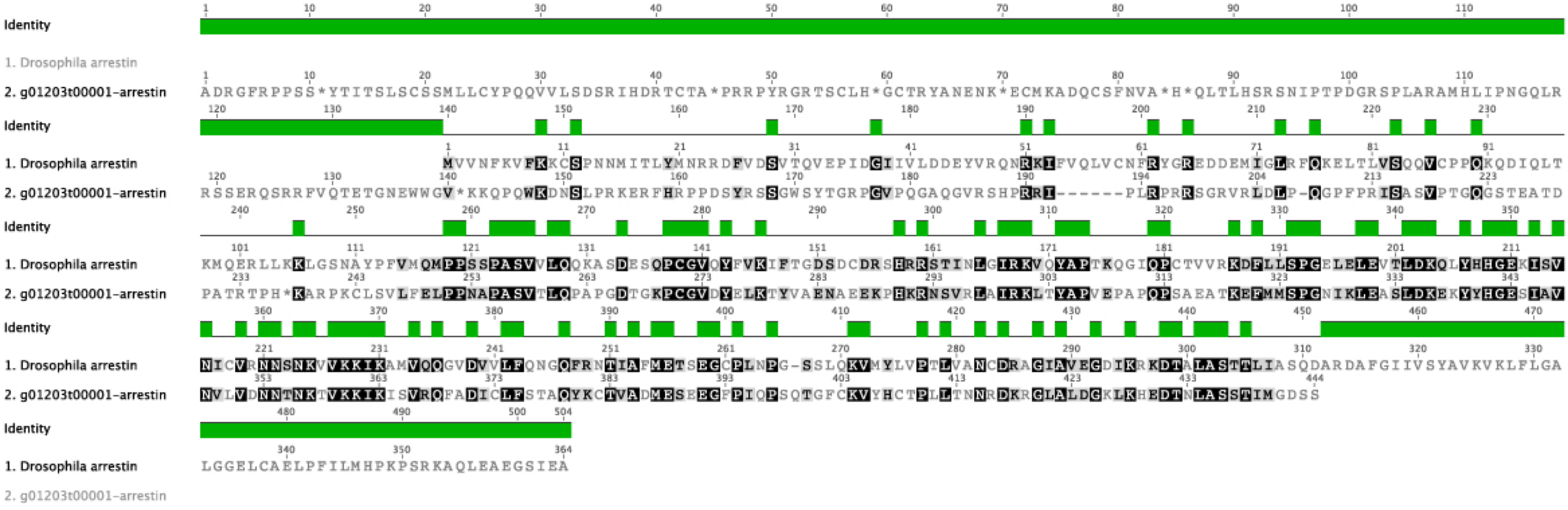
Supplemental Figure 2. Amino acid alignments of scallop Gi-protein coupled phototransduction genes to known homologs. Phototransduction gene sequences from the *Placopecten magellanicus* adult eye transcriptome were translated and aligned to known homologs from *Drosophila*, human, or rat. Alignments were completed and exported from Geneious v. 5.6 (www.geneious.com). The graph above the alignment represents mean pairwise identity of each residue pair in each column, with green bars representing identical residues and missing bars highlighting areas where the sequence is different. End gaps in the alignments have solid green