TurtleNCoR2	59.5%	17.7%		
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

	cov	pid	81	160
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%	AGGGKTTTFLSKEALDAVSQKTELGRQHDLVLLVR	REVR
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%	ECETEE	MVWDQ
3 HagfishNCoR	41.0%	14.4%	CVPETAEGIDVQSIRKILQKNESRVLFLL	
4 ZebrafishNCoR1	57.4%	17.6%		
5 XenopusNCoR1	57.8%	17.1%		
6 TurtleNCoR1	58.8%	18.3%		
7 AlligatorNCoR1	58.3%	10.3%		
8 MouseNCoR1	58.5%	17.7%		
9 OpossumNCoR1	57.9%	18.0%		
10 HumanNCoR1	57.4%	17.8%		
11 ZebrafishNCoR2	56.1%	16.1%		
12 OpossumNCoR2	57.7%	14.1%		
13 XenopusNCoR2	59.2%	16.8%		
14 MouseNCoR2	56.7%	17.0%		
15 HumanNCoR2	58.3%	16.9%		
16 AlligatorNCoR2	59.0%	17.5%		
17 TurtleNCoR2	59.5%	17.7%		
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

	cov	pid	161	240
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%	DGYDELRP	EARAARQAIPKLLSGKLYPNSTIVITSR
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%	SAGVQ	QHT
3 HagfishNCoR	41.0%	14.4%	TRSDCHVHILGFSHEHAFNFVRKYFCITGNPELAE	
4 ZebrafishNCoR1	57.4%	17.6%		
5 XenopusNCoR1	57.8%	17.1%		
6 TurtleNCoR1	58.8%	18.3%		
7 AlligatorNCoR1	58.3%	10.3%		
8 MouseNCoR1	58.5%	17.7%		
9 OpossumNCoR1	57.9%	18.0%		
10 HumanNCoR1	57.4%	17.8%		
11 ZebrafishNCoR2	56.1%	16.1%		
12 OpossumNCoR2	57.7%	14.1%		
13 XenopusNCoR2	59.2%	16.8%		
14 MouseNCoR2	56.7%	17.0%		
15 HumanNCoR2	58.3%	16.9%		
16 AlligatorNCoR2	59.0%	17.5%		
17 TurtleNCoR2	59.5%	17.7%		
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

	cov	pid	241	320
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%	IKQYFTS	DDDDDDDDYDDNYGHSYDSSFGSQ
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%	EEEEEEESFLDNLIQIPMFLMFLCVLWEEDQEVFTGTM	TGLYDNL
3 HagfishNCoR	41.0%	14.4%	LLTCL	
4 ZebrafishNCoR1	57.4%	17.6%		
5 XenopusNCoR1	57.8%	17.1%		
6 TurtleNCoR1	58.8%	18.3%		
7 AlligatorNCoR1	58.3%	10.3%		
8 MouseNCoR1	58.5%	17.7%		
9 OpossumNCoR1	57.9%	18.0%		
10 HumanNCoR1	57.4%	17.8%		
11 ZebrafishNCoR2	56.1%	16.1%		
12 OpossumNCoR2	57.7%	14.1%		

13	XenopusNCoR2	59.2%	16.8%		
14	MouseNCoR2	56.7%	17.0%		
15	HumanNCoR2	58.3%	16.9%		
16	AlligatorNCoR2	59.0%	17.5%		
17	TurtleNCoR2	59.5%	17.7%		
	consensus/100%				
	consensus/90%				
	consensus/80%				
	consensus/70%				
	cov	pid	321	.	:
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	VRRYCKREGVDMFTEGLPTEVD	ESLLQLGKLALFALLRNESLLDLAQVEKENVNWKLLLKLGVVSLLEVSSSKLHPMKLIN
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		
3	HagfishNCoR	41.0%	14.4%		
4	ZebrafishNCoR1	57.4%	17.6%		
5	XenopusNCoR1	57.8%	17.1%		
6	TurtleNCoR1	58.8%	18.3%		
7	AlligatorNCoR1	58.3%	10.3%		
8	MouseNCoR1	58.5%	17.7%		
9	OpossumNCoR1	57.9%	18.0%		
10	HumanNCoR1	57.4%	17.8%		
11	ZebrafishNCoR2	56.1%	16.1%		
12	OpossumNCoR2	57.7%	14.1%		
13	XenopusNCoR2	59.2%	16.8%		
14	MouseNCoR2	56.7%	17.0%		
15	HumanNCoR2	58.3%	16.9%		
16	AlligatorNCoR2	59.0%	17.5%		
17	TurtleNCoR2	59.5%	17.7%		
	consensus/100%				
	consensus/90%				
	consensus/80%				
	consensus/70%				
	cov	pid	401	.	:
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	FSHKTIQEF	LACQYVAHAVVNODIVELLQTSISKALELGYLLLFTCGCDSRAAQAVMEELSKLSKREFTNLRFEOFESS
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		
3	HagfishNCoR	41.0%	14.4%		
4	ZebrafishNCoR1	57.4%	17.6%		
5	XenopusNCoR1	57.8%	17.1%		
6	TurtleNCoR1	58.8%	18.3%		
7	AlligatorNCoR1	58.3%	10.3%		
8	MouseNCoR1	58.5%	17.7%		
9	OpossumNCoR1	57.9%	18.0%		
10	HumanNCoR1	57.4%	17.8%		
11	ZebrafishNCoR2	56.1%	16.1%		
12	OpossumNCoR2	57.7%	14.1%		
13	XenopusNCoR2	59.2%	16.8%		
14	MouseNCoR2	56.7%	17.0%		
15	HumanNCoR2	58.3%	16.9%		
16	AlligatorNCoR2	59.0%	17.5%		
17	TurtleNCoR2	59.5%	17.7%		
	consensus/100%				
	consensus/90%				
	consensus/80%				
	consensus/70%				
	cov	pid	481	.	:
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	NVPIDRDLOKSCET	YETFAALCLTILSERREPEVLQHICQALPIVMLDSSINSREATGLKYYIQNLHSAKLEDRLLITTH
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		
3	HagfishNCoR	41.0%	14.4%		
4	ZebrafishNCoR1	57.4%	17.6%		
5	XenopusNCoR1	57.8%	17.1%		
6	TurtleNCoR1	58.8%	18.3%		
7	AlligatorNCoR1	58.3%	10.3%		
8	MouseNCoR1	58.5%	17.7%		
9	OpossumNCoR1	57.9%	18.0%		
10	HumanNCoR1	57.4%	17.8%		
11	ZebrafishNCoR2	56.1%	16.1%		
12	OpossumNCoR2	57.7%	14.1%		
13	XenopusNCoR2	59.2%	16.8%		
14	MouseNCoR2	56.7%	17.0%		
15	HumanNCoR2	58.3%	16.9%		
16	AlligatorNCoR2	59.0%	17.5%		
17	TurtleNCoR2	59.5%	17.7%		
	consensus/100%				
	consensus/90%				
	consensus/80%				
	consensus/70%				
	cov	pid	561	.	:
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	GDADSRDTVQYLQQCF	TSSRPGLQLDLGLSGQFDISDKTARLVVLVKNPGLRAMDSLHTDLTPSSLQPLVKCFSHMSLL
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		
3	HagfishNCoR	41.0%	14.4%		
4	ZebrafishNCoR1	57.4%	17.6%		
5	XenopusNCoR1	57.8%	17.1%		
6	TurtleNCoR1	58.8%	18.3%		
7	AlligatorNCoR1	58.3%	10.3%		
8	MouseNCoR1	58.5%	17.7%		
9	OpossumNCoR1	57.9%	18.0%		

7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

		cov	pid	961
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	

consensus/100%
consensus/90%
consensus/80%
consensus/70%

		cov	pid	1041
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	

consensus/100%
consensus/90%
consensus/80%
consensus/70%

		cov	pid	1121
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	

consensus/100%
consensus/90%
consensus/80%
consensus/70%

		cov	pid	1201
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	

-----F-----HPGFSQTDHDSLDT-----
-----F-----HSGFSPVDHDSLES-----
-----F-----HPGFSQVDHDSLEA-----
-----F-----HPGFSQVDHDSLES-----
-----YL-----QDASSQSEVEYSEM-----
-----YL-----PDL SK-SEIEFIET-----
-----YL-----HDL SKQODLDLAEV-----
-----FL-----PELGK-PDIEFTES-----
-----YL-----PELGK-SEMEFIES-----
-----YL-----SDL SKQSDIEYIET-----
-----YL-----SDMSKQSEIEFIET-----
.....
.....
.....h.....hsp...-h-..h-.....
.....h.....pshsp..s-h-..les.....

.....0.....1040
LMKLCQRKHTNFLDFPNSKHLTFGTRPRILCFPPVTSYERWP-----PLRAEMAS--RQPNDRG-----QNG-P
-----G-----QNG-P

-----KRPRRIENVSE--THFSRSOPTSIIILPSQHTLQDSIRTSADVKKESQ---FGVKVEAS
-----KRPRRLDQVSD--SHYRLNP---AMVLLVPTIQEGVRVQSEVKKEQG---LSSKHES
-----KRPRRLEQVSD--SHFQVRS-T-AVLPLVHPLQOGLRS-ADIKKEPA---FGGKHEGP
-----KRPRRLEQVSD--SHFQRVN-TAAVLPLVHPLQOGLRS-SDIKKEPA---FGGKHEGP
-----KRPRRLEPVSD--AHFQVRS-A-AVLPLVHSLPEGLRSSADAKKDSA---FGSKHEAP
-----KRPRRLDQVSD--THFQVRS-A-AVLPLVHTLPEGLRASTEVKKDPT---FGSKHEAP
-----KRPRRLEQVSD--SHFQVRS-A-AVLPLVHPLPEGLRASADAKKDPA---FGGKHEAP
-----KRPRRLEIGAE--SLIRHSSH-----RQALT V--GGAEMEAKHSSSSSIGKIE-P
-----KRPRRLELLQE--PLLRPSPM-----LA--QH--GGTEDLSKDRS---LAGKLE-P
-----KRPRRLEILHD--PLIRHSPL-----ITONQH--ATGEELNKDHR---MAGKLE-P
-----KRPRRLELLPD--TLLRPSPM-----LATGQP--SGSEDLTKDRS---LAGKLE-P
-----KRPRRLELLPD--PLLRPSPM-----LATGQP--AGSEDLTKDRS---LTGKLE-P
-----KRPRRLDLLQD--PLMRHSPL-----LNQNQQ--GGTEDLSKDRG---LTGKLE-P
-----KRPRRLDLLQD--SLMRHSPL-----LNQNQQ--GGTEDLSKERS---LTGKLG-P
.....
.....
.....KRPRRL--h-..shhp..ss.....ts.t-htK--s.....skht..P
.....KRPRRL--lt-..shhpss.....lt..pt..tutt-hpK--u...hsukhe..P

.....1.....1120
PYEGSPPFKR-----HRLPS-----PSSSVRVQPPYSNGPEQSRF
PYEGSPPFKR-----HRLPS-----PSSSVRVQPAYONGPDQGRF

S-PGGVPQVGEDADTSPSKLSKEELIQSMDRVREIAKVEQQIFKLKKKQQOLEEEAAKPVEPEKPVTPPPVEHKKH---
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VSPVSPAHAESeldLLPPRLSKEELIQNMDRVREITMVEQQISKLRKKQQOLEEEAAKPREPEKPVSPPIIESKH---
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.....
.....ss...t...ph..Ps.....psph..hpPs...pt..c...
s..P..us...t-..ph..Pu+LSKEELIQSMDRVREIthhVEQQI..K..KKQQOLEEEAAKP..EPE+sloPPP..EtKH...
ssPhSs...sst-..sh..PS+LSKEELIQSMDRVREIshVEQQI..K..KKKQQOLEEEAAKPPEPE+PVSPPPlEpKH...

.....2.....1200
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-----RSVVQIIYDENRKKAAEEAAHKILEGLGPKVELPLYNQPSDTKVYHENIKT-----NQVMRKKLILF
-----RSIVQIIYDENRKKAAEEAAHKILEGLGPKVELPLYNQPSDTKVYHENIKT-----NQVMRKKLILF
-----RSIVQIIYDENRKKAAEEAAHKILEGLGPKVELPLYNQPSDTKVYHENIKT-----NQVMRKKLILF
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-----RSLVQIIYDENRKKAAEEAHRILEGLGPRVELPLYNQPSDTKQYHENIKI-----NQAMRKKLILY
-----RSLVQIIYDENRKKAAEEAHRILEGLGPQVELPLYNQPSDTRQYHENIKI-----PAAQSGSLFVA
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-----RSLVQIIYDENRKKAAEEAHRILEGLGPQVELPLYNQPSDTRQYHENIKI-----NQAMRKKLILY
-----RSLVQIIYDENRKKAAEEAHRILEGLGPQVELPLYNQPSDTRQYHENIKI-----NQAMRKKLILY
-----RSLVQIIYDENRKKAAEEAHRILEGLGPQVELPLYNQPSDTRQYHENIKI-----NQAMRKKLILY
.....
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.....RSlVQIIYDENRKKAAETAH+IhEGLGPpVELPLYNQSDT+.YHENIKh.....sts..ptpLhlh
.....RSlVQIIYDENRKKAAETAH+IhEGLGPpVELPLYNQSDT+.YHENIKh.....NqSMRKKLILa

.....1280
-----ASHEEVKAKDAKREFYEKMFPEIRKQREQQERFSR
-----TFHEEVKAKDAKREFYEKMFPEIRKQREQQERFSRAHSPCPNAVS

1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

		cov	pid	1601
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

		cov	pid	1681
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

		cov	pid	1761
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	
consensus/100%				
consensus/90%				
consensus/80%				