bars. Amino acids are shaded based on similarity, with black representing identical residues between the two sequences, grey representing similar residues, and white representing dissimilar residues. *A=arrestin, B=cGMP gated channel alpha, C=cGMP gated channel beta, D=Go-protein alpha subunit, E=Gt-protein alpha subunit, F=G-protein beta subunit, G=G-protein gamma subunit, H=opsin, I=PDE alpha, J=PDE beta, K=protein kinase A, L=rhodopsin kinase.*

A


Identity
1. Drosophila arrestin
2. g01203t00001-arrestin
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MVVNFKVFKKCSPNNMITLYMNRRDFVDSVTQVEPIDGIIVLDDEYVRQNRKIFVQLVCNFRYGREDDEMIGLRFQKELTLVSQQVCPPQKQDIQLT
RSSERQSRRFVQTETGNEWWGV*KKQPQWKDNSLPRKERFHRPPDSYRSSGWSYTGRPGVPQGAQGVRSHPRRI------PLRPRRSGRVRLDLP-QGPFPRISASVPTGQGSTEATD
KMQERLLKKLGSNAYPFVMQMPPSSPASVVLQQKASDESQPCGVQYFVKIFTGDSDCDRSHRRSTINLGIRKVQYAPTKQGIQPCTVVRKDFLLSPGELELEVTLDKQLYHHGEKISV
PATRTPH*KARPKCLSVLFELPPNAPASVTLQPAPGDTGKPCGVDYELKTYVAENAEEKPHKRNSVRLAIRKLTYAPVEPAPQPSAEATKEFMMSPGNIKLEASLDKEKYYHGESIAV
NICVRNNSNKVVKKIKAMVQQGVDVVLFQNGQFRNTIAFMETSEGCPLNPG-SSLQKVMYLVPTLVANCDRAGIAVEGDIKRKDTALASTTLIASQDARDAFGIIVSYAVKVKLFLGA
NVLVDNNTNKTVKKIKISVRQFADICLFSTAQYKCTVADMESEEGFPIQPSQTGFCKVYHCTPLLTNNRDKRGLALDGKLKHEDTNLASSTIMGDSS
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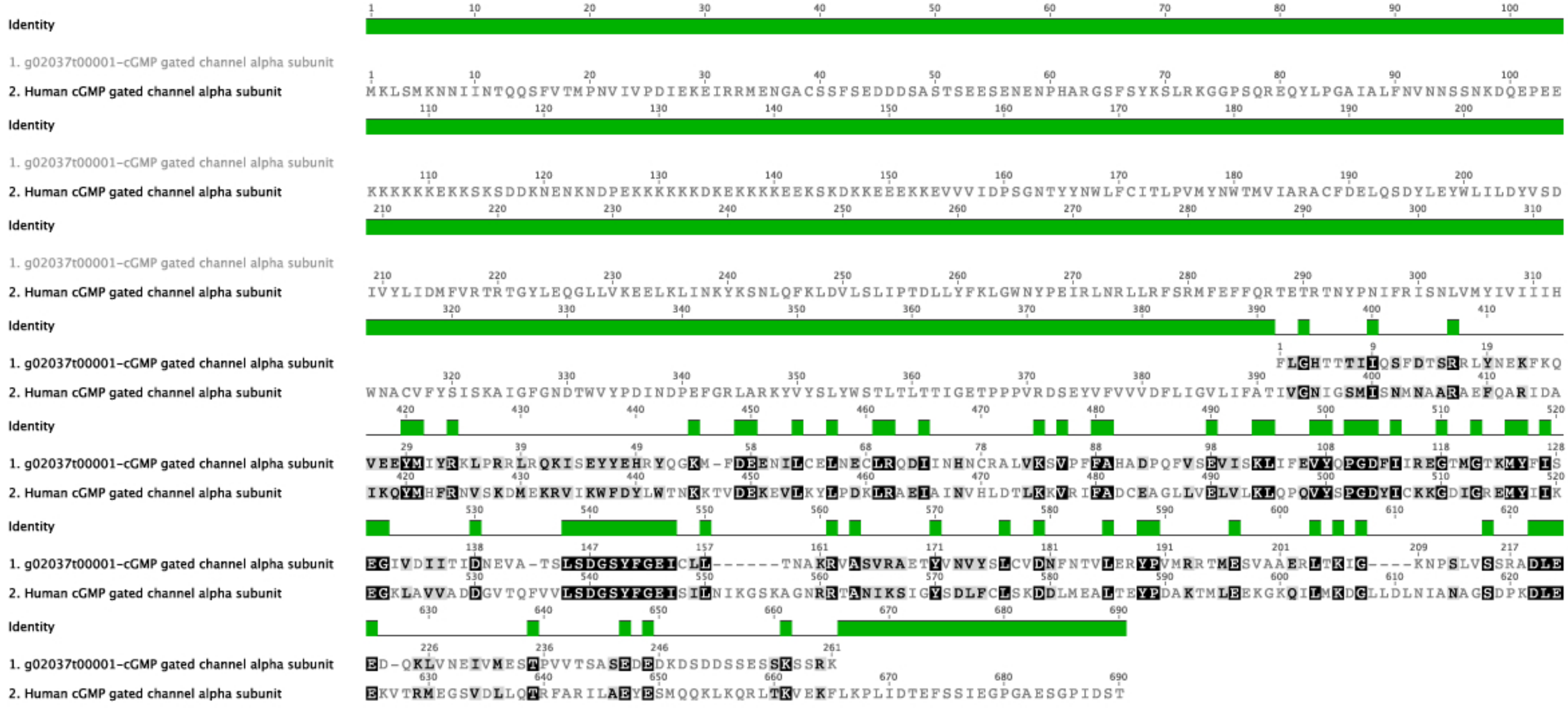
B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2. Human cGMP gated channel alpha subunit
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IVYLIDMFVRTRTGYLEQGLLVKEELKLINKYKSNLQFKLDVLSLIPTDLLYFKLGWNYPEIRLNRLLRFSRMFEFFQRTETRTNYPNIFRISNLVMYIVIIIH
FLGHTTTIIQSFDTSRRLYNEKFKQ
WNACVFYSISKAIGFGNDTWVYPDINDPEFGRLARKYVYSLYWSTLTLTTIGETPPPVRDSEYVFVVVDFLIGVLIFATIVGNIGSMISNMNAARAEFQARIDA
VEEYMIYRKLPRRLRQKISEYYEHRYQGKM-FDEENILCELNECLRQDIINHNCRALVKSVPFFAHADPQFVSEVISKLIFEVYQPGDFIIREGTMGTKMYFIS
IKQYMHFRNVSKDMEKRVIKWFDYLWTNKKTVDEKEVLKYLPDKLRAEIAINVHLDTLKKVRIFADCEAGLLVELVLKLQPQVYSPGDYICKKGDIGREMYIIK
EGIVDIITIDNEVA-TSLSDGSYFGEICLL------TNAKRVASVRAETYVNVYSLCVDNFNTVLERYPVMRRTMESVAAERLTKIG----KNPSLVSSRADLE