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RTTSNDVPDDGSVTKCVICGEIIDNYS-ETRPITRNLAEFYGLTEEDMRPAHRICSKCRRSVRKRCPVPTCKTFKRRKVK
RATSNDVPDDGSVTKCVICGEIIDNYS-ETRPITRNLAEFYGLTEEDMRPAHRICSKCRRSVRKRCPVPTCKTFKRRKVK
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KEDSK-DIS-KDKEKCEG--EEEEGKE-QSTPRGRKKTANSQGRR-----KGRITTRSMANNEAASVSVSEDP-----
KEELR-EGA---KDKIDAVAEDGDEDKD-QSMPRGRKTANNQGRR-----KGRVTRSMASEAAAAANAVTTATTAPVTTTS
KEESK-ENT-KEKDKTEIAPEET--E-QATPRGRKKTANSQGRR-----KGRITTRSMTNEAAAAANAA-AAAT-----
KEESK-ENT-KEKDKTEVAPEETEERE-QATPRGRKKTANSQGRR-----KGRITTRSMTNEAAAAANAAAAAAT-----
KEDSK-ETT-KEKDRTEATAAEPEERE-QVTFRGRKKTANSQGRR-----KGRVTRSMTSEAAAAANA-AAAAT-----
KEESK-EST-KEKDKTEGTSEETEERE-QATPRGRKKTANSQGRR-----KGRITTRSMTNEAAQASAAAAAAT-----
KEDSK-ENT-KEKDKIDGTAETEERE-QATPRGRKKTANSQGRR-----KGRITTRSMTNEAAAAASAAAAAAT-----
GDDKE-----DGI-KDDTSGEDGEEKEPPVTVKGRRTANSRGHR-----KGRVTRSMTNEQEEN--TSPLG-----
ADNDKEELT-KEK-TDDTSGEDNDEKE-TVTSKGRKKTANSQGRR-----KGRITRSMANEANSEEAATPQOS-----
LDNEKDEPG-KEK-NDDTSGDENDDKE-AVMAKGRKKTANSQGRR-----KGRITRSMANEANEE-STAPQHY-----
AENEKEELS-KEK-TDDTSGEDNDEKE-AVASKGRKKTANSQGRR-----KGRITRSMANEANHEETATPQOS-----
VENDKEDLL-KEK-TDDTSGEDNDEKE-AVASKGRKKTANSQGRR-----KGRITRSMANEANSEEAITPQOS-----
SENDKEELT-KEK-NDDTSGEDNDEKE-AVASKGRKKTANSQGRR-----KGRITRSMANEANNEEAATPQOS-----
AENDKEELT-KEK-NDDTSGEDNDEKE-AVASKGRKKTANSQGRR-----KGRITRSMANEANHEEAAAPQON-----
.....
.tp.p.....h.p..h.-.....p..shshsRphAp..Ghp.....ttrlspp.hspt.tt.....
t-ppc...s.tph.ps-hsE--ph-.tsts+GR+TANSpg+R.....KGRlTpphtscusttps.ssttt.....
t-ssK.-.s.K-K.ps-ssue-s--+E.tsss+GRKKTANSQERR.....KGRITRSMssEAttppsssstts.....
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.....
-RKKTLPTKLNEMPVEQKEPVMQEFGLTEEINKCCATCFNRIARRLGGEPGTG-DEDAKEAPSASEQVETSSRWTEDEMEV
-RKKTLPTKLNELPAEQKEPVMQEFGLTEEINKCCATCFNRIARRLGGEPGTG-DEDTKEAPSASEQVETSSRWTEDEMEV
-----
---PPPPEPVLPEPAPPSKPEPT-----QKPAREPAKPSIAASADTRGAVEAGETSSRWTEEEEMEI
TATTVAPVPVAPPPEEP-----TPPPP-----P
---EEPPPLPPPP-EP-----SSAEPVETSSRWTEEEEMEI
---EEPPPLPPPP-EP-----SSAEPVETSSRWTEEEEMEV
---EEPPPLPPPP-EP-----ISTEPVETSSRWTEEEEMEV
---EEPTPLPPPP-EP-----ASAEPVETSSRWTEEEEMEV
---EEPPPLPPPP-EP-----ISTEPVETSSRWTEEEEMEV
-----
-----SELANLEMNESSSRWTEEEEMET
-----AELASLEMNESSSRWTEEEEMEDT
-----TDLATMEMNESSSRWTEEEEMET
-----SELASMEMNESSSRWTEEEEMET
-----AELASMEMNESSSRWTEEEEMET
-----AELASLEMNESSSRWTEEEEMET
-----TELASLEMNESSSRWTEEEEMET
.....
.....s.....M-h
.....ss.E.seSSRWTE-EMEs
.....uuhe.seSSRWTEEEEME
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.....
AKRGLSEHGRDWEAISEMVMTKTPAQCKNFYFNYKRKFSLETLMVEYKRNK-----AQRERDISISAESAASTLTA
AKRGLREHGRDWEAISEMVMTKTPAQCKNFYFNYKRKFSLETLMVEYKRNK-----AQRERDISISAESAASTLTA
AKKGLVEYGRNWLAIAIRLVASKSESQCKNFYFNYKRRHNDALLQOHKAKDP----SRRRVRGERDLSQSESIASTLSAA
AKKGLVEHGRNWSAIAKMGVSKSEAQCKNFYFNYKRRHNDNLQOHKKVQGS----RRLRGNRDPSQSDPVP----
QEQSLVDHGRNWGAIAKMGVSKSESQCKNFYFNYKRRHNDNLQOHKKQKS----SRRPRERDVSQCDSIASTVSAQ
AKKGLVEHGRNWAAIAKMGVTKSEAQCKNFYFNYKRRHNDNLQOHKKQKS----SRRPRERDVSQCESVASTVSAQ
AKKGLVEHGRNWAAIAKMGVTKSEAQCKNFYFNYKRRHNDNLQOHKKQKS----SRRPRERDVSQCESVASTVSAQ
AKKGLVEHGRNWAAIAKMGVTKSEAQCKNFYFNYKRRHNDNLQOHKKQKS----SRRPRERDVSQCESVASTVSAQ
AKKGLVEHGRNWAAIAKMGVTKSEAQCKNFYFNYKRRHNDNLQOHKKQKS----SRRPRERDVSQCESIASTVSAQ
AKKGLVEHGRNWAAIAKMGVTKSEAQCKNFYFNYKRRHNDNLQOHKKQKT----SRKPRERDVSQCESVASTVSAQ
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKIKSEKERKARRKGK---AP--QNEEASAPSAA
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKLMKEKERNARRKKKKTAAAV--PSEEATFPPPVV
AKKGLFEYGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDGILQOHKKLMKEKERNRRKKKKKNPQM---EETPYPPAL
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKLMKEKERNARRKKKKTPAA--ASEETAFFPPAA
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKLMKEKERNARRKKKKAPAA--ASEEAAFFPPVV
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKLMKEKERNARRKKKKAPAA--QNEEAAFTPPAA
AKKGLLEHGRNWSAIAKMGVSKTVSQCKNFYFNYKRRQNLDEILQOHKKLMKEKERNARRKKKKAPAV--QNEEAAFFPPAA
tcpuL.pGRsw.AIuchVhoko.uQCKNFYFN.K++pL-tll.pak.p.....p...t...t...s.....
AK+GLh-aGRswtAIucMVhoko.uQCKNFYFNK++sL-tll.pak.p.....ptt.s...tp.ss...s...
AKKGLLEHGRNWuAIA+MVGoKo.uQCKNFYFNK+RpNLdplLQOHKK.K.....pr+.+ct.sh.tpp.Auhsss.
AKKGLLEHGRNWuAIA+MVGoKo.uQCKNFYFNK+RpNLdplLQOHKK.K.....pr+.+cp.ss.spp.Auhssst
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ESENEAES--ESSSDEDNTQDN-----EEDSSDTESASEDGRDDPNKQSAESKPKLEVKATV
ESENEAES--ESSSDEDNTQDN-----EEDSSDTESASEDGRDDPNKQSAESGPKPKLEVKATV
DDDGEQDISCGSGNEDE---SDG-----AENNSSDTESAPSPPVTCTTATNETATAEALESSELO-
-----DDDEESD-----GPDNSSDTESAPSPTQTDPSKPSESLTHTSSAVDGGS-
EDDE-NEAS---NEEENPEDSE-----GAENSSDTESAPSPSPAEARLGDDSVDR-TTSSVSM-
EDED-IEAS---NEEENPEDSE-----GAENSSDTESAPSPSPVEASKPSEDAMSESSASRITT-
EDED-IEAS---NEEENPEDSE-----GAENSSDTESAPSPLPAEAVKPSEDAVSEGTVSRITT-
EDED-IEAS---NEEENPEDSE-----GAENSSDTESAPSPSPVEAAKSSEDSSE-NAASRGNT-
EDED-IEAS---NEEENPEDSE-----GAENSSDTESAPSPSPDEGTKPAEDPTE-NATSGLAS-
EDED-IEAS---NEEENPEDSE-----VEAVK-----PSEDSPE-NATSRGNT-
EEEE-MEGSGVSGNEEEAQEDGEG-----GANNSSDTESLPSPRSSDDSKVKEEGSARPKTAPNATS
EDEE-MEVSGMSGNEEEMAEEADGKRRPGLPPGGMGGSSGPSAVNNSSDTESIPSPRAEAKDSGONGPKAA-PAQGAEA
EDEE-MEASGMSGNEEEMADEGDA-----AANNSSDTESVSPPRQEAKES-KENELNPT-GASGEEA
EDEE-MEASGASANEELAEEAEASQASGNEVPRVGECSGPAAVNNSSDTESVSPPRSEATKDTGPKPTGTE-ALPAATQ
EDEE-MEASGVSGNEEEMVEEAEALHASGNEVPR-GECSGPATVNNSSDTESIPSPHTEAAKDTGONGPKPP-ATLGADG
EDEE-MEVSGISGNEEEMAEEAEA-----AVNNSSDTESIPSPPRPEAK-ESGENGPKPA-PGPGSDS
EDEE-MEVSGTSGNEEEMAEEAEA-----AVNHSSDTESIPSPPRPEAK-ESGENGPKPT-PGPGRDS
.....
-p-t.-.....s---p-s.....t.psSSDTEShsps...t..t.ttp..t...s..t..
E-Ep.hEsS.....NEEE.s--u.....s.psSSDTEShSPt.tt..c.uppssp.t.ss.hsp.
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consensus/70%			EDE-.heuS.....NEEE.se-u-.....uspNSSDTESHSPsttstcsu-susp.s.sutsss.
	cov	pid	1841 : 9 192
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%	--AREEPPE-KKA-----AVPTPSLP-----PEPL-----
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%	--AREEPGE-KKV-----TATTVTLP-----QEPL-----
3 HagfishNCoR	41.0%	14.4%	---DHATPESEEVKVE-----TAIEPI-----Q-SPPRETH-----
4 ZebrafishNCoR1	57.4%	17.6%	-----D-QDVTAAKGPA-----DAK---GQ-----E-SPYGELKVKIE--KSPEGGA---GDVLP
5 XenopusNCoR1	57.8%	17.1%	----EAPPE-QDAASKPASDSSPSP-----IVENTKPPE-----TQYAE LKVKEE--ISTENEQTMEVEERS
6 TurtleNCoR1	58.8%	18.3%	----ETTAE-QESAIKTVPSTSPSS-----AAQSTQTAE-----NQNIELQVKEE--ISNEAEFPMEMDSRS
7 AlligatorNCoR1	58.3%	10.3%	----ETAAE-QESAIKTAPSASPSA-----ATQCAQTAE-----TQNSEPQVKEE--INNEVEEAMEVDSRS
8 MouseNCoR1	58.5%	17.7%	----EPVAE-LEATTDPAPCASPS-----AVPTTKPAE-----RESVEAQVTD S--ASAETAEPMDVDHEE
9 OpossumNCoR1	57.9%	18.0%	----EVPGE-LES-TTGGPSASPTP-----VIPS AKPGA-----G-QEAELEAQVKEE--INEDPEEPMEIDSVS
10 HumanNCoR1	57.4%	17.8%	----EPAVE-LEPTTETAPSTSPSL-----AVPSTKPAE-----DESVETQVND S--ISAETAEQMDVDQQE
11 ZebrafishNCoR2	56.1%	16.1%	S-----SSSTDKDM-----AAAETGMDEKPKVEKGDGEQA-----
12 OpossumNCoR2	57.7%	14.1%	GAVAEPPPKAEDAA-PGPPA-PPDPSAPSAPPADPPASATPSPAATPAAQV-TAAPEEAGQ-DPGDEEKPPPEELVVDA--
13 XenopusNCoR2	59.2%	16.8%	NTEVVVSPENSDN-STAE-----QC---QD TTQKTC-----NEEVAGKEETPI IKK
14 MouseNCoR2	56.7%	17.0%	PP---VPPPEEP AVAPAEPSVPDASGPPSPSEPS-PSPAAPPATVDKDEQEAPAAPAPQTEDAKEQKS---EAE EIDVGK
15 HumanNCoR2	58.3%	16.9%	PPPGPPTPPPEDIPAPTEPTPASEATGAPTPPPAPSPSAPPPVVPKKEEKEETAAAPPVEEGEEQKPPAAEELAVDTGK
16 AlligatorNCoR2	59.0%	17.5%	STEPAIKM--EEAPAT-----TAA---TADAVPAAASTPQPL-----E--TVTEQAS-----NEEKPPQEEELVVDVVK
17 TurtleNCoR2	59.5%	17.7%	GPEPALKA--EDADAA-----TA-----ANPTAATTPQPOQ-----E--AAAEPAS-----SEEKPPQEEELVVDVVK
consensus/100%			t.....
consensus/90%			p.....
consensus/80%			s...cs.....t.....p...ste.h.....
consensus/70%			t.ssc.p-s.....ss.....s.ss..s.....ts.E.ts.....pt.ste.h.h-...

			0 2000		
	cov	pid	1921		
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	-----POVKVEKDK-----PAEVK-----AP-----PVPV		
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	-----POVKVEKDK-----PAEVK-----APPP-----PVPV		
3 HagfishNCoR	41.0%	14.4%	-----QQEDKPVKC-----PVQERQE-AEIPA---SYMLMR-----NSPVTP-----QEADEQ		
4 ZebrafishNCoR1	57.4%	17.6%	QDDRARSAYEMQIHPKSEPQDVEMTSPSTDRAQ-VQ-----VKTEPE-----VKDKEE RQ		
5 XenopusNCoR1	57.8%	17.1%	QSAELKSALNLQVQTKAEPYETEAKPTTESTTOVKTEVDSKEDDSMERL-----MDRAEAADMGYAPPQNISQA		
6 TurtleNCoR1	58.8%	18.3%	HPAEAKPVLNLPVHTKAEPVDAEMRLPENI-OVKIE-NDTKERDLEKP-----KEKSEPEEMDFSLSQQSNTA		
7 AlligatorNCoR1	58.3%	10.3%	HSAEVKPMNLNLPVHTKVEPIDTEMRLPENI-OVKIE-SETKERDMEKP-----KEKSEPEEMDYTLTQQTATA		
8 MouseNCoR1	58.5%	17.7%	CGAEGSSVLDPAPTAKADSVDPEMQVPENT-ASKGEG-DAKERDLEST-----SEKTEARDEDVVVAEQI--E		
9 OpossumNCoR1	57.9%	18.0%	PSAEDQ-----QTKAEPVDVEMTVLDGL-EVKTE-NDAKEGDLQRS-----KEKMQPVNESSFSVAQTSSTL		
10 HumanNCoR1	57.4%	17.8%	HSAEEG SVCPPPATKADSVDVEVRVPENH-ASKVEGDN TKERDLRA-----SEKVEPRDEDLVVAQQINAQ		
11 ZebrafishNCoR2	56.1%	16.1%	-----GVKQEVKTEPGE GAS-----ESAGEDKKPPALEVEE-GKKEVKKKEHG		
12 OpossumNCoR2	57.7%	14.1%	-----G-GPAGAAAAGEGALKVEKKE-GGK----AA-K		
13 XenopusNCoR2	59.2%	16.8%	EEEE-----EGKSCVELNKQEI KQEEQEDSK--ENVAEKV--EEMRKETGAAAPADDAPPKMEKKH-----SK-H		
14 MouseNCoR2	56.7%	17.0%	PEEP-----EASE--EPPE-SVKSDHKEETE--EPEDKAKGTEA-----IE-TVSEAPLKVE-EA-GSKAAVTKG-S		
15 HumanNCoR2	58.3%	16.9%	AEEP-----VKS-----ECTEEAE--EGPA-KGKDTEA-----AE-ATAEGALKA EKKE-GGSGRATTA-K		
16 AlligatorNCoR2	59.0%	17.5%	TEEP-----EEKPSEEPCKSEIKKEESEDQ--EKDKGEDKKPEGSSSNGGT-AGAEGTPKAE----KKESHKTG-K		
17 TurtleNCoR2	59.5%	17.7%	TEDP-----EEKPSEEPCKSEIKKEETEDCP--EGDKASDKKTESVSS---A-AGAEVAPKAE----KKESHKPG-K		
consensus/100%			t.....		
consensus/90%			t.t...E.t.....t.p.....t.t		
consensus/80%			..t.....t...cs.c.php.pp.t...E.st.....h-h.....KsE.....tp.s.t		

			2080		
	cov	pid	2001		
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	VEIK EEDNDSSATCSADEGGGEGEGVPHHSGNFS-----KSSAAAVS-----TADV KPIISTSS		
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	VEIK EEDNDSSATCSADEGGGEGEGVPHHSGGSLG-----KTSAAPVS-----TADV KPIISTSN		
3 HagfishNCoR	41.0%	14.4%	PVASVASHDSSATCSADEGEETR---G--GVLS--PKPKLPSPHDVQLVSPPLRVAPLDLQQLKQRSTSI PHMMYGPS		
4 ZebrafishNCoR1	57.4%	17.6%	GEQQHSDNDSSATCSADEDV EAE--PDRQ--RMYSLE-KPSLLGPSGSVVVSSA---KLLNMQQIQQRAATIPPMVSAHS		
5 XenopusNCoR1	57.8%	17.1%	RQESQPDNDSSATCSADEEVDGE--PDRP--RMYSFGSRPSLLNQAGTFL----KQGPMDLQQLQHRAAVIPPMTSCSP		
6 TurtleNCoR1	58.8%	18.3%	RPEPNSDNDSSATCSADEDV DGE--PERQ--RIFTMDSKPSLLNPTGSILVSSSTIKQGQMDLQQLHHRAAVIPPMVSCSP		
7 AlligatorNCoR1	58.3%	10.3%	RQETHSDNDSSATCSADEDV DGE--PERQ--RIFTMDSKPSLLNPTGSILVSSSTIKQGQMDLQQLHHRAAVIPPMVSCSP		
8 MouseNCoR1	58.5%	17.7%	RPEPQSDNDSSATCSADEGV DGE--PERQ--RVFPMDAKPSLLTPPGSILISSPIKPNPLDLPLQLQHRAAVIPPMV SCTP		
9 OpossumNCoR1	57.9%	18.0%	RPESRSDNDSSATCSADEDVDAE-PPERQ--RMFPVDSKPSLLNPTGSVLVSSPIKPATMDLQQLHHRAAVIPPMV SCAP		
10 HumanNCoR1	57.4%	17.8%	RPEPQSDNDSSATCSADEDV DGE--PERQ--RMFPMDSKPSLLNPTGSILVSSPLKPNPLDLPLQLQHRAAVIPPMV SCTP		
11 ZebrafishNCoR2	56.1%	16.1%	GKSGAHDSDSSATCSADEVEETE-SSEK-----SRPSLLSFSDHGVISSQ-AQKPLDLKQLKQRAAAIPPI LPEVS		
12 OpossumNCoR2	57.7%	14.1%	GSGTNPDS DSSATCSADEVDEQE-AVDKN--RLLS--PRPSLLNTAADARANPS-PQKPLDLKQLKQRAAAIPPIQV T--		
13 XenopusNCoR2	59.2%	16.8%	TSKTNAESDSSATCSADEADEA---EEN--RLQS--PRPSLLSSGSDAQMNSS-PQKPLDLKQLKQRAAAIPPII SEGY		
14 MouseNCoR2	56.7%	17.0%	SSGATQSDSDSSATCSADEVDEPE-GGDKG--RLLS--PRPSLLTPAGDPRASTS-PQKPLDLKQLKQRAAAIPPIQV T--		
15 HumanNCoR2	58.3%	16.9%	SSGAPQSDSDSSATCSADEVDEAE-GGDKN--RLLS--PRPSLLTPTGDPRANAS-PQKPLDLKQLKQRAAAIPPIQV T--		
16 AlligatorNCoR2	59.0%	17.5%	ASGINPDS DSSATCSADEMDEQD-TVDKN--RLLS--PRPSLLNTANDARLNSS-PQKPLDLKQLKQRAAAIPPII SEGF		
17 TurtleNCoR2	59.5%	17.7%	AAGLNPDSDSSATCSADEMDEQD-AVDKN--RLLS--PRPSLLNAAADARLNSS-PQKPLDLKQLKQRAAAIPPII SEGF		
consensus/100%			ppDSSATCSADE.t.....t.....sssl..h..t..		
consensus/90%			-sDSSATCSADE.ttt...p...t..s.....hss...t.....sas1.Ph.st..		
consensus/80%			t.t.p.DsDSSATCSADEss-tc...s-+t..thhs...s+PSLLs.sss.hhsss...t.hDL.QLppRAASIPPhhsp..		
consensus/70%			tttspsDsDSSATCSADEss-s...s-+p..Rhho...s+PSLLsssushhhsSs...pshDLpQLppRAASIPPhlSss.		