EGKLAVVADDGVTQFVVLSDGSYFGEISILNIKGSKAGNRRTANIKSIGYSDLFCLSKDDLMEALTEYPDAKTMLEEKGKQILMKDGLLDLNIANAGSDPKDLE
ED-QKLVNEIVMESTPVVTSASEDEDKDSDDSSESSKSSRK
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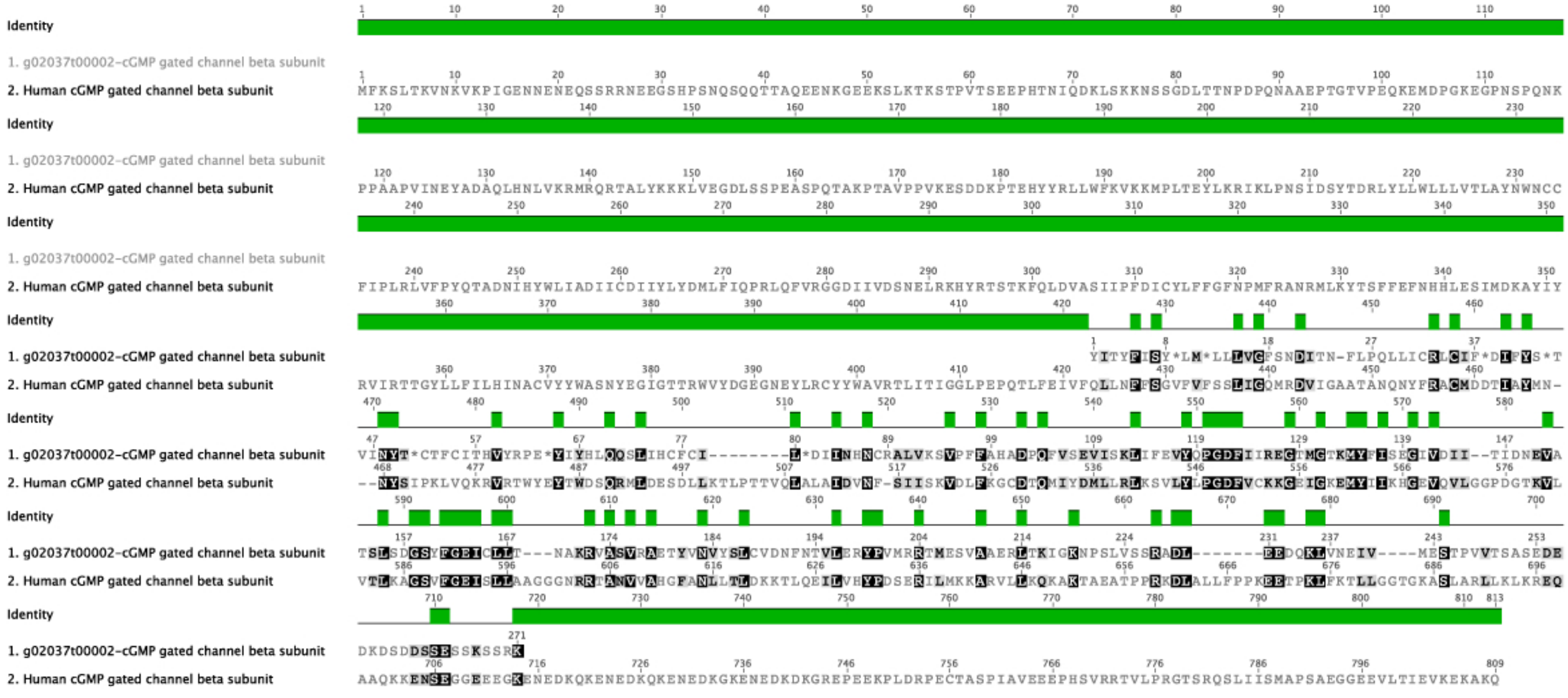
C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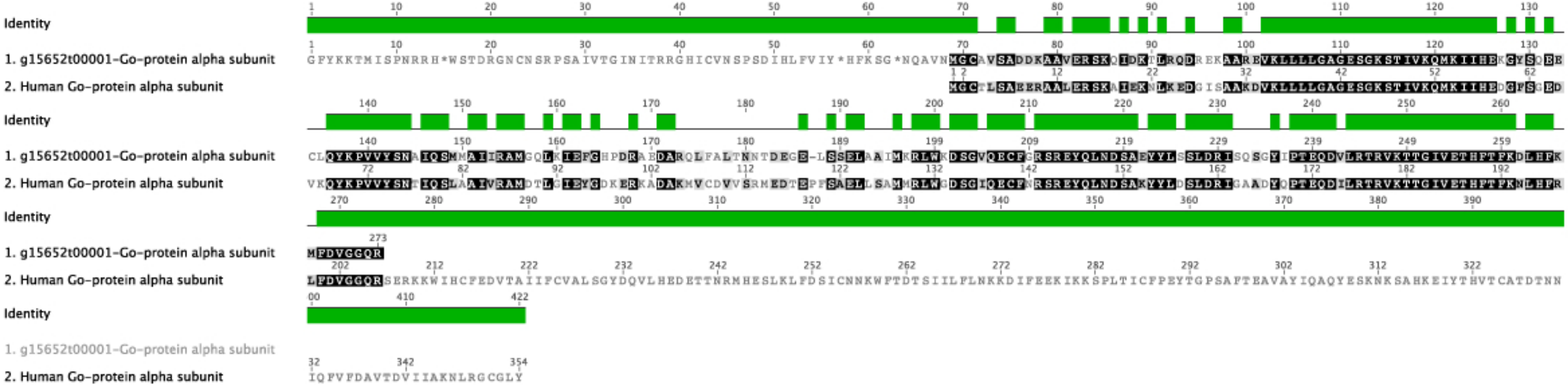
D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2. Human Go-protein alpha subunit
Identity
1. g15652t00001-Go-protein alpha subunit
2. Human Go-protein alpha subunit
Identity
1. g15652t00001-Go-protein alpha subunit
2. Human Go-protein alpha subunit
Identity
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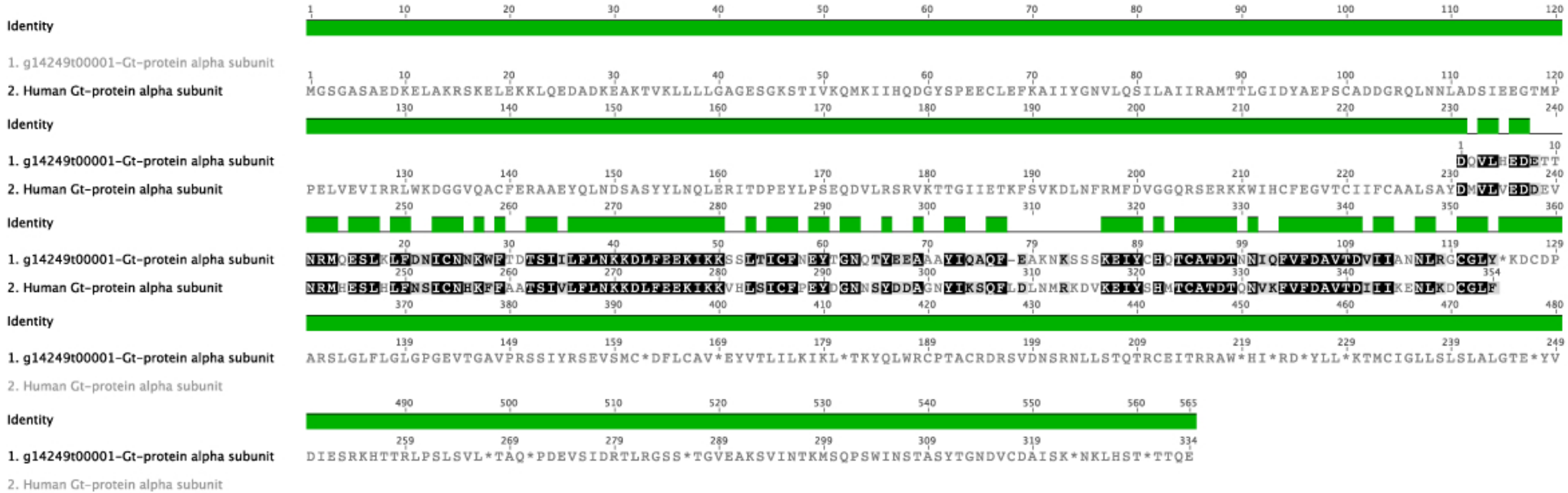
2. Human Go-protein alpha subunit

E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NRMQESLKLFDNICNNKWFTDTSIILFLNKKDLFEEKIKKSSLTICFNEYTGNQTYEEAAAYIQAQF-EAKNKSSSKEIYCHQTCATDTNNIQFVFDAVTDVIIANNLRGCGLY*KDCDP
NRMHESLHLFNSICNHKFFAATSIVLFLNKKDLFEEKIKKVHLSICFPEYDGNNSYDDAGNYIKSQFLDLNMRKDVKEIYSHMTCATDTQNVKFVFDAVTDIIIKENLKDCGLF
ARSLGLFLGLGPGEVTGAVPRSSIYRSEVSMC*DFLCAV*EYVTLILKIKL*TKYQLWRCPTACRDRSVDNSRNLLSTQTRCEITRRAW*HI*RD*YLL*KTMCIGLLSLSLALGTE*YV
DIESRKHTTRLPSLSVL*TAQ*PDEVSIDRTLRGSS*TGVEAKSVINTKMSQPSWINSTASYTGNDVCDAISK*NKLHST*TTQE

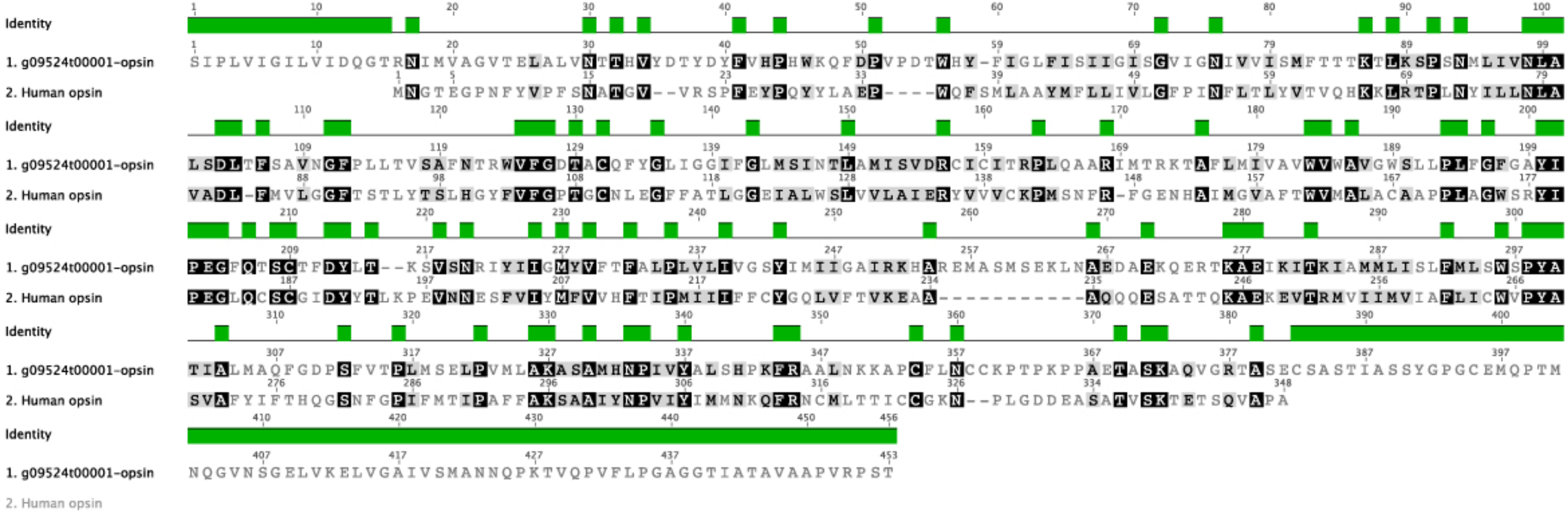
F

Identity
1. Drosophila G-protein beta subunit