			2160		
	cov	pid	2081		
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	SSAGGERTAGVVSAGKTVPSPGIAATFPATFIPPPSTMVTGPH-RPSLQOMVARHAQIPGF-AE-SREHGR-----		
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	SGSVGERVAGVVSAGKTVPSPGIAATFPASFIPPPSTMVTGPHSRPSLQOMVARHAQIPGF-AE-TR-EGR-----		
3 HagfishNCoR	41.0%	14.4%	PPC-----SDAFSILQQQIKAVASEGVVVVAGSEGHDQAATPKGPN		
4 ZebrafishNCoR1	57.4%	17.6%	LYPHLAFRYAPLDRDRVQPPRHVSASFHSGVPGGP---MSGFAMFQHQIKAV-HESVQEDKORLD---Q-N-----		
5 XenopusNCoR1	57.8%	17.1%	CNLT-----TGTAIA---ASNFSMYQRHL----YENSLLEEQRQR---Q-E-----		
6 TurtleNCoR1	58.8%	18.3%	CNVP-----IGTPI---SGYALYQRHIKA-MHESALLEEQRQR---Q-E-----		
7 AlligatorNCoR1	58.3%	10.3%	CTVP-----VGTPV---SGYALYQRHIKAIMHESALLEEQRQR---Q-E-----		
8 MouseNCoR1	58.5%	17.7%	CNIP-----IGTPV---SGYALYQRHIKA-MHESALLEEQRQR---Q-E-----		
9 OpossumNCoR1	57.9%	18.0%	CNVA-----VGAPV---SGYALFORHIKA-MHESALLEE-RQR---Q-E-----		
10 HumanNCoR1	57.4%	17.8%	CNIP-----IGTPV---SGYALYQRHIKA-MHESALLEEQRQR---Q-E-----		
11 ZebrafishNCoR2	56.1%	16.1%	GRDN-----RPGLPGKQAM---PDALALYQQQITMA-HESSQEAQQQQ---Q-Q---PTK		
12 OpossumNCoR2	57.7%	14.1%	-----KV-HDPPRRDDEPPGK---P-A---PPS		
13 XenopusNCoR2	59.2%	16.8%	SESA-----AQNTPVKQOM---SEGLALYQDQISKV-SDMALDGLALLK---P-PQPLVPP		
14 MouseNCoR2	56.7%	17.0%	-----KV-HEPPREDTVPPK---P-VPPVPPP		
15 HumanNCoR2	58.3%	16.9%	-----KV-HEPPREDAAPTK---P-APPAPPP		
16 AlligatorNCoR2	59.0%	17.5%	PEGV-----LQSGSLKSQVP---PHALALYQQQITKA-HESSREEVAQSK---P-PQPLFPQ		
17 TurtleNCoR2	59.5%	17.7%	PDGT-----LQSGSMKPQVP---HHALALYQQQITKA-HESARDEVAQSK---Q-QQQQPE-		

.....s
.....h.p.s.s.t.t
p.hs.hop.l.t.p-ssh.tt.tc
st.s.....h.....puhuhhopp.lth.HEsuh.-ptpp+.t

. 2240
 -----DRPRSSSPH-VQRSP-----ITPPSR-AHIPVTSPLT-IDTRIGVVMGQRSEG-HEHEKE-----
 -----DRPRSSSPH-VQRSP-----ITPPSR-AHIPVTSPLT-IDTRIGVVMGQRSEG-HEHEKE-----
 GMALPKKESTDVEPRSSPLVFGNSPSGVNVPLGWQVGSTGSLPSASSVITTVLSRPCQFVGQAAALSKCGQVREESGVES
 -----ESDRRTR-----VTHSPT-----VLDREGK--P-----FAYMP-YDLKL--M-----EQEALG
 -----QLTLENRMSASPGNMSKSP-----NMDWEGK--S-----VYMP-YTEVK--HPFEHEAQMQN
 -----HIDMEYRSSASPCGTSKSP-----NVEWEGK--S-----VAYMP-YVEVK--RAIEQEAQVQN
 -----QLDMEYRSSVSPCGTSKSP-----SMEWEVL--Q-----P-----
 -----QVDLECRSSTSPCSTSKSP-----NREWEGK--S-----VAYMP-YAEVK--RAIEQEAHMHs
 -----QLDPDCRR-----SVSP-----NVEWE-----
 -----QIDLECRSSTSPCGTSKSP-----NREWE-----
 SQHY-----PAAGDSGSPRVRTSRSP-----GISDREREDG-----KKNPGADDIR-----ALGLG-----
 QHHLQPDSE-APQPSSSPRGQSRSP-----AMPV-----YFPSF-SEG-----QKLSGEP--AP
 D-----KEQQTISSPIGSSKSP-----VTVV--KDEK-----PQHLG-LQLEA-----PRISAKPTCIT
 TQHLQPEGDVSQQSGGSPRGKSRSP-----VPPAEKEAEK-----PAFFPAFPTeg-----PKLPTE--PP
 PQNLQPESDAPQQPGSSPRGKSRSP-----APPADKE-----AFAAEA-----QKLPGD--PP
 Q-----QAEKEPLQPGSSPRGKSRSP-----AIGD--KEEK-----PAHFS-I-Aeg-----QKLGGEQPVTS
 -----PEQQASSSPRGKSRSP-----AVGD--KEEK-----PVPFSSL-Aeg-----PKLSGEQTATS
tss.....
h..ppSP.....
t.p.tsSPshshs+SP.....sh.....t.....
t.p.ctpsuusppspS+SP.....shshp.t..t.....h.....h.....th.t-.....

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4 2400

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--SKPGLPPPPPLISKSSSPKGG-----POMSP-----OSQHPMYHTGSI TRGIPMSYAI
PVQSKPGLPPPPPLISKSSSPKGG-----POMSP-----OSQHPMYHTGSI TRGIPMSYAI
RPCRIGSMGPPPLIPSGKPTA-LPDKPTVIMGGSCIMQSMO GNGPYGHSAAHGRLAFPTDPGKTAMGSI SLGTPRQADA
RH-RPPNIPSPPLIHT----SKPTDKPSFIQGGSI----SQGTPGTYLPPQSHAVY-IPEVVKTTGGSI SLGLPRQQDP
RP-TR----PPPPLIPSSKTSATSSDKPSFITGGSI----SQGTPGTYLASLSQ-PY-SQETLKPSVSGSI SLGLPRQHE
RP-TR----PPPPLIPSSKTTM-PSEKPSFIMGGSI----SQGTPGTYLTSHSQASY-SQEPAKPSVSGSI SLGLPRQ
RP-TR----PPPPLIPSSKTSV-PSEKPSFIMGGSI----SQGTPGTYLTSHSQASY-VQEPAKPSVSGSI SLGLPRQ
RP-TR----PPPPLIPSSKTTV-ASEKPSFIMGGSI----SQGTPGTYLSSHQ-AY-PQEAPKPSVSGSI SLGLPRQ
RP-TR----PPPPLIPSSKTTV-TAEKPSFIMGGSI----SQGTPGTYLTSHCQASY-TPEPAKPSVSGSI SLGLPRQ
RP-TR----PPPPLIPSSKTTV-ASEKPSFIMGGSI----SQGTPGTYLTSHNQASY-TQETPKPSVSGSI SLGLPRQ
--RPLHIEPPPLISSAK-----PGGSI-----TOGTPVQLH----NPSHSGSEHGKVPAPG-SLALS-WVDQ
--RVPGISNPPPLISSTKHPVVL-----ERPVS-----SGVPIQLH----APY-S-EHAKAPVSGSI TMGLPLTMDP
--RIPSISNPPPLISS-KHPAAI-----ERPIVSM-----SGVPIPLH----VPY-GSEHAKVPAGSI TMGLPMNMDP
--RPP-ISNPPPLISSAKHPGVL-----ERQLGAI-----SGMSVQLR----VPH-S-EHAKAPMGPL TMGLPLAVDP
--RPPTISNPPPLISSAKHPSVL-----ERQIGAI-----SGMSVQLH----VPY-S-EHAKAPVGPV TMGLPLPMDP
--RLFAISNPPPLISSTKHSSVL-----ERSIGSI-----SGVPIQLH----PPY-SSEHAKVPIGSI TMGLPL-MDP
--RLSNISNPPPLISSTKHPSVL-----ERPISSI-----SQVR-----CHPGA AV-LSR
...p.....PPPLI p.....s.....oh.....p.uhs...t.
...p...sPPPLIsp p.....u.....soh.s.....p..h..hsshohGhsh..t.
...p...sPPPLI sSkps.....h.hGuh...oGgsPh.hh.....-skssshGulohGlp..-
...ph....sPPPLI sSkpss.h.....h.hGSI...SOGsPhphh.....sa.s.EhskssssGSIohGLPph.-s
```

2480