2. g16634t00001-G-protein beta subunit
MNELDSLRQEAESLKNAIRDARKAACDTSLLQAATSLEPIGRIQMRTRRTLRGHLAKIYAMHWGNDSRNLVSASQDGKLIVWDSHTTNKVHAIPLRSSWVMTCAYAPSGS
AFSPTGQ
YVACGGLDNMCSIYNLKT---REGNVRVSRELPGHGGYLSCCRFL--DDNQIVTSSGDMSCGLWDIETGLQVTSF-----LGHTGDVMALSL-APQCKTFVSGACDASAK
SVACGGLDSVCSIFNLNSAADRDGNLPVSRMLTGHKGYVSSCQYVPDEDTHLITASGDQTCVLWDITTGLRTSVFGGEFQSGHTSDVLSISINGSNSRMFVSGSCDSTAR
LWDIR-EGVCKQTFPGHESDINAVTFFPNGQAFATGSDDATCRLFDIRADQELAMYSHDNIICGITSVAFSKSGRLLLAGYDDFNCNVWDTMKAERSGILAGHDNRVSCL
LWDTRVASRAVRTFHGHERDVSAVKFFPDGNRFGTGSDDGTCRLF
GVTENGMAVATGSWDSFLRVWN

G

Identity
1. Drosophila G-protein gamma subunit
MDVMSSSLQQQRVVVEQLRREAAIDRQTISESCAKMMKYITEHEQEDYLLTGFTSQKVNPFREKSSCTVL