```
HP-----GVVPPPPPSSRQEAASEGR-----RGA-----NEGSIIHGTPRKHDGLLTAGEERRIEG--SITRG
HPA-----SMPGVVPPPPPSSRQDGAEGR-----RGV-----NEGSIIQGTPRKHDGLLTAGEERRIEG--SITRG
NKH--SVSVIKQEQLSPRGQS---DGSLSRSAADVSIIRGPSSMPFQEGSITKGIPTNKIGLES--SFSGYRG-T----
AKP---VSYIKQEECSPRGQSA--OAEGLLSRA-QYDGVVRGG-PMQIQDMRGTPGK-----GQEG--LP-FRGG--SITQG
TKI--GCVTYIKQEEFSPRGQSS--OPEGLLVRA-QHEGVVRGS-MAAIQEGSIARGTPATKVPLEA--VS-TLRG--SITQG
AKP-ASIPYIKQEEFSPRSQNS--OPEGLLVRA-QHEGVVRGT-TTTIQEGSITRGTPANKVPVET--IP-SLRG--SITQG
AKP-ATIPYIKQEEFSPRGQNS--OPEGLLVRA-QHEGVVRGT-TTTIQEGSITRGTPTNKVSVE--MP-SLRG--SITQG
TK-AAPLTYIKQEEFSPRSQNS--OPEGLLVRA-QHEGVVRGT-AGAVQEGSITRGTPASKISVET--IS-SLRG--SITQG
TKPAGSLPYIKQEEFSPRGQAS--OPEGLLVRA-QHEGVVRGN-TSAIQEGSITRGTPASKVSVES--IP-SLRG--SITQG
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RKM--GGFPVVKQEQLSPRGASS--SSSQAEENLSTQDSSTSRG-PMPAVQGGSIITKGIPGTRVHQDS--PI-SYRGGSITQG
KKL--VPFPGVKQEQLSPRSQAG--QPETLGMFVAQETSIVIRGTSLSGSTAGGSITKGIPGSRPPSES--PI-TYRG--SITHG
KKL--VPF--LKQEQLSPRSQPS--HPENLAVQTSQETSIFRGTS---QGGSLSKGIPASRPPSNS--PI-NYRG--SITHG
KKL-APFSGVKQEQLSPRGQAG--PPESLGVPTAQETSIVIRGTALGSATSGSIITKGLPSTRAAD---GP-SYRG--SITHG
```


15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	2481
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

KKL-APFSGVKQEQLSPRGQAG-PPESLGVPTAQEASVIRGALGSVPGGSSITKGIPSTRVPSDS--AI-TYRG-SITHG
KKL-VPFPGVKQEQLSPRSQAN-OPENLVMQTSQESSILRGALGSASGGSITKGIPSTRPPES--PI-TYRG-SITHG
MFL-VPFPGVKQEQLSPRSQAN-QPESLVMQTSQESSILRGASLGSTPGGSISKGLPSARPPSES--PI-TYRG-SITHG
.....t.hss.s.s.....tt.....RG.....thph..Gh.....htG.o....
t.....h.t.hsf.s.ss.....ts.h.....RGs.....tGSl.pGhPtt+.s..s.....thG.C.SITpG
tK...shshlKQEpHSPRuQsu.ps-shhh.s.QctulhRGs....hptGSIo+GhPss+.s.po.....shRG.SITpG
pK..sshshlKQEpHSPRuQuu.QPEuLhs.s.QcpullRGs.hsshptGSIT+GhPss+ss.-o.....ohRG.SITpG

	cov	pid	2561
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

TPV-----VSYESNISRVTMQGGEMRKYPVVEEVSERG-SITKGTPLRAP-----EEV---PGAS---
TPV-----VSYESNISRVTMQGGEMRKYPVVEEVSERGGSSITKGTPLVRPP-----EEV---S---
---ISQQTIPADVLYKGTLSKLSETGSAGER-----QSSKAHILSDNNM---IPLSAHTSIQKTGGEGVRS-P-HARDS
TPALTQSNVAEE-LLKGTIAKLATEDQNSP-EKSRAEAHSHKAHVITYEGKSGHILSYDAIKNPR---EGTRS-P-RMGHD
TPALSQSGIAADVLLKSTITRLAAEDIGSP-ERCREDTSAKGHVITYEGKSGHIVSYDTIKNMR---EGTRS-P-RTAPE
TPALSQSGIPADALLKGTITRLATED-SSP-EKCREEAAAKGHVITYEGKSGHILSYDTIKNIR---EGTRS-P-RTAHE
TPALSQSGIAADALLKGTITRLATED-SSP-EKCRDESTTKGHVITYEGKSGHILSYDTIKNVR---EGTRS-P-RTAHE
TPALPQAGIPTEALVKGPVSRMPIEE-SSP-EKVREEAASKGHVITYEGKSGHILSYDNIKAR---EGTRS-P-RTAHE
TPALSQSGIQTETVVKGAIAARLSMED-NSP-EKSREEAISKGHVITYEGKSGHILSYDNIKAR---EGTRS-P-RAAHE
TPALPQTGIPTEALVKGSI SRMPIED-SSP-EKGREEAASKGHVITYEGKSGHILSYDNIKAR---EGTRS-P-RTAHE
TPA-----DVLYKGTITRLINEDSPSR-ERSREDTPSKGHVVYEGISGHILSFERRPN---SKEEG---CGDVG
TPA-----DVLYKGTITRIIGEDSPSRVDKGREDGLPKGHVITYEGKKGHVLSYDGGMSVSPCSKEDGRSSSGATHET
TPA-----EVLYKGTITKIMGEDSPGVR---EGLSKGHVITYEGKKGHVLSLDGSAA--QHSKEDGRTAA-STHEN
TPA-----DVLYKGTISRIVGEDSPSRRLDRAREDTLKGHVITYEGKKGHVLSYEGGMSVSQCSKEDGRSSSGPPHET
TPA-----DVLYKGTITRIIGEDSPSRRLDRGREDSLPKGHVITYEGKKGHVLSYEGGMSVTQCSKEDGRSSSGPPHET
TPA-----EVLYKGTITRIIGEDSPSRAEKVREDALPKGHVITYEGKKGHVLSYDGGVAASQCPKEDSRSSG-GSHET
TPA-----EVLYKGTITRLIGEDSPGRAEKAREDALTKGHVITYEGKKGHVLSYDGKLESSL-----
.....h.cusls+h..pt.s.....s+u..l.cs.....
TPs.....s.hcusls+h..ps.s.....-s.s+utslhcgp.h+.....Ets.....
TPA.....-sLhKGSIoRl.he.-su....sh--s.sKGHVITYEGppGHllSh-shhs.....Ets...s..st.t
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	cov	pid	2641
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

PHFOYER-----REKTGOEMFEGLIQRAlAEPN-----KQ
PHAPYER-----REKTGOEMFEGLIQRAlAEPN-----KA
STIKRTYDMMEEGVYEGLF-----OKQOQEG-----LDTKERASVFGSILQGTPLRLQMEVDEA-FRRETQ
--LKRTYDIMEGSRGHT---PRETTPEGLICRTLRES---P-HESKDRPMLAGSIMQGTPRASTEVEYDEASK-YGKQ
VALKRAYDTMEGNIQOAMSVR EAAVSGPMEGLICRTLPLKG--SPHPELKDRQVLSGSIMKGTPTRTSDNFDGLK-YAKQ
TURTLENCOR1 (bioRxiv preprint doi: <https://doi.org/10.1101/2020.03.09.983916>; this version posted March 10, 2020. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.
MGLKRSYDTMEGNIQOGMPMR EAPVSAPEGLICRALPRG--SPHAELKERTVLSGSIMQGTPTRTTAESFEDGLK-YPKQ
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ISLKRSYESVEGNIQOGMSMR EAPVSAPEGLICRALPRG--SPHSDLKERTVLSGSIMQGTPTRTTAESFEDGLK-YPKQ
AGMKRSYDMMEVGISSRVP--PIR-DPLSEGLIIRAMPDRDSPH-----QLIRGSISQGIIPRD-----DCQREVQ
SASKRTYDMMEGRIGRGLSGRDL--TGIEGLMGRAIPDRHSPHHLKEQ--HHSRGSITQGIIPRSYVEAQEDYLRREAKH
SSSKRTYDMMEGWVPRGLQVCELP-AGPIEGLIGRAIPDRHSPHTMKEPLQHLRGSITHGTIPRSYTEVHEDYLRREAKQ
AAPKRTYDMMEGRVGRVT---SASIEGLMGRAIPEQH--SPHLKEQ--HHIRGSITQGIIPRSYVEAQEDYLRREAKL
AAPKRTYDMMEGRVGRAIS----SASIEGLMGRAIPPERHSPHHLKEQ--HHIRGSITQGIIPRSYVEAQEDYLRREAKL
TGTKRTYDMMEGRIGRGLSARDMS-SASIEGLMGRAIPPD-----GPHNLKEQ--HHIRGSITQGIIPRSYVEAHEDYLRREAKQ
-----SLAVLGLMGRAIPDRHSPHNLKEQ--HHIRGSITQGIIPRSYVEGHEDYLRREAKQ
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...+..Y-.....GLhtRsh.....K.
..KRsy-hhE..h.pt.....pt.heGLhtRsls.s...s....c..thltGSIhpGhPRs...s.--h.+..skp
.u.KRoYDhMEGtltpsh.....ssshEGLhsRAlpts..uPhT.hcp.phlpGSIhQghPRshsEs.E-hl+..skQ

	cov	pid	2721
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%

DORGVPVPPPGTAIYRDSRGVPI-----HFTGVPIIDYPV-----ST-----VYGGAMM
DORGVPVPPPGTAIYRDSRGVPI-----HFTGVPIIDYPV-----ST-----VYGGAMI
IKREDTN-----LKAASDGT-----IQRSRPYEVVHTVKEAGRSIHEIMRGNRPVVDSATLLHQHQKRTPEIP
IKRESPP-----IRSFEGGI-----TKGKPYEGVNTTIKEMGRSIEHIEPRKE-----TQ--DSR-----
IKLESPP-----IRSFEGAI-----SKGKPYEGVNTTIKELGRSIEHIEPRQD-----LVSQESRKTPE--
IKRESPP-----IRTFEGAI-----TKGKPYDGVTTTIKEMGRSIEHIEPRQD-----LLSQESRKTPEIV
IKRESPP-----IRTFEGAI-----TKGKPYDGVTTTIKEMGRSIEHIEPRQD-----LLSQESRKTPEIV
IKRESPP-----IRAFEGAI-----TKGKPYDGVTTTIKEMGRSIEHIEPRQD-----ILTQESRKTPEVV
IKRESPP-----IRAFEGAI-----TKGKPYDGVTTTIKEMGRSIEHIEPRQD-----LLSQESRKTPEVI
IKRESPP-----IRAFEGAI-----TKGKPYDGVTTTIKEMGRSIEHIEPRQD-----ILTQESRKTPEVV
MKREGSPSPRGPGH-STDALK-----SRSHESMVP TVKEGGRSIIHLIPPEG-----V-----V
LKRESTP-----PRDLPDPYKVRPLEGLTPMKMK-GHEGLVATVKEAGRSIHEIPREE-----L-----RHTPELP
LKRESTP-----PHGLPEAYKVRSHESGLSGLPKMNAHDAMVATVKEAGRSVHEIPREE-----M-----RHTPEMQ
LKREGTPPPPPPPRDLTETYKPRPLDPLGPLKLKPTHEGVVATVKEAGRSIHEIPREE-----L-----RRTPELP
LKREGTPPPPPPSRDLTEAYKTQ--ALGPLKLKPAHEGLVATVKEAGRSIHEIPREE-----L-----RHTPELP
LKRENTP-----PRDLSDPYKGRPHEGLTPLKMKSAHEGLVATVKEAGRSIHEIPREE-----L-----RRTPDIP
LKRENTP-----PRDLSDTYKVRPHEGLAPLKMKAHEGLVATVKEAGRSIHEIPREE-----L-----RRTPDIP
.phtsss.....h...tsh.....t..thh.h.h.h.....tt.....h.....
.prtssp.....ht..tsh.....t..thlsh.h.h.....pp.....h.....
lKREssp.....+shptsh.....p.t..shVstlKEhGRSIEHIEPRpp.....h.....Rhssth.
lKREusp.....Rshpsuh.....hKsp..shVstlKEhGRSIEHIEPRp-.....l.....R+TF-h.

	cov	pid	2800
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%

RGTPTSRAGSITQGTPMH-HSEGVNRALQ---VDTLSRSSPCRAEHP-SH-ADSRRREGPYIQG-NPGRSDSPARRRSTPL
RGTPTSRAGSITQGTPMHAHSEGVNRGLQ---VDTLSRSSPCRAEHP-SH-AE-RREGPYIQG-TPGRSDSPARRRSTPQ
GSRTSHD--LFLR--GVKFEGS--ATGYTKHDVKSM-L-TGSMAIPGMPLPHLALLAPDVTGCGGDSSGDPTSCRNTWTBR
--KTPVLEGSITQGIPLKYEGSAVNPSAIKHNKSLI-TSPVKISHS-AI-----EAAERE-----RAK-----Y
-SSRQIMEGSISQGTPIKYESTS-GQSAIKHNKSLI-TGPSNLSWG-VPQMDNMPENLKMGE-----RSK-----H
QSVRPIMEGSISQGTPIKYESNS-GQSAIKHNKSLI-TGPSKLPRG-MPQLEMVPEENVKAVE-----RAK-----Y
QTARPIIEGSISQGTPIKYESNS-GQSAIKHNKSLI-TGPSKLPRG-MPQLEMPENMKVVE-----RGK-----Y
QSTRPIIEGSISQGTPIKFDNNS-GQSAIKHNKSLI-TGPSKLPRG-M--LEIVPENIKVVE-----RGK-----Y
QSTRPIIEGSISQGTPIKFDNNS-GQSAIKHNKSLI-TGPSKLPRG-MPQLEIVPENIKVVE-----RGK-----Y
--IGKPKEGSITQGTPLKQEP---PGSSKRHDVRSII-ASSRPYSG-L---PSHLD-PRGSD-----RAR-----Y

12	OpossumNCoR2	57.7%	14.1%	GPPRPLKEGSI	TQGTPLKYDS	SGSSSSGSKKHD	VSII	-GSPGR	TFHE	-VHPLD	VIQD	-PRALD	-----	R-C	-----	Y	
13	XenopusNCoR2	59.2%	16.8%	VTPRSHKEGSI	TQGTPLKYDS	SGSSSSSAKKHD	VRTII	-GNSGR	RSFHA	-LHPME	VLQD	-PRTME	-----	RLC	-----	Y	
14	MouseNCoR2	56.7%	17.0%	LAPRPLKEGSI	TQGTPLKYDS	GAPSTGTTKKHD	VSII	-GSPGR	PFFPA	-LHPD	IMAD	-ARALE	-----	RAC	-----	Y	
15	HumanNCoR2	58.3%	16.9%	LAPRPLKEGSI	TQGTPLKYDT	GASTTGSKKHD	VSII	-GSPGR	RTFFP	-VHPLD	VMAD	-ARALE	-----	RAC	-----	Y	
16	AlligatorNCoR2	59.0%	17.5%	IA	TRPLKEGSI	TQGTPLKYD	NNPSSVSAKKHD	VSII	-GSPGR	TFHS	-VHSLD	VMQD	-PRNLE	-----	RAC	-----	Y
17	TurtleNCoR2	59.5%	17.7%	VAARPLKEGSI	TQGTPLKYDS	NSSSVSAKKHD	VLSII	-GSPGR	TFHS	-VHSLD	VMQD	-PRTLE	-----	RVC	-----	Y	
	consensus/100%			h.p..sh+.cs	s.u.....	V.oh..sss.t	h..t	p.t	.....								
	consensus/90%			htGSiOQGHPh+.cst	s.u.....	Vcol..sussp...s	h....h..t	p.t	h								
	consensus/80%			.sspshhEGSI	OQGTPlKa-ssu	.stushKHsV+Sli	.suPu+h.ts.h..h-.h-.phh-	Rsp	a								
	consensus/70%			.usRslhEGSI	OQGTPlKa-usu	.upuuhKHsV+Sli	.suPu+h.+u.h..h-hh-.s+shE	Rup	Y								

		cov	pid	2801	.	.	.	.	:	.	.	.	.	2880
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	KDESP	-----	SPRMEPSLSRSTPTVI	HEGALRMAY	--DRERYEAAHRAAM	--EAKKSPADMEKPM	--KSPACK				
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	KDESP	-----	SPRVEASLSRSTPTVI	HQGM-RMGYERERERYEAAHRAAM	--EGKKSPAGMEKPM	--KSPACK					
3	HagfishNCoR	41.0%	14.4%	DDSKPEDLSRLRGS	AVCNSVL	CGSVVRSAT	----THDASKS	-RTSPGSYEEHLANRRQ	PVSYPGSITRAS	PIVA	----	R		
4	ZebrafishNCoR1	57.4%	17.6%	EDAKASERV	--RHTSVVN	---STSVLRSTHA	-----EAGKA	-QLSPGMYDDSNA	-RRTPTYSSTSIP	RGSPLLR	----			
5	XenopusNCoR1	57.8%	17.1%	EDTKSSDAIRS	RHTSVVS	---SGPSVLRSTLH	-----EASKS	-QLSPGIYEDNNA	-RRTPVNYPSPMS	RSSPMAR	----			
6	TurtleNCoR1	58.8%	18.3%	EDVKTGEAV	RSRPTS	VVS---SGTSVLRSTLH	-----ETPKS	-QLSPGIYDDTNA	-RRTPVNYQSPMS	RSSPMMN	----	R		
7	AlligatorNCoR1	58.3%	10.3%	EEVKNADAL	RTRHTSVVS	---SGPSVLRSTLH	-----EAPKS	-QLSPGIYDDTNA	-RRTPVNYQSSMS	RSSPMMN	----	R		
8	MouseNCoR1	58.5%	17.7%	EDVKAGEP	VRRHTSVVS	---SGPSVLRSTLH	-----EAPKA	-QLSPGLYDDSSA	-RRTPVSYQNTISR	GSPPMMN	----	R		
9	OpossumNCoR1	57.9%	18.0%	EDVKAGEPI	RSRHTSVVS	---SGPSVLRSTLH	-----EPPKA	-QLSPGIYDDTSA	-RRTPVNYQSTMS	RGSPMMN	----	R		
10	HumanNCoR1	57.4%	17.8%	EDVKAGET	VRSRHTSVVS	---SGPSVLRSTLH	-----EAPKA	-QLSPGIYDDTSA	-RRTPVSYQNTMS	RGSPMMN	----	R		
11	ZebrafishNCoR2	56.1%	16.1%	EEA	----GGKSRPSAVVS	--APSSLSRVSP	LALSGEQSSRP	-HHSVPGYEDHKR	----SSYPPPSHRAS	P	LSGREN	SQR		
12	OpossumNCoR2	57.7%	14.1%	EET	----LKSRPSSVSS	--SGGSITRGAPVIVP	--DLGKP	-RQSPLAYEDH	-----ATAFGSHL	PRGSPV	STREST	TPR		
13	XenopusNCoR2	59.2%	16.8%	EEA	----LKSRPSSVTN	--FSGSITRGAPVIVP	--DPGKP	-RHSPLSYEDHQL	-A-HGAGFSSHL	NRGSPV	TTRESS	SQR		
14	MouseNCoR2	56.7%	17.0%	EES	----LKSRSGTSSG	--AGGSITRGAPVIVP	--ELGKP	-RQSPLTYEDH	-----GAPFTSHL	PRGSPV	TTREPT	TPR		
15	HumanNCoR2	58.3%	16.9%	EES	----LKSRPGTASS	--SGGSIARGAPVIVP	--ELGKP	-RQSPLTYEDH	-----GAPFAGHL	PRGSPV	TTREPT	TPR		
16	AlligatorNCoR2	59.0%	17.5%	EES	----VKSRPSSVTN	--SGGSITRGAPVIVP	--EPGKP	-RHSPLAYEDHQS	-A-HGTAFFSSHL	HRGSPV	STREST	TPR		
17	TurtleNCoR2	59.5%	17.7%	EES	----LKSRPSPVTN	--SGGSITRGAPVIVP	--EPGKP	-RRSPLTYEDH	-----GAAFSSHL	HRGSPV	STREST	TPR		
	consensus/100%			C-	s	..ssl.Rss	hs	...p...Y-tt	s	..htpPh	.....			
	consensus/90%			C-	s	..tssl.Rus.h	t..hs.p.s	...Y-sp	sh.s.h	htpPh	.....			
	consensus/80%			E-s	h+.R.sssss	..ssslhrus.h	-sks.p.SphhY	-Dp	ssssats.hs	RusPh.t	+			
	consensus/70%			E-s	l+oR.ooVsu	..uusslhrus.h	-ssks.phSphhY	-Dp	pt.t..sssap	ophsRusPh.s	R			

		cov	pid	2881	.	9	.	.	.	:	.	.	.	2960
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	LEPGSITRG	TPLYHGRDRPPS	-----SGPDIA	RSPRESASSGAID	LTDRDSPVDMSTRPGR	-E	-----	PH			
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	LEPGSITRG	TPMYHGRDRPPS	-----SGPDV	RSPRDSASSGAID	LTDRDSPVDMSTRPGR	-EPPP	-----	PH			
3	HagfishNCoR	41.0%	14.4%	GGEGSITIG	KPVSHERKSALTPTQ	DS--VPAKSPVSGADP	----LGSHSPFD	PHHRFPVVPGE	EVYRTHL	-PPHLDPT	IAF			
4	ZebrafishNCoR1	57.4%	17.6%	SAEGCLTP	SKSSSHERKSTLTPTQ	RES--IVVKSFPVPGVDP	----SAAHSPFD	THLRSAPPGDVYRAHL	-PPHLDPALQ	F				
5	XenopusNCoR1	57.8%	17.1%	VTEAGISS	GKPANHERKTTLTPTQ	RES--VPAKSPVPGVDP	----VVTHSPFD	SHHRGSTEP	-EVYRSHL	-PPHLD	SAMQF			
6	TurtleNCoR1	58.8%	18.3%	VTEAGISS	GKPANHERKTTLTPTQ	RES--VPAKSPVPGVDP	----VVTHSPFD	SHHRGSTEP	-EVYRSHL	-PPHLD	PAMFF			
7	AlligatorNCoR1	58.3%	10.3%	VTEAGMSS	GKSTNHERKTLTPTQ	RES--VPAKSPVPGVDP	----VVAHSPFD	PHHRGATP	-EVYRSHL	-PPHLD	PAMFF			
8	MouseNCoR1	58.5%	17.7%	TSDV	--SSSKSASHERKSTLTPTQ	RES--IPAKSPVPGVDP	----VVSHSPFD	PHHRSSAAGEVYRSHL	-PTHLD	PAMFF				
9	OpossumNCoR1	57.9%	18.0%	TSEAAVSS	GKSANHERKSTLTPTQ	RES--VPAKSPVPGVDP	----VVTHSPFD	PHHRGAPGEVYRSHL	-PTHLD	PAMFF				
10	HumanNCoR1	57.4%	17.8%	TSDVTISS	NKSTNHERKSTLTPTQ	RES--IPAKSPVPGVDP	----VVSHSPFD	PHHRGSTEP	-EVYRSHL	-PTHLD	PAMFF			
11	ZebrafishNCoR2	56.1%	16.1%	AHEGS	---SKPQQQERKATPTPRE	MS--TKSPLAVGEH	-----TANLA	FERIL-G-LGPD	MYRSQMSHLTF	DAALP				
12	OpossumNCoR2	57.7%	14.1%	QQDGSLS	SSK-GSQERKISAASRE	IAS--SKSPHTAVPD	---HHHPMS	SPYEHL	LRGVSSVD	LYRGHI	-PLAFD	PTSIP		
13	XenopusNCoR2	59.2%	16.8%	HLEGSIT	SGKPIPOERKSTPNPRD	VAN--SKSPHTTVPE	---HLHPL	STYEHL	LRGVSQAD	LYRGHI	-PLAFD	PGTIS		
14	MouseNCoR2	56.7%	17.0%	LQEGSL	LSSK-ASQDRKLTSTPRE	IA----KSPHSTVPE	---HHHPIS	SPYEHL	LRGVSGVD	LYRSHI	-PLAFD	PTSIP		
15	HumanNCoR2	58.3%	16.9%	LQEGSL	LSSK-ASQDRKLTSTPRE	IA----KSPHSTVPE	---HHHPIS	SPYEHL	LRGVSGVD	LYRSHI	-PLAFD	PTSIP		
16	AlligatorNCoR2	59.0%	17.5%	QHEGSIT	SGKPVSQDRKITPTPRE	MS--SKSPHATVSD	---HHHPMS	SPYEHL	LRGVSGVD	LYRGHI	-PLAFD	PAAIP		
17	TurtleNCoR2	59.5%	17.7%	QHEGSIT	AGKPVSQDRKITPTTRD	ITN--SKSPHATLSD	---HHHPIS	SPYEHL	LRGMSGVD	LYRGHI	-PLAFD	PAAIP		
	consensus/100%			...s	sp	...ptRc.s.s	+Sph.sh	sh--h.s	-					
	consensus/90%			.t	..ss...up	...ptRc.s.s	+Sphssss	h..Ssh--hRs	-					
	consensus/80%			.p	-uulosukshsp-RK	.s.ospphts	skSPhssss	hshSPa..hhRus	...-hYRUhHh	.P.thDss	...			
	consensus/70%			hpEGulosuksssp-RKt	T.TPpphtS	ukSPhssVss	tshSPa..hhRussss	-lyRUhHh	.P.thDssh	...				

		cov	pid	2961	.	.	.	0	.	.	.	.	.	3040
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	GGM	-----PYQG	-----RTRKS	SPLPGYV	-----SPY	-----OGMA	ETRATLMADFLT	SQOMSAAHAE			
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	GSM	-----PYPG	-----RTRKS	SPLPGYV	-----SPY	-----OGMA	ETRATLMADFLT	SQOMSAAHAE			
3	HagfishNCoR	41.0%	14.4%	PGLLSVP	--SGFLMSRPPTSSGRQ	HS--GPGPALPTTGYP	ALYHHHHHHHPFAESATAAA	LENROTLL	NDYITSQOMMRAS	--				
4	ZebrafishNCoR1	57.4%	17.6%	HHRVLDP	--AAYMFP	-----RQPSP	-TGYP---NTYQ	LYTMEN	-----TRO	TILNDYITSQOMQVIP	--			
5	XenopusNCoR1	57.8%	17.1%	HRP	-LDPAAAAYLFO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
6	TurtleNCoR1	58.8%	18.3%	HRA	-LDPAAAAYLFO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
7	AlligatorNCoR1	58.3%	10.3%	HRA	-LDPAAAAYLFO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
8	MouseNCoR1	58.5%	17.7%	HRA	-LDPAAAAYLLO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
9	OpossumNCoR1	57.9%	18.0%	HRA	-LDPAAAAYLFO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
10	HumanNCoR1	57.4%	17.8%	HRA	-LDPAAAAYLFO	-----RQLSPTPGYP	-----SOYQ	LYAMEN	-----TRO	TILNDYITSQOMQVNL	--			
11	ZebrafishNCoR2	56.1%	16.1%	RGIPIDS	--AAYLP	-----RHLAPGPGYP	-----HLYPPPYLIRGCF	---PETAAL	ENROTLF	NDYITSQOMHQWPAA				
12	OpossumNCoR2	57.7%	14.1%	RGIPLDA	ATAAYLP	-----RHLAPNPTY	P-----HLYPPPYLIRG	-Y---PDTTAM	ENROTI	IINDYITSQOMHHNAAA				
13	XenopusNCoR2	59.2%	16.8%	RGIPLEA	--AAYLP	-----RQLQPNPAYP	-----HLYPPPYLIRG	-Y---PDTAAM	ENROTI	IINDYITSQOMHHHNT	--			
14	MouseNCoR2	56.7%	17.0%	RGIPLEAA	-AAYLP	-----RHLAPSPTY	P-----HLYPPPYLIRG	-Y---PDTAAL	ENROTI	IINDYITSQOMHHNA	--			
15	HumanNCoR2	58.3%	16.9%	RGIPLDAA	-AAYLP	-----RHLAPNPTY	P-----HLYPPPYLIRG	-Y---PDTAAL	ENROTI	IINDYITSQOMHHNA	--			
16	AlligatorNCoR2	59.0%	17.5%	RGIOLEAA	-AAYLP	-----RHLAPSPTY	S-----HLYPPPYLIRG	-Y---PDTAAM	ENROTI	IINDYITSQOMHHNAAA				
17	TurtleNCoR2	59.5%	17.7%	RGIOLEAA	-AAYLP	-----RHLTPSPTY	P-----HLYPPPYLIRG	-Y---PDTAAM	ENROTI	IINDYITSQOMHQNA	--			
	consensus/100%			.t	sa.h	pp.tP.sshs	t.Y	srt	tlhsdalTSQ	PM	.....			
	consensus/90%			tth	sy.h	pphsP.PsYs	p.Y	srt	tlhsdalTSQ	MP	.....			
	consensus/80%			+th.l-s..uAYhh	RphuP	PsYP	p.Y..Yhhcs	sRQ	tlNDYITSQOMphsh	..				
	consensus/70%			+th.L-s..AAYhh	RPLuP	PsuYP	p.Y..Yhhcs	sRQ	tlNDYITSQOMphHh	..				

		cov	pid	3041	:	.	.	.	.	1	.	.	.	3120
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%	QTRS	RERP	V-E---YPKEAR	HSRSPRDKRYSPQ	QHRPPMEH	-P-VHHPGMF	PHPPGMAPGMITD	PQGRVMFVYP	--GMF		
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%	QSR	SRETPAEYA	-ASKETRHSRSPRDKRYSPQ	QHRPPMEH	-PAVHHPGMF	PHPPG---	MITD	PQGRVMFVYP	--GMF		
3	HagfishNCoR	41.0%	14.4%	-----	EVSRGVPTREQ	PVSV-----SAYPL	-HHAGVLDLAQIPH	HPMLVPQ	PGGSST---	PPMDRITY	MPGSSAAF			
4	ZebrafishNCoR1	57.4%	17.6%	-----	RPDLARGLSPRE	QSI	AI-----PYP	-PPRGIIDLAQMPP	-TILLPH	PGGTGS---	PSLDRITY	IPGPQTF		
5	XenopusNCoR1	57.8%	17.1%	-----	RPDVARGLS	PRDQGLGI	-----PYP	-GARGIIDLTNMPP	-AILVPH	PGGTST---	PPMDRITY	IPGTQLAF		
6	TurtleNCoR1	58.8%	18.3%	-----	RPDVTRGLSPRE	QTLAL	-----PYA	-GARGIIDLNNMAP	-TILVPH	PGGTST---	PPMERITY	IPGTQLTF		
7	AlligatorNCoR1	58.3%	10.3%	-----	RPDVTRGLSPRE	QTLAL	-----PYA	-GARGIIDLNNMAP	-TILVPH	PGGTST---	PPMERITY	IPGTQLTF		
8	MouseNCoR1	58.5%	17.7%	-----	RPDVTRGLSPRE	QPLGL	-----PYP	-ATRGIIDLTNMPP	-TILVPH	AGGTST---	PPMDRITY	IPGTQVTF		

9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

```
-----RPDVARGLSPREQQLGL-----PYP--ATRGIIDLTNMPP-TILVPHPGGTST--PPMERITYIPGTQITF
-----RPDVARGLSPREQPLGL-----PYP--ATRGIIDLTNMPP-TILVPHPGGTST--PPMDRITYIPGTQITF
AAMAAQRPDLLRGLTPREQSLNL-----AYSP--TPR-----GTSA--SPMDRITYIPGTSPGF
ATAMAQRADIIR---RESSLAL-----NYAA-GPRGIIDLSQVPHLPVLVPPTPGTSA---TSIDRITYIPSAPQFF
ATAMAQRADMLRGLQORDPALAL-----NYSAGPRRIIDLSQVPHLPVFIPQSASPSA---ATMDRITYISGAPQTF
ASAMAQRADMLRGLSPRESSLAL-----NYAA-GPRGIIDLSQVPHLPVLVPPTPGTPA---TAIDRLAYLPTAPPPF
ATAMAQRADMLRGLSPRESSLAL-----NYAA-GPRGIIDLSQVPHLPVLVPPTPGTPA---TAMDRLAYLPTAPQFF
ASAMVQRADMLRGLSPREPSLAL-----NYAA-GPRRIIDLSQVPHLPVLVPPTPGTSA---PPMDRITYMHSTPQAF
ATAMAQRADMLRGLSPREPSLAL-----NYAA-GPRRIIDLSQVPHLPVLVPPTPGTSA---ASMDRITYIPSAPQTF
.....+--hs.....Ys.....t.....u.....ss.trlhah.s....F
.....Rssh.h.....+--hu.....Ys..t..R..h-h...s..shhhP.ssG.ss.....ss.trlhah.s....F
.....RSdhhrGllssREtslul.....sYs..ssRtlldlsphs..shhlP.ssGous.....ssh-RlsVlssss..sF
.....RSdhhrGllPREpsLuL.....sYs..usRSIldlsphP..slLVP.ssGTSS.....ssMDRITYlPus..sF
```

		cov	pid	3121
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

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......
P-Y-----ITDG-SSLMQRSSASTPPVSV-----EGYQ
PGY-----ITDP-SSLMQRSSASTPPVSV-----EGYQ
S-RPYTASPLSPGRASHLNTPPSNTV-----
PPRAFNPAISIPGHPAHHSAAAAI-----VERETQREK-----ERERERERERE--RE-QR--ERER-----
PPRPYNPASMSPPGHPAHLANSVSAE-----RERERERER-----ERDREREKEQ-RERESDRERERDRLAHAAAA
PPRPYNPASMSPPGHPHTHLAASAAAN-----AERERERER-----EKERERERE----RERERERERERI-----
PPRPYNPASLSPGHPHTHLAASAAAN-----AERERERER-----EKEREREREREREQERQERERERERI-----
PPRPYNAASLSPGHPHTHLAAAASAE-----REREREREK-----ERERERERERERERERERERI-----
PPRPYNPASMSPPGHPSHLAASAAAA-----NRERERERERERERERERM-----
PPRPYNSASMSPPGHPHTHLAAAA-SA-----EREREREREKERERERI-----
PSGAYNTSPISPVGASHMSKIQGGSSSAEREREREREREREREQERERERERERERDRERDRDREREKDRDRDRERD---KS
SSR-PPSPSPLSPGGPTHITKPTGTSSS-ERERD-----RE--RDRERDREKS---VL
SSR-HSSSPHSPAPSSHVTKQTSSAP-----QEREREKS---VL
SSR-HSSSPSPLSPGGPHTLAKPTATSSS-ERERE-----R-----ERERDKS---IL
SSR-HSSSPSPLSPGGPHTLTKPTTTSSS-ERERD-----RDRERDRDREREKS---IL
SNR-HSSSPSPLSPGGPHTLTKQTGVAS-ERERD-----REREREREREREKS---ML
SSR-HSSSPSPLSPGGPHTMTKQTGASAS-ERDRE-----REREKS---FL
s.h.....hoss.sshhtt.....
s.h.....hoss.sshhtt.ssst.....-t.p.....
ssR.assushSPGtsOhhst.suss.....ER-+.....
ssR.assuslSPGtPohlstssuss.....h.....pR-RERE+.....
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1	Amphioxus(B-floridae)NCoR	100.0%	100.0%
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

```
......
--YPLSASWPQIRPGMPAQVI-----P--GYPVPPQHSQVSRQNVIOHSAAHFDS-GGGGSITQGTPIKPPVS
--YPLSASWPQIRPGMPTQIM-----A--GYPVPPQHAQVSRQNVIOHSAAHFE--GGGSITQGTPIKPPVS
-----NEVSTSWRSQMDLCGR-----YSKGSPPASPRPRENVIQRPISVOGLGKTV-ITSTESLVH---
AAVEYMRGGGEQPV-----PGSRSFRLRSTSPSVRAQEGVLQORPSIFQGTNSKSVITPLPMQSQ--
AAAASAPSEHYLRFVSEQPSR-----PSSRPSHHGYVRSPPSPVRAQESIMQORPSIFLGTNGKSVITPLDA-AQFRI
---TAVPAEHYLRPGTEQPGR-----PGSHGYVRSPPSPSVRTQENMLQORPSIFQGTNGTSVITPLDPAQQLRI
---AAVPTELYLRPGTEQPGR-----PGSHGYVRSPPSPSVRTQENILOQRPSIFQGTNGTSVITPLDPAQQLRI
---AAPADLYLRPGSEQPGR-----PGSHGYVRSPPSPSVRTQETILOQRPSVFQGTNGTSVITPLDPTAQLRI
---ATVSELYLRQGEQPGR-----PGSHGYVRSPPSPSVRTQENILOQRSTIFQGPNGTSVITPLDPAQQLRI
---AAASDLYLRPGSEQPGR-----PGSHGYVRSPPSPSVRTQETMLQORPSVFQGTNGTSVITPLDPTAQLRI
LSHGNVEHAPIWRPGAPEQMS-----GSSSRPSPHPYSH-QSPLSPRPQDSLOQRPSVLHNTSSKSLSN-SEHNNPSVL
TSTTTVEHAPIWRPGTGALWE--GGSELWARHSDLRHSHQHSPISPRTOENIQORPSVLHNTGMKGII-SVESLTFSVL
--STNVEHAPIWRPGTEQSSG-----RLSAPSHSHQHSPVSPRTHETVQORPSVLHNTNMKNLMTSTES-TFSVL
TSTTTVEHAPIWRPGTEQSSGAGG----SSRPA--SHTQHSPISPRTODALOQRPSVLHNTSMKGVVTSVEPGTPTVL
TSTTTVEHAPIWRPGTEQSSGSSGGGGSSSRPASHSHAHQHSPISPRTODALOQRPSVLHNTGMKGIIITAVEPSTPTVL
TA-TTVEHAPIWRPGTEQSS-----SRSSAHSHSHQHSPVSPRTHDTVQORPSVLHNTGMKIL--SSDSPTFSVL
AA-TTVEHAPIWRPGTEQSS-----SRSATHSHSHQHSPASPRTHETVQORPSVLHNTGMKVT--SSESLTFSVL
.....hr.s.....h..p....t.pt.h.ppssh.....t.....
.....s.t...hRSG..t.....a.h..p....t.pp.lOppsuhhps.s.ts.....ps.t....
...s.s.tt.hRPGstpssh.....ss..uas+p.SP.s.pppphlQORPSlhpssshpsshhsh-s.s..h.
...ssstpt.hRPGEQsut.....sushuas+p.SPss.pppshlQORPSlhpsTshpulITsh-shs..hl
```

		cov	pid	3281
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	
6	TurtleNCoR1	58.8%	18.3%	
7	AlligatorNCoR1	58.3%	10.3%	
8	MouseNCoR1	58.5%	17.7%	
9	OpossumNCoR1	57.9%	18.0%	
10	HumanNCoR1	57.4%	17.8%	
11	ZebrafishNCoR2	56.1%	16.1%	
12	OpossumNCoR2	57.7%	14.1%	
13	XenopusNCoR2	59.2%	16.8%	
14	MouseNCoR2	56.7%	17.0%	
15	HumanNCoR2	58.3%	16.9%	
16	AlligatorNCoR2	59.0%	17.5%	
17	TurtleNCoR2	59.5%	17.7%	
consensus/100%				
consensus/90%				
consensus/80%				
consensus/70%				

```
.....3.....
GSEVTSSTSRPGEGRSAMTPP--RSASRSSAPPQSEKCHHVPGYPM-----MMESQ-----QDRRSHVRR
GAEVS-STSRPGEGRSAITPPGPRSTSRGSAPPQSEKCH-IVPGYPM-----MMDPQ-----QDRRSHVRR
-----GRSG--P--C-QQVGSILTHGAAPALWSL--GPDSSMVSVHNELYNKGKENKGEG
-----AAAAQANSRYNNAADALAALVDAAAAAPQMDV-AKVKGDKHSN
MP-----PTPG-A--A-S-ITQGIPASRYSTAADALAALVDAATSAPQMEV-AKPKEKSKNDS
MQ-----LTPG-A--P-S-ITPGLPASRYNTAADALAALVDAASAPQMEI-VKAKEHKHEG
MQ-----LTPG-A--P-T-ITPGLPTSRYNTAADALAALVDAASAPQMEV-AKAKENKHEG
MP-----LPSG-G--P-S-ISQGLPASRYNTAADALAALVDAASAPQMDV-SKTKEKSKHEA
MQ-----LPPG-G--P-S-LTPGLPASRYNTAADALAALVDAASAPQMEV-TKAKEKSKHET
MP-----LPAG-G--P-S-ISQGLPASRYNTAADALAALVDAASAPQMDV-SKTKEKSKHEA
RPPGSARY-----QGFS--G--H-L-QRSGLPGEGYPS-----GTDPS--AKDL--SRDGGKSHGR
RSSSSA--T---SPVRS-AGFPFA-P--H-C-SL-GSMDGGYPT-----IMDPA-VLQKEA-SRAPRS--ER
RTSSSS-----SPIRSSMOLTAGS-----H-R-SVSGS--EGY-Q-----SADHV--MLQKEM-IRTRDSKLER
RSTSTS-----SPVRPAATFPPA-T--H-C-PLGGTLEGVYPT-----LMEPV--LLPKET-SRVARP--ER
RSTSTS-----SPVRPAATFPPA-T--H-C-PLGGTLDGVYPT-----LMEPV--LLPKEA-PRVARP--ER
RSSST-TTT---SPIRS-AGFPASAL--R-S-PM-----DGYAA-----MMDPS--TLQKES-SRAREAKVER
RSTTTTTTT---SPIRS-AGFTASAL--R-C-SLGGV--DSYAA-----MMDPA--LLQKEV-SRAREAKVER
.....h.....-.....ps.t...tt
.....t....hYs.....hh-s.....pstc...pt
h.....s.s.h.....s.h.u...styss.....hhdss..h..h-..s+stcsp.ct
hs.....hssu..s.....s.hsg..sstYss.....hhdSu..h.ph-h.s+s+cs+hEp
```

		cov	pid	3361
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%	
3	HagfishNCoR	41.0%	14.4%	
4	ZebrafishNCoR1	57.4%	17.6%	
5	XenopusNCoR1	57.8%	17.1%	

```
.....4.....
P-SEP-----ERLPPQATVHP-QKRADP-HSADRNERESPLM--KYRQEMARAGRESQEGRTSRSHTPGSTEQ-PTKSPI
P-SEPP-----ERPPPQATVHP-QKRADP-VHPGDRNERESPM--KYR-----VGRDPQEGRSSRSHTPGSTBP-PSKSPI
-----SMSSRLASL--VP-----DTGRGTFVSHLGKTGGG--TPSALAYAEKGAR-GDQVKERVPP-----GGV--
SSSRDDEVMSSRR-----AAQESQELERRSMQSPYGDMSLPGG-----KPS-Q-----
ARSE--ENLSRRNALEQ-----QQQIDCERRVMQSPYTSSSFSS-----KSQ-S-----
```

3200

3280

3360

3440

6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	3441
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

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	cov	pid	3521
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	3601
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%
3	HagfishNCoR	41.0%	14.4%
4	ZebrafishNCoR1	57.4%	17.6%
5	XenopusNCoR1	57.8%	17.1%
6	TurtleNCoR1	58.8%	18.3%
7	AlligatorNCoR1	58.3%	10.3%
8	MouseNCoR1	58.5%	17.7%
9	OpossumNCoR1	57.9%	18.0%
10	HumanNCoR1	57.4%	17.8%
11	ZebrafishNCoR2	56.1%	16.1%
12	OpossumNCoR2	57.7%	14.1%
13	XenopusNCoR2	59.2%	16.8%
14	MouseNCoR2	56.7%	17.0%
15	HumanNCoR2	58.3%	16.9%
16	AlligatorNCoR2	59.0%	17.5%
17	TurtleNCoR2	59.5%	17.7%
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	3681
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%

```
TRIE--ENMGRSSTVVSEQQQ--QMEQKTLAEKRSVQCPYTSAAFSSG-----KSQ-G
SRIE--ENMGRSAVVTEQQP--QVEQKVLDTKRFVQCPYTSAAFSSG-----KSQ-G
ARLE--ENLRSRSAAVSEQQQ--LEQKNLEVEKRSVQCVCTSSALPSG-----KAQ-P
SRLE--ENLGRSAMVSEQQQPSPLEQKTLEGDKRSAQCPYTSAAFPSG-----KPQ-G
ARLE--ENLRSRSAAVSEQQQ--LEQKTLEVEKRSVQCLYTSSAFPSG-----KPQ-P
G-----GLPKHQDLS-----SSSK--SDSKLASFGAGGTVPSPYNQAPVAHL-P-TSRGHPLLAPESSGGGSSI
PRLE--SNPFMPKPPGRAGLEP--PPSPSKAAEPRALVSSGPGSG--SSSGHASGRGL-GKGHAAHPLLEA-----
PRTE--NFYNSKLPTVA--IE--QTSPIKAVESRRLTSTGAGSA--HHYNNQGQKSO-Q--H--QPL-----
PRVDAGHAFLTKPPAR--EP--ASSPSKSSSEPRSLAPPSSSHT--AI-ARTPAKNL-APHH--ASP-----
PRADTGHAFLAKPPARSGLEP--ASSPSKSGSEPRFLVPPVSGHA--TI-ARTPAKNL-APHH--ASP-----
PQTD--NNLYTSKLPSTGTHLEQ--SSSPIKATESRRLPVSGPGSS--QPYSRGQGKN--QQHH--PPL-----
PQTD--NNMFTSKLPSTGAGLEQ--SSSPIKAMESRRLPASGPGST--QYYSRGQGKN--QHHH--PPL-----
.....t.....p.....p.h.....t.....
s.....+.s.....p..h..p.p.h.ssh...t..t.....cs.....
s...-.....h.t+.s..t.....p..hts-.psh.sshsu.s..p.....+s..t.....
sp...-.p.h.p+.sshst.p.....tp.shtsEpRsltsshsuts..st.....Ks..s.....
```

```
TSPSQILSISFEKDKP-----PEOPPPQGGOGPLTAANLIDAIITHQINSSATISGDNRKESNDSQDSASRVPPR
TSPSQILSISFEKDKP-----VEOPPAQGGOGPLTAANLIDAIITHQINSSATISGDGRKEPSADVQDPGSRGP
PSCV-WGESNGGKERTPMQRRPVSRHEQELRTHGKTTMTASTFINAIITROIPSTASS-----TADVGGIQRPLAAP
--SV-YAEGGGAAGSKEKAPPTKSRMEELRTHGKTTITAA NFIDVITITROIAPDKDSRERGSQSSDSSSSSMSSSR YDAQ
--QP--SSAVYSEAGKERTAHTKSRYVEELRMRGKTTITAA NFIDVITITROIASDKDKGRERNSQSSDASSSSHSHRYEAP
--PS--SSVVYSEAGKDKGHPPKSRYEELRTRGKTTITAA NFIDVITITROIASDKDKADRGRS QSSDSSSSSLSSHRYEAP
--QS--SSSVYSEAGKEKGHS-KSRYEELRTRGKTTITAA NFIDVITITROIASDKDKADRGRS QSSDSSSSSLSSHRYEAP
--H---ASVVYSEAGKDKGPPPKSRYEELRTRGKTTITAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETA
--QS--SSIVYSEAGKEKVPPPKSRYEELRTL GKTTITAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYEAP
--H---SSVVYSEAGKDKGPPPKSRYEELRTRGKTTITAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
QSRG-GDSGSSASSREKTQNKVMSIQEHELRLGKTTMTAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
QAPH-PASAGEPHRDKTPGKAPFGVQDLDLRALGKSLPC-----P-----LAP
DQ-S-TVSAIEQHNDRDKTIKPFMSQEQELRSLGKTTMTAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
DPPA-P-TSASDLHREKTQSKPFSIQELELRSLGYH-----SGAGYSP
DPPA-PPASADPHREKTQSKPFSIQELELRSLGYH-----GSSYSP
EQQH-AA SVNEQHSREKSQSKPFSMQEQELRALGKTTMTAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
DQQH-AV SVNEQHSREKNQSKSFSMQEQELRALGKTTMTAA SFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
.....t.....tt.....hg.t.....
..p.s.t.tt.....-...tthG.t.....t.h.s.
shSh.EpELRshGpsshtAushIssIihpQIsssts.....sssst..ttthts.
...s..sSss.scstcpt..shSh.EpELRshGKTTITAA NFIDVITITROIASDKDKARERGSQSSDSSSSSLSSHRYETP
```

```
G-R---VSPAPRPSHTPLQEGGGRIRAPVWOLFADHGSSREQQQNHGRRESQESSQEGPPGNHYGP-GRN-----
G-R---VSPAPRPSHAPLQEGGGRIRAPVWOLFADHGGSAR-FQSHGRRESQESSAAPEGPGNHYGPPGRN-----
CDGIEIISPPTSPHLRAPYNRL-----DD-----CTVSWVRH--DGR-----
G-GIEVIS PANS PALREDKSEGSFP-----SE-KSSQL-----PTGMSFGRYRQPGDSG---PSAP
RETIEVIS PANS PVQEK--ESYPQ-----EMPKSSQ TETGEGS-----RKYDGOPNRYRQQQESPPQQT---
GDAIEVIS PANS PVPPQEKLPYQQ-----EAPKPSQAE-SDPN-----ROYEGPVHRYRTQQESPSPOQP--
GDAIEVIT PANS PAPAQEKLPYQQ-----EVEKSNQAE-NDPN-----ROYEGSFHRYRQQESPSPOQP--
SDAIEVIS PASS PAPPQEKQAYQP-----DMVKANQAE-NEST-----ROYEGLHHYRSQQESPSPOQOPP
GDAIEVIS PASS PAPPQEKQAYPQ-----EAAKTPAE-SDPS-----ROYDGS LPRYRSQQESPSPOQQLP
SDAIEVIS PASS PAPPQEKQTYQP-----EVVKANQAE-NDPT-----ROYEGLHHYRQQESPSPOQQLP
-----KA-----FEQLYGSE---DRLS
-RGVPGLPSPGSPVPAGWHTGDSK-----SVRGLSRLSPAG--SLKLS-----ETPHVRQPPESQ---QSPG
-DRLDSISP RNSPGLCHDKRILGAT----QDLESSGLDQEP RQKQ-G--PIKLSSE-----GHMRLKAEGQ---QSPC
-DGVEPISP VSSPSLTHDKGLSKPL----EELKSHLEGELRHKQPG--PMKLS-AEAAHLPHLRPLPESQ---PSSS
-EGVEPISP VSSPSLTHDKGLPKHL----EELDKSHLEGELRPKQPG--PVKLG-GEAAHLPHLRPLPESQ---PSSS
-DGIEAVSP VSSPSISHEKGA-KLL----QDVEKGHGEHDMRQKQA--ALKPSMT-EAHMQHLRQLPEGQ---PSQG
-DGVEAVSP ASSPSVSHEKGA-KVL----PDVEKGHGEHNV RQKQA--SLKLSAAEAAHMQHLRQLPEGQ---QSPC
.....ht...ts.....
..t...lss.s.s.....hht...cs.....
..tl..lSPssspS....p...h.....p..c.stht.....h.+hR...-u.....
.-ulEslSPssspu.spcphtsh.....p..ctsp hc.t..p.....t.ts.ht+hR...Eu.....
```

```
TAHADSTTNRA TKVQOITLGEHISNI IHODYSQRPCQNASPAP-NPLH-----RPOSTS-----SLSRSPA
TVHADSTTSRPTK VQOITLGEHISNI IHODYSQRPCQNASPAP-TPLH-----RPOSTS-----SLTRSPA
-PP-----QQAQKTHCVITLADHIEH IITKDYQMGVTOAPTMLQONPA-----FSTTIMP
QPPSPSSQSDSYGSVPKTHRIMTLADHISH IITODFAKSQDTPFSSSTSLPSSSSSLSTFQSSG--VGGGVGRVKALNRY
-----IPGHVPQTHR LITLADHICH IITODFARNQPVNQPLQOPP-----ASTFQSTNPT--STAVRTKASSRFS
-PLPSSQAE GIGHVPRTHR LITLADHICQ IITODFARNQAASQASLOPP-----TSTFQNSAPASAATPTRAKASNRY
-PPPSSQAE GMAHVPRT-RLITLNDHICQ IITODFARNQASQTSLOPP-----TSTFQNSASVASPTPLRAKAPNRY
L-PPSSQSEGMGQVPRTHR LITLADHICQ IITODFARNQVPS----QPS-----TSTFQTS PALSSTPVRTKTSRYS
PPPTSSQAE GMGQVPRTHR LITLADHICQ IITODFARNQVASQASQOPP-----TSTFQNSASPLVSTPGRAKASSRY
P---SSQAE GMGQVPRTHR LITLADHICQ IITODFARNQVSSQTPQOPP-----TSTFQNSPSALVSTPVRTKTSNRY
-PGQOSS---SGVKGSQ-RVVT LAQHISEVITKDYTRQS QONQIGGQPSLP-----PGYGYHSSP--VLDLITRPPSTPOA
-QPMAS---SVVKGHQ-RVVT LAQHISEVITQDYTRHHPOQLNSHLFAPL GAGCPYSPFGASCP--VLDLIRTPSEVYL
-HS-----QPPYGKSQRVVT LAQHISEVITQDYTRHHPOQLHP-----LRONPSESVL
-PLLQTA---PGIKGHQ-RVVT LAQHISEVITQDYTRHHPOQLSGPLPAPL-----YSFPGASCP--VLDLIRPPSDLYL
-PLLQTA---PGVKGHQ-RVVT LAQHISEVITQDYTRHHPOQLSAPLPAPL-----YSFPGASCP--VLDLIRPPSDLYL
-QPPPSA---QNLKGHQ-RVVT LAQHISEVITQDYTRHHPOQLS PHIQPPV-----YSFPGATCP--VLDLIRTPSEAYL
-QLLQSS---QNIKGHQ RVVT LAQHISEVITQDYTRHHPOQLNSHLQTPV-----YSFPGATCP--VLDLIRTPSEAYI
.....h.pp.p.hTLspHlpplppDat.t.....s.....h..t.....
.....s.hspp.p.lTLupHlsp lppDaspp.s.t.....s.....h.tss.....shp..s.....
.....s.....s.hspp.RllTLApHlsp lITQDas+ppstp.ss...s.....a.susss..shshpt.sup...
....pot.....s.hs+p.RllTLApHlsp lITQDasRppsp ss...s.....of.susss..shslRppspSpha.
```

```
AKER-EAAMQRSRTPDARCSS-----DSSRSNIDVEPISPPAGDSQDSQPGSEQWQPRPQDVPPRS
AKER-EAAMQRSRTPDARCGS-----DSSRSNIDVEPISPPAGDQDSQPGSEWQPRPQDIPTFR
```


3 HagfishNCoR	41.0%	14.4%
4 ZebrafishNCoR1	57.4%	17.6%
5 XenopusNCoR1	57.8%	17.1%
6 TurtleNCoR1	58.8%	18.3%
7 AlligatorNCoR1	58.3%	10.3%
8 MouseNCoR1	58.5%	17.7%
9 OpossumNCoR1	57.9%	18.0%
10 HumanNCoR1	57.4%	17.8%
11 ZebrafishNCoR2	56.1%	16.1%
12 OpossumNCoR2	57.7%	14.1%
13 XenopusNCoR2	59.2%	16.8%
14 MouseNCoR2	56.7%	17.0%
15 HumanNCoR2	58.3%	16.9%
16 AlligatorNCoR2	59.0%	17.5%
17 TurtleNCoR2	59.5%	17.7%
consensus/100%		
consensus/90%		
consensus/80%		
consensus/70%		

	cov	pid	3761
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3 HagfishNCoR	41.0%	14.4%	
4 ZebrafishNCoR1	57.4%	17.6%	
5 XenopusNCoR1	57.8%	17.1%	
6 TurtleNCoR1	58.8%	18.3%	
7 AlligatorNCoR1	58.3%	10.3%	
8 MouseNCoR1	58.5%	17.7%	
9 OpossumNCoR1	57.9%	18.0%	
10 HumanNCoR1	57.4%	17.8%	
11 ZebrafishNCoR2	56.1%	16.1%	
12 OpossumNCoR2	57.7%	14.1%	
13 XenopusNCoR2	59.2%	16.8%	
14 MouseNCoR2	56.7%	17.0%	
15 HumanNCoR2	58.3%	16.9%	
16 AlligatorNCoR2	59.0%	17.5%	
17 TurtleNCoR2	59.5%	17.7%	
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	3841
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3 HagfishNCoR	41.0%	14.4%	
4 ZebrafishNCoR1	57.4%	17.6%	
5 XenopusNCoR1	57.8%	17.1%	
6 TurtleNCoR1	58.8%	18.3%	
7 AlligatorNCoR1	58.3%	10.3%	
8 MouseNCoR1	58.5%	17.7%	
9 OpossumNCoR1	57.9%	18.0%	
10 HumanNCoR1	57.4%	17.8%	
11 ZebrafishNCoR2	56.1%	16.1%	
12 OpossumNCoR2	57.7%	14.1%	
13 XenopusNCoR2	59.2%	16.8%	
14 MouseNCoR2	56.7%	17.0%	
15 HumanNCoR2	58.3%	16.9%	
16 AlligatorNCoR2	59.0%	17.5%	
17 TurtleNCoR2	59.5%	17.7%	
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

	cov	pid	3921
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	
3 HagfishNCoR	41.0%	14.4%	
4 ZebrafishNCoR1	57.4%	17.6%	
5 XenopusNCoR1	57.8%	17.1%	
6 TurtleNCoR1	58.8%	18.3%	
7 AlligatorNCoR1	58.3%	10.3%	
8 MouseNCoR1	58.5%	17.7%	
9 OpossumNCoR1	57.9%	18.0%	
10 HumanNCoR1	57.4%	17.8%	
11 ZebrafishNCoR2	56.1%	16.1%	
12 OpossumNCoR2	57.7%	14.1%	
13 XenopusNCoR2	59.2%	16.8%	
14 MouseNCoR2	56.7%	17.0%	
15 HumanNCoR2	58.3%	16.9%	
16 AlligatorNCoR2	59.0%	17.5%	
17 TurtleNCoR2	59.5%	17.7%	
consensus/100%			
consensus/90%			
consensus/80%			
consensus/70%			

-----TR-----TRPGKSPERNRTSPVNKEPCIEPISPPMMTMHDNEAIDSGLLV-----G-----
PENPTS-AHHQR-PARVSPENSSDKSR-ARPGRSPDR-----GRG-LESYEPISSPPQGYSGMDKQEASVLQSORREQDLPE
PESQVQPMHSPRPASRVSPENIPDKPR-GRPGKSPDR-----GHI-SEPYEPISSPPQAPMLHTKQDNMMLLSQR--QEPPE
PESQSQSVHHQRPSARVSPENLSDKSR-ARPGKSPER-----SHVSSSEPYEPISSPPQVPVVHEKQDNILLLSQR--NEPAE
PELQSQSVHHQRSAARVSPENLSDKGR-GRPGKSPER-----SHVSSSESYEPISSPPQVPVVHEKQDNVLLLSQR--SEPT
PESQSQTVLHPRPGPRVSPENLVDKSRGSRPGKSPER-----SHIPSEPYEPISSPPQGPVAVHEKQDSMLLSQR-GVDFAE
PETQPQAVLHPRPGSRVSPENLSDKSR-TRPGKSPER-----SHVSSSEPYEPISSPPQVPVIHEKQDNILLLSQS--AVPAE
PESQAQSVHHQRPGSRVSPENLVDKSRGSRPGKSPER-----SHVSSSEPYEPISSPPQVPVVHEKQDSLILLSQR-GAEPAE
QT---PTEPNSRYTPEGTSAERGRDRS-PPQNKTS-P---VSLAADGIEPVSPPGAISEPETPG-ANYP-----NEQAE
PQ---PDHGAA---SRISPOSEGKRS-PEQKAS-A---LGGSEDCIEPVSPPPEGMGESEHGRSAPYPMLYREGEQAE
QH----QELAQ--AARVSPGSNGEKRS-PDQNKAS-A---LGGSEDMGPISPPPEGMGEPDYSRSTTYPTLYREGEQTE
PP---PDHGTP---ARGSPHSEGGKRS-PEPSKTS-V---LGGSEDAIEPVSPPPEGMTEPGHARSTAYPLLYRDGEQGE
PP---PDHGAP---ARGSPHSEGGKRS-PEPNKTS-V---LGGGEDGIEPVSPPPEGMTEPGHSRSASVYPLLYRDGEQTE
PL---PQEHTP--ASKIALQNEGGKRS-PEQSKAS-A---VGAPDNGIEPVSPPDGMGEPEHMKSSASYPLLYREGEPE
Q---PQEHAP--ASRISPOSEGDKRS-PEQSKAS-A---GSAPDDCIEPVSPPDGMGEPEHARSTSYPILYREGEQSE
.....sc.....s..tpss.....sh-plspp.h....t.....h.....
.....s+.t.tt..tc.p.sc.tpss.....t..t.shEplSPpts....tp.ts..h.....p
.....t....u+hs.ps.st+pp.sc.skus.h....thspshEplSPpts.s..pp.ts..h.....s..se
t.ht....uRhSPps.ssKpp.scuKos.t....spssp-shEplSPpu.s..p+tcsh.h...h..s-.se

-----8-----3840
0-----0000-----PPYGRPPPSGPGAGQAWGG-----
-----GQPQ-----PPYGRPPP-----GASPAWG-----
--RQSSPRLGPGPVASSCFHKVDQNTSPSVKYKKHEQSWKQA-----
0-RTDSRSPGSGIYLPSTFTKL-ESTSPMVMSKKOEICRKA-----VGNAQPGTEIFNLPVAVTTS-----
0-RNDSRSPGNINYLPSTFTKL-ENTSPMVMYKKOEIFRKLNSSGGGSDMAAQQPGTEIFNLPVAVTTS-----
0-RTDSRSPGSISYLPSTFTKL-ENTSPMVSKKOEIFRKLNSSGGGSDMATAQPGTEIFNLPVAVTTS-----
0-RTDSRSPGSISYLPSTFTKL-ESTSPMVSKKOEIFRKLNSSGGGSDMATAQPGTEIFNLPVAVTTS-----
0-RSDSRSPGSISYLPSTFTKL-ESTSPMVSKKOEIFRKLNSSGGGSDMAAQQPGTEIFNLPVAVTTS-----
0-RNDSRSPGSISYLPSTFTKL-ENTSPMVSKKOEIFRKLNSSGGGSDMAAQQPGTEIFNLPVAVTTS-----
0-RNDARSPGSISYLPSTFTKL-ENTSPMVSKKOEIFRKLNSSGGGSDMAAQQPGTEIFNLPVAVTTS-----
0-GMGSRSPASSQPPAFFSKLTESNSAIVKSKKEMIK-KI---SAAEFNQSQPGTEIFNMMPVSTNA-----
P-RMGSKSPGNNSQPPAFFSKLTESNSAMVSKKOEIINKKLGTNSRNEPEYNIGQPGTEIFNMMPAITGA-----
P-RMGSKSPGNNTQPPAFFSKLTESNSAMVSKKOEIMIKKLSTNRSQEYSVGQPGTEIFNMMPANTGA-----
P-RMGSKSPGNTSQPPAFFSKLTESNSAMVSKKOEIINKKLNTNHRNEPEYNIGQPGTEIFNMMPAITGA-----
PSRMGSKSPGNTSQPPAFFSKLTESNSAMVSKKOEIINKKLNTNHRNEPEYNISQPGTEIFNMMPAITGT-----
0-RMGSKSPGNNTQPPAFFSKLTESNSAMVSKKOEIINKKLSTNKSETEYNVGQPGTEIFNMMPAITGTAERSQWDWASQ
-----P.P-----ashPs
.....ppp-----
..R.ss+SPGs.s..PuFFOKL.EssSshVhuKKOEh.hKht.....hs.uQPTEIFNHPs.Tss.....
..R.ss+SPGs.o..PuFFOKL.EssSsmVKSKKOEI.+KIsopsts-s-hs.uQPTEIFNHPaltisu.....

-----9-----3920
-----G-----AKRSSPRVGTNLEDIIRKALMGDDEENEGD
-----AKRASPRVGTNLEDIIRKALMGDDEETEGE
GAV-----PEMQSDAVGPLGLEAIIRRALMGNMEDGGYD
SSVNPRNHSFSDP-ASNLGLEDIIRKALMGNMEEKQED
GAISSRGHSFADP-ASNLGLEDIIRKALMGNFDDKSED
GAVSSRGHSFADP-ASNLGLEDIIRKALMGSFDDKGED
GAVSSRGHSFADP-ASNLGLEDIIRKALMGNFDDKGED
GAVSSRSHSFADP-ASNLGLEDIIRKALMGSFDDKVED
GSISSRGHSFADP-ASNLGLEDIIRKALMGNFDDKGED
GSVSSRGHSFADP-ASNLGLEDIIRKALMGSFDDKVED
GPVSVRSHPPPEASGNTIGLEAIIRKALMGKYDEQMDE
GLMTCRSQSVQEHASPNMGLEAIIRRALMGKYDDQWED
GLISSRNQTVPETSNMNGLEAIIRKALMGKYDEHWDD
GLMTCRSQAVQEHASTNMGLEAIIRKALM-----
GLMTYRSQAVQEHASTNMGLEAIIRKALMGKYD-QWEE
KDRLSRDCPGFSCSPVGPLSIKACLFPQAQICVSTNTMMPSTPGLISCRSQSVQENSSTNMGLEAIIRKALM-----
GLISCRSQSVQENSSTNMGLEAIIRKALMGKYDEQWEE
.....t...sshsLesIIR+ALM.....
u.....sh.p..tsshsLesIIR+ALM.....
G.hs.Rspuht-s.ssshGLESIRKALMGp.--p.t-
G.losRupuht-s.uoNhGLESIRKALMGph--p.--

-----0 4000
PPF00000PRPSSTHSYGQOIHOVSSASSPRDGSMSQSRILRQRNDSETETETETETKEAPV--ADRSRSPRSYPPKKKH
NP---000PRPSSTHAYGQOIHOVSSASSPRDGSMSQSRILRQRNDSETETETETETKEAPPVSADRSRSPRSYPPKKKH
DASEFVDGT---SYGLAAQHSGPHTILHSALHPSSSRSHVA-----GPAPA-----
QQQ000TLM---SA-AN-----SSGSMSSISERQEA-----NPSPN-----
HGVLVGVPO---GN-QS---GT---PNSEARREEA-----NPSPN-----
HGVVMSQPM---GI-AP---GSANPAVSANSEVRREEA-----NPSPN-----
HGVVMSQPI---GV-AP---GSNPAVSANSETRREEA-----NPSPN-----
HGVVMSHPV---GI-MP---GSASTSVVTSSSEARDEG-----EPSPH-----
HGVVLAQPL---GV-VS---GGSNPSMLGNSETRREET-----NPSPN-----
HGVVMSQPM---GV-VP---GTANTSVVTSGETRREEG-----DPSPH-----
RSPSNS-----V--NSMA---AGGAAAVVPPASADGRSE-----DPYSL-----
RSPLSA--N-----AF--NPLNA---SASLPAAMPITAADGRND-----HPLIS-----
RSALN--AN-----AF--NPLNA---SSSLPSAIPITTVDRND-----DMQSL-----
SPPLSA--N-----AF--NPLNA---SASLPAAMPITAADGRSD-----HTLTS-----
RSPLSANAN-----AF--NSLNA---SASVPAAMPITAADGRND-----DTRSL-----
.....
ps.....uh.....s..su....t..ctcps.....ps.s
pss..t.....uh..ts.....uss.sushs.stscctcps.....sppts.....

	cov	pid	4001		4080
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	MS-EVASPRGRPDMPGPPDMSAAQKAEM-----GAGGRLPSTGSERSRLSSA-----ATPPRSSSPRPSSADAPSSASYFFSA		
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	MSSEGASPRGRPDMPGPADMLAAQKAEM-----AAACRLPTP--ERSRLSSA-----ATPPRSSSPRPSSSTDAPSSASYFFSA		
3 HagfishNCoR	41.0%	14.4%	----PSIPGGGKPKISLRPNRSRKAKSPGPV--GQVYGERPASASSVHSEGDCSRRTPLTHRTVEDRPSSTG--STHFFPNA		
4 ZebrafishNCoR1	57.4%	17.6%	----T----GKQKLQSKASSRKS KSPNPG-QAYSAGERPSSVSSVHSEGDYHRQAPT--WAWEDRPSSTG--SMQFFYNP		
5 XenopusNCoR1	57.8%	17.1%	----SGGGTHKQKLISKYGSRKTKSPISGSQTYLGAERPSSVSSVHSEGDYR-QASA--WAWEDRPSSTG--STQFFYNP		
6 TurtleNCoR1	58.8%	18.3%	----SGGGVGKQKLIGKSNRKS KSPIG-QGYLGTERPSSVSSVHSEGDYHRQTPV--WAWEDRPSSTG--STQFFYNP		
7 AlligatorNCoR1	58.3%	10.3%	----SGLGVGKQKLIGKSSSRKS KSPIG-QGYLGTERPSSVSSVHSEGDYHRQTPV--WAWEDRPSSTG--STQFFYNP		
8 MouseNCoR1	58.5%	17.7%	----A--GVCKPKLINKSNRKS KSPIG-QSYLGTERPSSVSSVHSEGDYHRQTPG--WAWEDRPSSTG--STQFFYNP		
9 OpossumNCoR1	57.9%	18.0%	----SGGGVGKPKLIGKSNRKS KSPIG-QGYLGTERPSSVSSVHSEGDYHRQTPV--WAWEDRPSSTG--STQFFYNP		
10 HumanNCoR1	57.4%	17.8%	----SG-GVCKPKLISKSNRKS KSPIG-QGYLGTERPSSVSSVHSEGDYHRQTPG--WAWEDRPSSTG--STQFFYNP		
11 ZebrafishNCoR2	56.1%	16.1%	----PGKSK-----GGRSNGRKTKSPGPG--LSGGERPSSVSSVHSEGDCNRHTPLTNRVWEDRPSSTG--PTPFFCNP		
12 OpossumNCoR2	57.7%	14.1%	----PG-GGGKPKVSGRPNRSKAKSPAPG--LSSGERPASVSSVHSEGDCNRRTPLTNRVWEDRPSSAG--EGAAARAA		
13 XenopusNCoR2	59.2%	16.8%	----TGS GKAK---IPRPSSRKAKSPAPG--QASGERPFSASSVHSEGDCNRKTPLTNRVWEERPSSSTG--STPFFYNP		
14 MouseNCoR2	56.7%	17.0%	----G-GGGKAKVSGRPSSRKAKSPAPG--LASGDRPFSVSSVHSEGDCNRRTPLTNRVWEDRPSSAG--STPFFYNP		
15 HumanNCoR2	58.3%	16.9%	----PG-GGGKAKVSGRPSSRKAKSPAPG--LASGDRPFSVSSVHSEGDCNRRTPLTNRVWEDRPSSAG--STPFFYNP		
16 AlligatorNCoR2	59.0%	17.5%	-----GGGGKPKMAARPNSRKAKSPAPG--LSSGERPFSVSSVHSEGDCNRRTPLTNRVWEDRPSSTG--STPFFYNP		
17 TurtleNCoR2	59.5%	17.7%	----PGGGGGKPKIAARPNSRKAKSPAPG--LSSGERPFSVSSVHSEGDCNRRTPLTSRVWEDRPSSAG--STPFFYNP		
consensus/100%			s..tspps.....strs.sos...+Schs.t....h...h.p.RPSSss...h.hshss		
consensus/90%			sht+.....s.ss.ptspps.....ustrs.sssuS.+Schs.t....h...h.psRPSSss...ss.afhss		
consensus/80%			su.shsK.ch.u+ssuRKuKSPHPG....us-RPSSSSVHSEGDhpRpsPh..hsWEDRPSSsG..Ss.FFaNs		
consensus/70%			su.GsGK.Kl.u+ssSRKuKSPHPG...hhuuERPSVSSVHSEGDhpRptPh..hsWEDRPSSSTG..ST.FFYNP		

	cov	pid	4081		4160
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%	LFTRG--SMGPSSSPLPPTSSATQOGLPPTSGGEIAHEAAQRTAPSPATSA RHDGEPAPLLSSQYEP LSDTDEES		
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%	LFTRG--SMGPSSSPLPPTSA AAAQOGLPPTPGGEMPHEAAQRTAPSPATSTRHDGEPAPLLSSQYEP LSDTDEES		
3 HagfishNCoR	41.0%	14.4%	LSVRLPGSSAPAPPT-----VTTQSAAQVPPTSFPRLPVQTQRTWENEPAPLLC ADYEPLTDNDD		
4 ZebrafishNCoR1	57.4%	17.6%	LTMRMLSSTPPSSMACPSP-----SMQ-S---QOQAQGCTTGPVAPTRAWEREP-PLLSEQYETLSDSDD		
5 XenopusNCoR1	57.8%	17.1%	LTMGMLNSTPPSSMSCIPT-----SMT-Q---TS-----AHQQSRIWEREPAPLLSEQYETLSDSDE		
6 TurtleNCoR1	58.8%	18.3%	LTMRMLSSTPPTSIA CAPP-----SMS-Q---AA-----THQONRIWEREPAPLLSAQYETLSDSDD		
7 AlligatorNCoR1	58.3%	10.3%	LTMRMLSSTPPTSIA CAPP-----SMS-Q---AT-----THQONRIWEREPAPLLSAQYETLSDSDDChicken		
8 MouseNCoR1	58.5%	17.7%	LTIRMLSSTPPTQIACAPS-----AIT-Q---AA-----PHQONRIWEREPAPLLSAQYETLSDSDD		
9 OpossumNCoR1	57.9%	18.0%	LTMRMLSSTPPTSMACAPS-----SVS-Q---AV-----THPPNRLWEREPAPLLSSQYETLSDSDE		
10 HumanNCoR1	57.4%	17.8%	LTMRMLSSTPPTPIACAPS-----AVN-Q---AA-----PHQONRIWEREPAPLLSAQYETLSDSDD		
11 ZebrafishNCoR2	56.1%	16.1%	LTMGMR---LPSGIMPGPS-----PSP-THPGA---SAPTQGOQTQPRTWEEEPKPLLCSQYETLSDSE		
12 OpossumNCoR2	57.7%	14.1%	LVGRRRGTRPGAGFVPCHG-----TGPQGPGSGSGPRAAGPGTPSGPHHAWDEEPKPLLCSQYETLSDSE		
13 XenopusNCoR2	59.2%	16.8%	LTIRLP-----TGLVAAQ-----TS-----SSIPOSN--SGTPQARNEEPKPLLCSQYETLSDSE		
14 MouseNCoR2	58.3%	16.9%	LTMRLO-----AGVMAS P-----PP-----PGLAAGSGPLAGPHHAWDEEPKPLLCSQYETLSDSE		
15 HumanNCoR2	58.3%	16.9%	LTMRLO-----AGVMAS P-----PP-----PGLPAGSGPLAGPHHAWDEEPKPLLCSQYETLSDSE		
16 AlligatorNCoR2	59.0%	17.5%	LTMRLP-----TGVVTAT-----PP-----TSIPOGN--PNSQHHTWEEEPKPLLCSQYETLSDSE		
17 TurtleNCoR2	59.5%	17.7%	LTMRLP-----TGVVTAP-----PP-----ASIPOGN--SIGQHAWEEEPKPLLCSQYETLSDSE		
consensus/100%			L.hth.....s.....thhptEP.PLLstpYESLds-.....		
consensus/90%			Lhhth.....ss.....t.ppha-tePtPLLstQYESLSDo-.....		
consensus/80%			LhhRh.....suhssss.....s.....s.t.p+hw-cePtPLLsuQYETLSDS-.....		
consensus/70%			LhRh.....souhsssp.....ss.....stt.p+hw-cePtPLLsuQYETLSDS-.....		

	cov	pid	4161		4240
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%			
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%			
3 HagfishNCoR	41.0%	14.4%			
4 ZebrafishNCoR1	57.4%	17.6%			
5 XenopusNCoR1	57.8%	17.1%			
6 TurtleNCoR1	58.8%	18.3%			
7 AlligatorNCoR1	58.3%	10.3%			
8 MouseNCoR1	58.5%	17.7%			
9 OpossumNCoR1	57.9%	18.0%			
10 HumanNCoR1	57.4%	17.8%			
11 ZebrafishNCoR2	56.1%	16.1%			
12 OpossumNCoR2	57.7%	14.1%			
13 XenopusNCoR2	59.2%	16.8%			
14 MouseNCoR2	56.7%	17.0%			
15 HumanNCoR2	58.3%	16.9%			
16 AlligatorNCoR2	59.0%	17.5%			
17 TurtleNCoR2	59.5%	17.7%			
consensus/100%					
consensus/90%					
consensus/80%					
consensus/70%					

	cov	pid	4241		4320
1 Amphioxus (B-floridae)NCoR	100.0%	100.0%			
2 Amphioxus (B-belchiri)NCoR	66.6%	86.9%			
3 HagfishNCoR	41.0%	14.4%			
4 ZebrafishNCoR1	57.4%	17.6%			
5 XenopusNCoR1	57.8%	17.1%			
6 TurtleNCoR1	58.8%	18.3%			
7 AlligatorNCoR1	58.3%	10.3%			
8 MouseNCoR1	58.5%	17.7%			
9 OpossumNCoR1	57.9%	18.0%			
10 HumanNCoR1	57.4%	17.8%			
11 ZebrafishNCoR2	56.1%	16.1%			
12 OpossumNCoR2	57.7%	14.1%			
13 XenopusNCoR2	59.2%	16.8%			
14 MouseNCoR2	56.7%	17.0%			
15 HumanNCoR2	58.3%	16.9%			
16 AlligatorNCoR2	59.0%	17.5%			
17 TurtleNCoR2	59.5%	17.7%			
consensus/100%					
consensus/90%					

consensus/80%			.....		
consensus/70%			.....		
	cov	pid	4321	.	. : . . . 4 4400
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----	
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----	
3 HagfishNCoR	41.0%	14.4%		-----	
4 ZebrafishNCoR1	57.4%	17.6%		-----	
5 XenopusNCoR1	57.8%	17.1%		-----	
6 TurtleNCoR1	58.8%	18.3%		-----	
7 AlligatorNCoR1	58.3%	10.3%		EGPSSPISGQPCGEDQNASPSKLSKEELIQSMDRV	DREIAKVEQQILKLKKKQQQLEEEAAKPPEPERPVSPPPVEQKHR
8 MouseNCoR1	58.5%	17.7%		-----	
9 OpossumNCoR1	57.9%	18.0%		-----	
10 HumanNCoR1	57.4%	17.8%		-----	
11 ZebrafishNCoR2	56.1%	16.1%		-----	
12 OpossumNCoR2	57.7%	14.1%		-----	
13 XenopusNCoR2	59.2%	16.8%		-----	
14 MouseNCoR2	56.7%	17.0%		-----	
15 HumanNCoR2	58.3%	16.9%		-----	
16 AlligatorNCoR2	59.0%	17.5%		-----	
17 TurtleNCoR2	59.5%	17.7%		-----	
consensus/100%				.....	
consensus/90%				.....	
consensus/80%				.....	
consensus/70%				.....	

	cov	pid	4401	.	. . : . . . 4480
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----	
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----	
3 HagfishNCoR	41.0%	14.4%		-----	
4 ZebrafishNCoR1	57.4%	17.6%		-----	
5 XenopusNCoR1	57.8%	17.1%		-----	
6 TurtleNCoR1	58.8%	18.3%		-----	
7 AlligatorNCoR1	58.3%	10.3%		SIVQIIYDENRKKAAEEAHKIFEGLGPKVELPLYNQPSDTKVYHENIKTNQVMRKKLILFFKRRNHARKQREQKICORYDQ	
8 MouseNCoR1	58.5%	17.7%		-----	
9 OpossumNCoR1	57.9%	18.0%		-----	
10 HumanNCoR1	57.4%	17.8%		-----	
11 ZebrafishNCoR2	56.1%	16.1%		-----	
12 OpossumNCoR2	57.7%	14.1%		-----	
13 XenopusNCoR2	59.2%	16.8%		-----	
14 MouseNCoR2	56.7%	17.0%		-----	
15 HumanNCoR2	58.3%	16.9%		-----	
16 AlligatorNCoR2	59.0%	17.5%		-----	
17 TurtleNCoR2	59.5%	17.7%		-----	
consensus/100%				.....	
consensus/90%				.....	
consensus/80%				.....	
consensus/70%				.....	

	cov	pid	4481	.	5 . . . : . 4560
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----	
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----	
3 HagfishNCoR	41.0%	14.4%		-----	
4 ZebrafishNCoR1	57.4%	17.6%		-----	
5 XenopusNCoR1	57.8%	17.1%		-----	
6 TurtleNCoR1	58.8%	18.3%		-----	
7 AlligatorNCoR1	58.3%	10.3%		LMEAWKKVDRIENNP	RRKAKESKTREYYEKQFPFPIRKQREQQERFORVGQRGAGLSATIARSEHEISEIIDGLSEQENN
8 MouseNCoR1	58.5%	17.7%		-----	
9 OpossumNCoR1	57.9%	18.0%		-----	
10 HumanNCoR1	57.4%	17.8%		-----	
11 ZebrafishNCoR2	56.1%	16.1%		-----	
12 OpossumNCoR2	57.7%	14.1%		-----	
13 XenopusNCoR2	59.2%	16.8%		-----	
14 MouseNCoR2	56.7%	17.0%		-----	
15 HumanNCoR2	58.3%	16.9%		-----	
16 AlligatorNCoR2	59.0%	17.5%		-----	
17 TurtleNCoR2	59.5%	17.7%		-----	
consensus/100%				.....	
consensus/90%				.....	
consensus/80%				.....	
consensus/70%				.....	

	cov	pid	4561	.	. . 6 . . . 4640
1 Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----	
2 Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----	
3 HagfishNCoR	41.0%	14.4%		-----	
4 ZebrafishNCoR1	57.4%	17.6%		-----	
5 XenopusNCoR1	57.8%	17.1%		-----	
6 TurtleNCoR1	58.8%	18.3%		-----	
7 AlligatorNCoR1	58.3%	10.3%		EKQMRQLSVIPPMF	DAEQRRVKFINMNGLMEDPMKVYKDRQFMNVWTDHEKEIFKEKQVQHPKNFGLIASYLERKNVPD
8 MouseNCoR1	58.5%	17.7%		-----	
9 OpossumNCoR1	57.9%	18.0%		-----	
10 HumanNCoR1	57.4%	17.8%		-----	
11 ZebrafishNCoR2	56.1%	16.1%		-----	
12 OpossumNCoR2	57.7%	14.1%		-----	
13 XenopusNCoR2	59.2%	16.8%		-----	
14 MouseNCoR2	56.7%	17.0%		-----	
15 HumanNCoR2	58.3%	16.9%		-----	
16 AlligatorNCoR2	59.0%	17.5%		-----	

14	MouseNCoR2	56.7%	17.0%	-----
15	HumanNCoR2	58.3%	16.9%	-----
16	AlligatorNCoR2	59.0%	17.5%	-----
17	TurtleNCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....

		cov	pid	4961	.	.	.	0	.	.	.	.	504
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	AESQTSEPOVKEEINTEAEEPMEVDSRSHPVEAKPVLNLPVHTKVEPVETEMRLPENIQVKIESDTKEREMEKPKSEKSEP	-----								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	5041	:	.	.	.	.	1	.	.	5120
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%		EEMDYSLSQQVNSARQESHSDNDSSATCSADEEVDGEPDRQGFRESKPSLLNPAGSILVSPTIKQGQMDLQQLHHRAAV								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	5121	.	.	:	.	.	.	.	.	2	520
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%		-----									
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%		-----									
3	HagfishNCoR	41.0%	14.4%		-----									
4	ZebrafishNCoR1	57.4%	17.6%		-----									
5	XenopusNCoR1	57.8%	17.1%		-----									
6	TurtleNCoR1	58.8%	18.3%		-----									
7	AlligatorNCoR1	58.3%	10.3%	IPPMVSCSPCTVPVGTPVSGYALYQRHIKAMHESALLEEQRQRQEQLDMEYRSSVSPCGTSKSPNVEWEVLQPAPHQVIT	-----									
8	MouseNCoR1	58.5%	17.7%		-----									
9	OpossumNCoR1	57.9%	18.0%		-----									
10	HumanNCoR1	57.4%	17.8%		-----									
11	ZebrafishNCoR2	56.1%	16.1%		-----									
12	OpossumNCoR2	57.7%	14.1%		-----									
13	XenopusNCoR2	59.2%	16.8%		-----									
14	MouseNCoR2	56.7%	17.0%		-----									
15	HumanNCoR2	58.3%	16.9%		-----									
16	AlligatorNCoR2	59.0%	17.5%		-----									
17	TurtleNCoR2	59.5%	17.7%		-----									
	consensus/100%				.....									
	consensus/90%				.....									
	consensus/80%				.....									
	consensus/70%				.....									

		cov	pid	5201	.	.	.	.	:	.	.	.	528
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	NIPEGVRLPTTRPTRPPPLIPSSKTSVPSEKPSFIMGGSISQGTGTYLTSHSQASYTQETAKPSVGSISLGLPRQQES									
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								

11	ZebrafishNCoR2	56.1%	16.1%	-----
12	OpossumNCoR2	57.7%	14.1%	-----
13	XenopusNCoR2	59.2%	16.8%	-----
14	MouseNCoR2	56.7%	17.0%	-----
15	HumanNCoR2	58.3%	16.9%	-----
16	AlligatorNCoR2	59.0%	17.5%	-----
17	TurtleNCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....

		cov	pid	5281	.	3	.	.	.	.	:	.	536
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	AKSASLPYIKQEEFSPRSONSQPEGLLVRAQHEGVVRGTTTIQEGSITRGTPTNKVSVETIPSLRGSITQGTPALSQSGI	-----								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	5361	.	.	.	4	.	.	.	.	544
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	-----									
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%	-----									
3	HagfishNCoR	41.0%	14.4%	-----									
4	ZebrafishNCoR1	57.4%	17.6%	-----									
5	XenopusNCoR1	57.8%	17.1%	-----									
6	TurtleNCoR1	58.8%	18.3%	-----									
7	AlligatorNCoR1	58.3%	10.3%	AADALLKGTITRLATEDSSPEKCREEASAKGHVIYEGKSGHILSYDAIKNVREGTRSPRTAHEISLKRSYDTMEGNIKQG									
8	MouseNCoR1	58.5%	17.7%	-----									
9	OpossumNCoR1	57.9%	18.0%	-----									
10	HumanNCoR1	57.4%	17.8%	-----									
11	ZebrafishNCoR2	56.1%	16.1%	-----									
12	OpossumNCoR2	57.7%	14.1%	-----									
13	XenopusNCoR2	59.2%	16.8%	-----									
14	MouseNCoR2	56.7%	17.0%	-----									
15	HumanNCoR2	58.3%	16.9%	-----									
16	AlligatorNCoR2	59.0%	17.5%	-----									
17	TurtleNCoR2	59.5%	17.7%	-----									
	consensus/100%			.....									
	consensus/90%			.....									
	consensus/80%			.....									
	consensus/70%			.....									

		cov	pid	5441	:	.	.	.	.	5	.	.	552
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	MSMRESPVSAPLEGLICRALPRGSPHAELKERTVLSGSIMOGTTPRATSESFEEGLKYPKQIKRESPPIRAFEGAITKGKP									
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	5521	.	.	:	.	.	.	.	6	560
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	YDGVTTIKEMGRSIEIIPRODLLSQESRKTPEIVQTARPIIEGSISQGTPIKYESNSGQSAIKHNVKSLITGPSKLPKGM									

8	MouseNCoR1	58.5%	17.7%	-----
9	OpossumNCoR1	57.9%	18.0%	-----
10	HumanNCoR1	57.4%	17.8%	-----
11	ZebrafishNCoR2	56.1%	16.1%	-----
12	OpossumNCoR2	57.7%	14.1%	-----
13	XenopusNCoR2	59.2%	16.8%	-----
14	MouseNCoR2	56.7%	17.0%	-----
15	HumanNCoR2	58.3%	16.9%	-----
16	AlligatorNCoR2	59.0%	17.5%	-----
17	TurtleNCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....

		cov	pid	5601	.	.	.	.	:	.	.	.	568
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%		PQLEMVPENVKVVERGKYEDVKTGDAVRSRHTSVVSSGSPVLRSTLHETPKSQLSPGIYDDTNARRTPVNYQSPMSRSSP								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%												
	consensus/90%												
	consensus/80%												
	consensus/70%												

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		cov	pid	5681	.	7	.	.	.	.	:	.	5760
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%		MMNRVSEAGISSGKSANHERKNTLTPTQRESVPAKSPVPGVDPVVAHSPFDPHHRGATPEVYRSHLPPHLDPAMPFHRAL								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	5761	.	.	.	8	.	.	.	584
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----							
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----							
3	HagfishNCoR	41.0%	14.4%		-----							
4	ZebrafishNCoR1	57.4%	17.6%		-----							
5	XenopusNCoR1	57.8%	17.1%		-----							
6	TurtleNCoR1	58.8%	18.3%		-----							
7	AlligatorNCoR1	58.3%	10.3%	DPAAAAYLFQRQLSPTPGYPSQYQLYAMENTROTILNDYITSQQMQVNLRPDVTRGLSPREQTLALPYAGARGIIDLNNM								
8	MouseNCoR1	58.5%	17.7%		-----							
9	OpossumNCoR1	57.9%	18.0%		-----							
10	HumanNCoR1	57.4%	17.8%		-----							
11	ZebrafishNCoR2	56.1%	16.1%		-----							
12	OpossumNCoR2	57.7%	14.1%		-----							
13	XenopusNCoR2	59.2%	16.8%		-----							
14	MouseNCoR2	56.7%	17.0%		-----							
15	HumanNCoR2	58.3%	16.9%		-----							
16	AlligatorNCoR2	59.0%	17.5%		-----							
17	TurtleNCoR2	59.5%	17.7%		-----							
	consensus/100%				.....							
	consensus/90%				.....							
	consensus/80%				.....							
	consensus/70%				.....							

		cov	pid	5841	:	.	.	.	.	9	.	592
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----							
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----							
3	HagfishNCoR	41.0%	14.4%		-----							
4	ZebrafishNCoR1	57.4%	17.6%		-----							

5	XenopusNCoR1	57.8%	17.1%	-----
6	TurtleNCoR1	58.8%	18.3%	-----
7	AlligatorNCoR1	58.3%	10.3%	APTILVPHPGGTSTPPMERITYIPGTQLTFPPRPYNPASLSPGHPTHLAASAARERERERERERERERERITSVPAELYL
8	MouseNCoR1	58.5%	17.7%	-----
9	OpossumNCoR1	57.9%	18.0%	-----
10	HumanNCoR1	57.4%	17.8%	-----
11	ZebrafishNCoR2	56.1%	16.1%	-----
12	OpossumNCoR2	57.7%	14.1%	-----
13	XenopusNCoR2	59.2%	16.8%	-----
14	MouseNCoR2	56.7%	17.0%	-----
15	HumanNCoR2	58.3%	16.9%	-----
16	AlligatorNCoR2	59.0%	17.5%	-----
17	TurtleNCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....

		cov	pid	5921	.	.	:	.	.	.	.	0	600
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	RPGAEQGRPGSHGYVRSPSPSVRSQENILQQRPSIFQGTNGTSVITPLDPAAQLRIMQLTPGAPSITQGLPASRYNTAA	-----								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
consensus/100%													
consensus/90%													
consensus/80%													
consensus/70%													

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		cov	pid	6001	.	.	.	.	:	.	.	.	608
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%		DALAALVDAAASAPQMEVAKGKEVSSHRYEAPGDAIEVISPANSPIPTQEKLOPYQQETPKPSQAESDPNRQYEGPIHRY								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	6081	.	1	.	.	.	.	:	.	616
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%		-----								
2	Amphioxus(B-belchiri)NCoR	66.6%	86.9%		-----								
3	HagfishNCoR	41.0%	14.4%		-----								
4	ZebrafishNCoR1	57.4%	17.6%		-----								
5	XenopusNCoR1	57.8%	17.1%		-----								
6	TurtleNCoR1	58.8%	18.3%		-----								
7	AlligatorNCoR1	58.3%	10.3%	RAQQEPPPSPOQPPPPSSQAEGMAHVPRTHRLITLADHICQIITQDFARNQAASQASLOPPTTTTFONSTPAPTPVSTRAK	-----								
8	MouseNCoR1	58.5%	17.7%		-----								
9	OpossumNCoR1	57.9%	18.0%		-----								
10	HumanNCoR1	57.4%	17.8%		-----								
11	ZebrafishNCoR2	56.1%	16.1%		-----								
12	OpossumNCoR2	57.7%	14.1%		-----								
13	XenopusNCoR2	59.2%	16.8%		-----								
14	MouseNCoR2	56.7%	17.0%		-----								
15	HumanNCoR2	58.3%	16.9%		-----								
16	AlligatorNCoR2	59.0%	17.5%		-----								
17	TurtleNCoR2	59.5%	17.7%		-----								
	consensus/100%				.....								
	consensus/90%				.....								
	consensus/80%				.....								
	consensus/70%				.....								

		cov	pid	6161	.	.	.	2	.	.	.	624
1	Amphioxus(B-floridae)NCoR	100.0%	100.0%	-----								

1	Amphioxus (B-belchiri) NCoR	66.6%	86.9%	-----
3	Hagfish NCoR	41.0%	14.4%	-----
4	Zebrafish NCoR1	57.4%	17.6%	-----
5	Xenopus NCoR1	57.8%	17.1%	-----
6	Turtle NCoR1	58.8%	18.3%	-----
7	Alligator NCoR1	58.3%	10.3%	TSNRYSP EAQSQPVHHQRP GARVSPENLSDKSRGRPGKSPERSHVSSEPYEPI SPPOQVPVVHEKQENVLLLSQRAEPTEQ
8	Mouse NCoR1	58.5%	17.7%	-----
9	Opossum NCoR1	57.9%	18.0%	-----
10	Human NCoR1	57.4%	17.8%	-----
11	Zebrafish NCoR2	56.1%	16.1%	-----
12	Opossum NCoR2	57.7%	14.1%	-----
13	Xenopus NCoR2	59.2%	16.8%	-----
14	Mouse NCoR2	56.7%	17.0%	-----
15	Human NCoR2	58.3%	16.9%	-----
16	Alligator NCoR2	59.0%	17.5%	-----
17	Turtle NCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....
	cov	pid	6241	: 3 . . 6320
1	Amphioxus (B-floridae) NCoR	100.0%	100.0%	-----
2	Amphioxus (B-belchiri) NCoR	66.6%	86.9%	-----
3	Hagfish NCoR	41.0%	14.4%	-----
4	Zebrafish NCoR1	57.4%	17.6%	-----
5	Xenopus NCoR1	57.8%	17.1%	-----
6	Turtle NCoR1	58.8%	18.3%	-----
7	Alligator NCoR1	58.3%	10.3%	RTDSRSPGISISYLP SFFTKLENTSPMVKS KQEIFRKLNSSGGGDSDMATAQPGTEIFNLPAVTTSGAVSSRGHSFADPA
8	Mouse NCoR1	58.5%	17.7%	-----
9	Opossum NCoR1	57.9%	18.0%	-----
10	Human NCoR1	57.4%	17.8%	-----
11	Zebrafish NCoR2	56.1%	16.1%	-----
12	Opossum NCoR2	57.7%	14.1%	-----
13	Xenopus NCoR2	59.2%	16.8%	-----
14	Mouse NCoR2	56.7%	17.0%	-----
15	Human NCoR2	58.3%	16.9%	-----
16	Alligator NCoR2	59.0%	17.5%	-----
17	Turtle NCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....
	cov	pid	6321	. . : 4 6400
1	Amphioxus (B-floridae) NCoR	100.0%	100.0%	-----
2	Amphioxus (B-belchiri) NCoR	66.6%	86.9%	-----
3	Hagfish NCoR	41.0%	14.4%	-----
4	Zebrafish NCoR1	57.4%	17.6%	-----
5	Xenopus NCoR1	57.8%	17.1%	-----
6	Turtle NCoR1	58.8%	18.3%	-----
7	Alligator NCoR1	58.3%	10.3%	SNLGLED IIRKALMGNFDDKSEDHGVVMSQSI AVAPGNSSAVVSASNETRREEANPSPNSGAVSKQKLIGKSNSRKSKSP
8	Mouse NCoR1	58.5%	17.7%	-----
9	Opossum NCoR1	57.9%	18.0%	-----
10	Human NCoR1	57.4%	17.8%	-----
11	Zebrafish NCoR2	56.1%	16.1%	-----
12	Opossum NCoR2	57.7%	14.1%	-----
13	Xenopus NCoR2	59.2%	16.8%	-----
14	Mouse NCoR2	56.7%	17.0%	-----
15	Human NCoR2	58.3%	16.9%	-----
16	Alligator NCoR2	59.0%	17.5%	-----
17	Turtle NCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....
	cov	pid	6401	 : . . . 6480
1	Amphioxus (B-floridae) NCoR	100.0%	100.0%	-----
2	Amphioxus (B-belchiri) NCoR	66.6%	86.9%	-----
3	Hagfish NCoR	41.0%	14.4%	-----
4	Zebrafish NCoR1	57.4%	17.6%	-----
5	Xenopus NCoR1	57.8%	17.1%	-----
6	Turtle NCoR1	58.8%	18.3%	-----
7	Alligator NCoR1	58.3%	10.3%	IPGQGYLGTERPSSVSSVHSEGDYHRQTPVWAWEDRPSSTGSGTQFPYNPLTMRMLSSTPPTS IACAPPSMSQATTHQONR
8	Mouse NCoR1	58.5%	17.7%	-----
9	Opossum NCoR1	57.9%	18.0%	-----
10	Human NCoR1	57.4%	17.8%	-----
11	Zebrafish NCoR2	56.1%	16.1%	-----
12	Opossum NCoR2	57.7%	14.1%	-----
13	Xenopus NCoR2	59.2%	16.8%	-----
14	Mouse NCoR2	56.7%	17.0%	-----
15	Human NCoR2	58.3%	16.9%	-----
16	Alligator NCoR2	59.0%	17.5%	-----
17	Turtle NCoR2	59.5%	17.7%	-----
	consensus/100%			.....
	consensus/90%			.....
	consensus/80%			.....
	consensus/70%			.....

		cov	pid	6481	.	5]	6502
1	Amphioxus (B-floridae)NCoR	100.0%	100.0%		-----		
2	Amphioxus (B-belchiri)NCoR	66.6%	86.9%		-----		
3	HagfishNCoR	41.0%	14.4%		-----		
4	ZebrafishNCoR1	57.4%	17.6%		-----		
5	XenopusNCoR1	57.8%	17.1%		-----		
6	TurtleNCoR1	58.8%	18.3%		-----		
7	AlligatorNCoR1	58.3%	10.3%		IWEREPAPLLSAQYETLSDSDD		
8	MouseNCoR1	58.5%	17.7%		-----		
9	OpossumNCoR1	57.9%	18.0%		-----		
10	HumanNCoR1	57.4%	17.8%		-----		
11	ZebrafishNCoR2	56.1%	16.1%		-----		
12	OpossumNCoR2	57.7%	14.1%		-----		
13	XenopusNCoR2	59.2%	16.8%		-----		
14	MouseNCoR2	56.7%	17.0%		-----		
15	HumanNCoR2	58.3%	16.9%		-----		
16	AlligatorNCoR2	59.0%	17.5%		-----		
17	TurtleNCoR2	59.5%	17.7%		-----		
	consensus/100%				.....		
	consensus/90%				.....		
	consensus/80%				.....		
	consensus/70%				.....		