2. g18996t00001-G-protein gamma subunit
AGRRNRRHFVLRPINFWRNFLNI*SSQMSSQIQSLQKQLGQLRLEANVQRIPVSQAIEEIMNYTNQHAPEDGLVNGVI-QSVNPFRDQKSCII

H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2. Human opsin
Identity
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Identity
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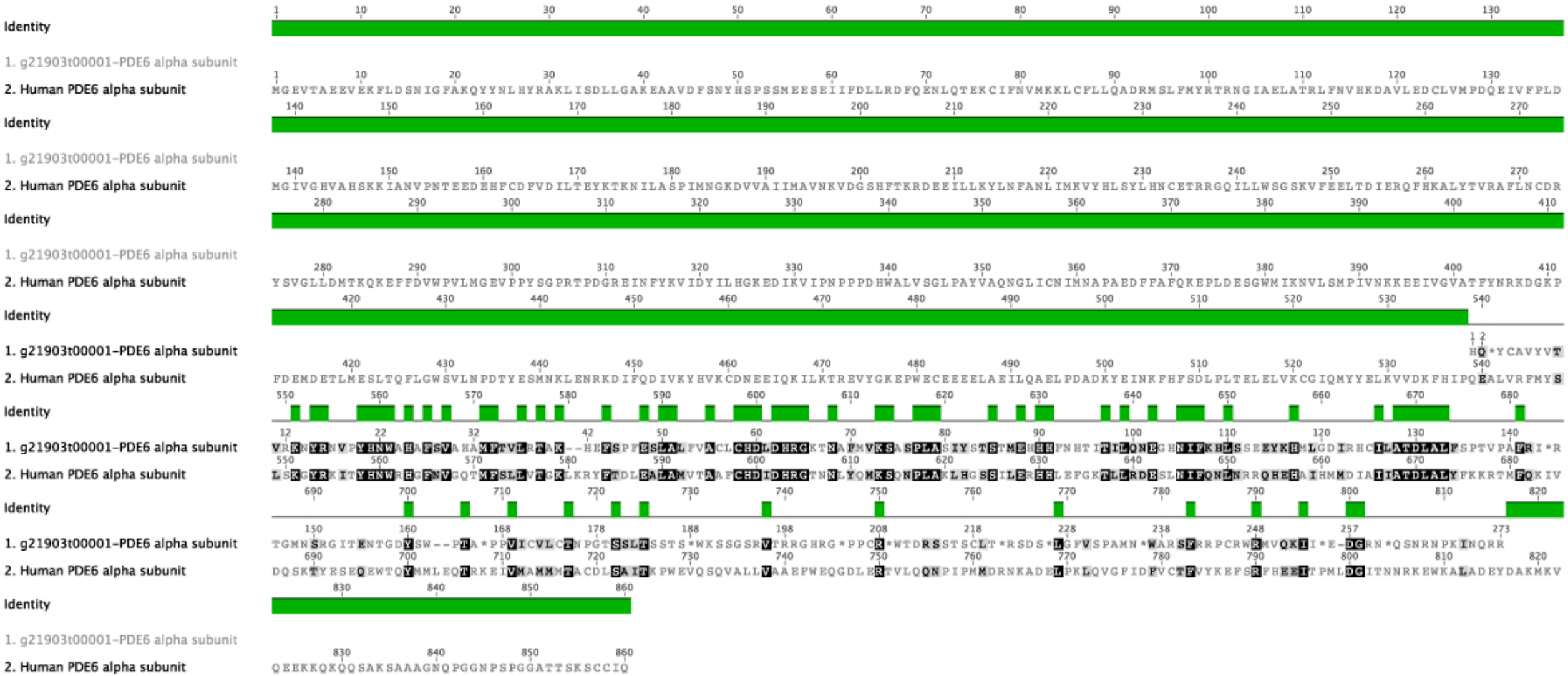
2. Human opsin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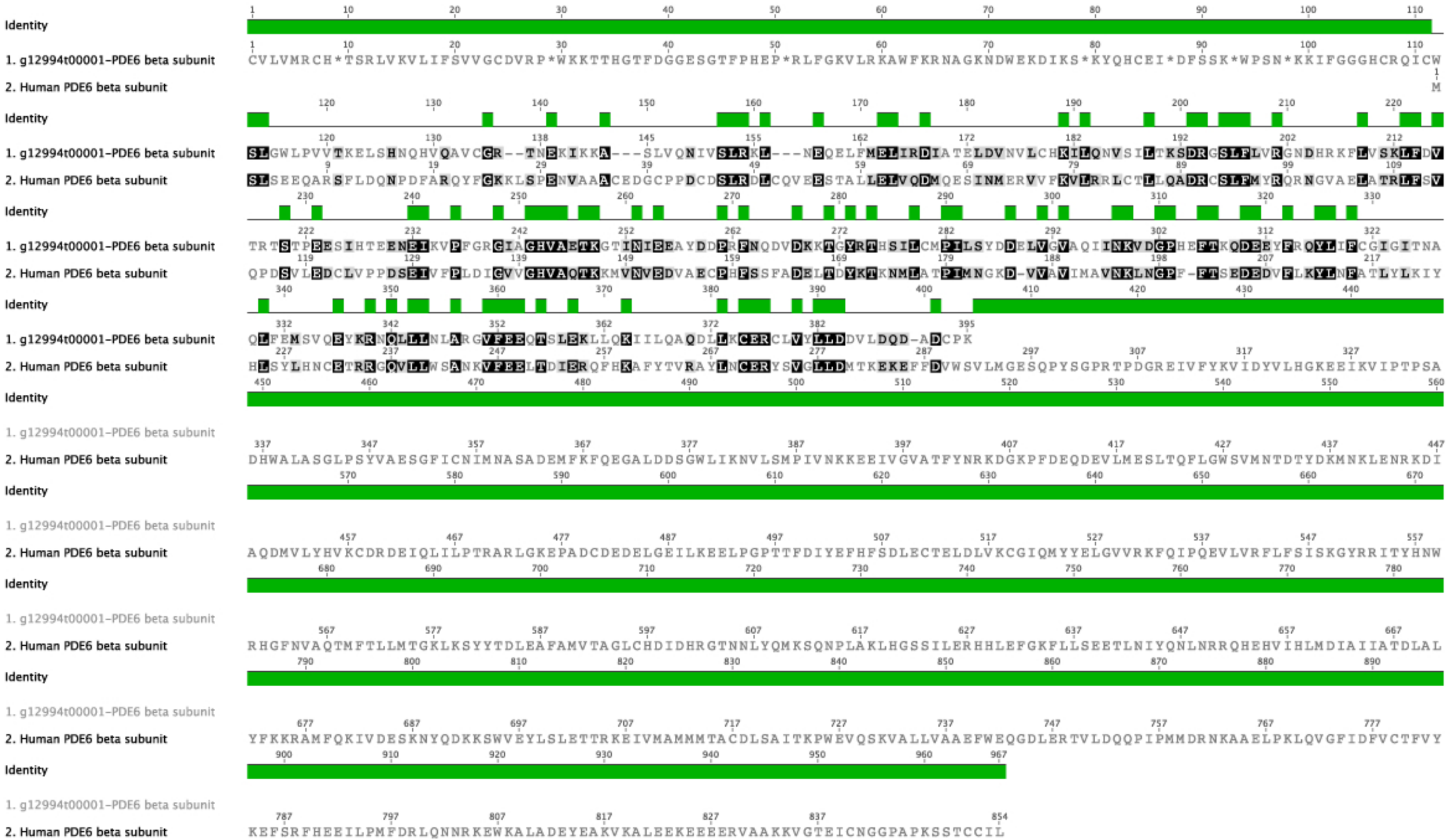
2. Human PDE6 alpha subunit

J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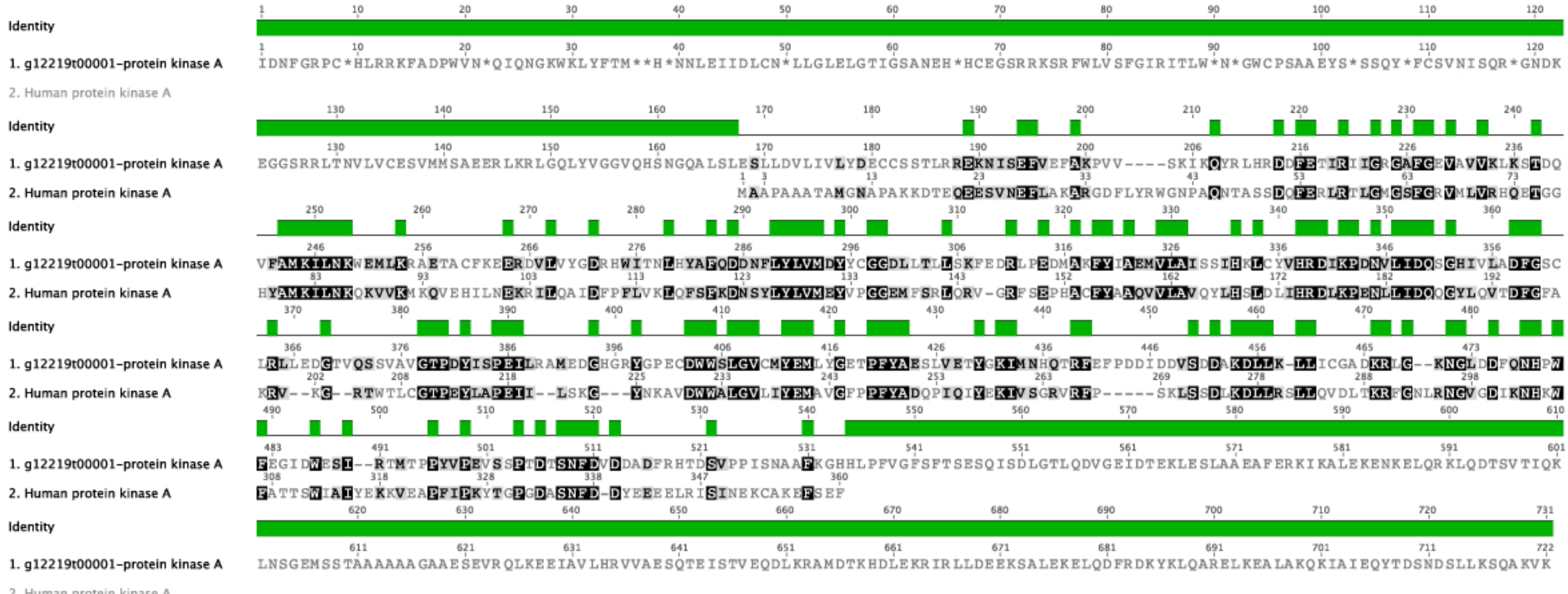
2. Human PDE6 beta subunit

K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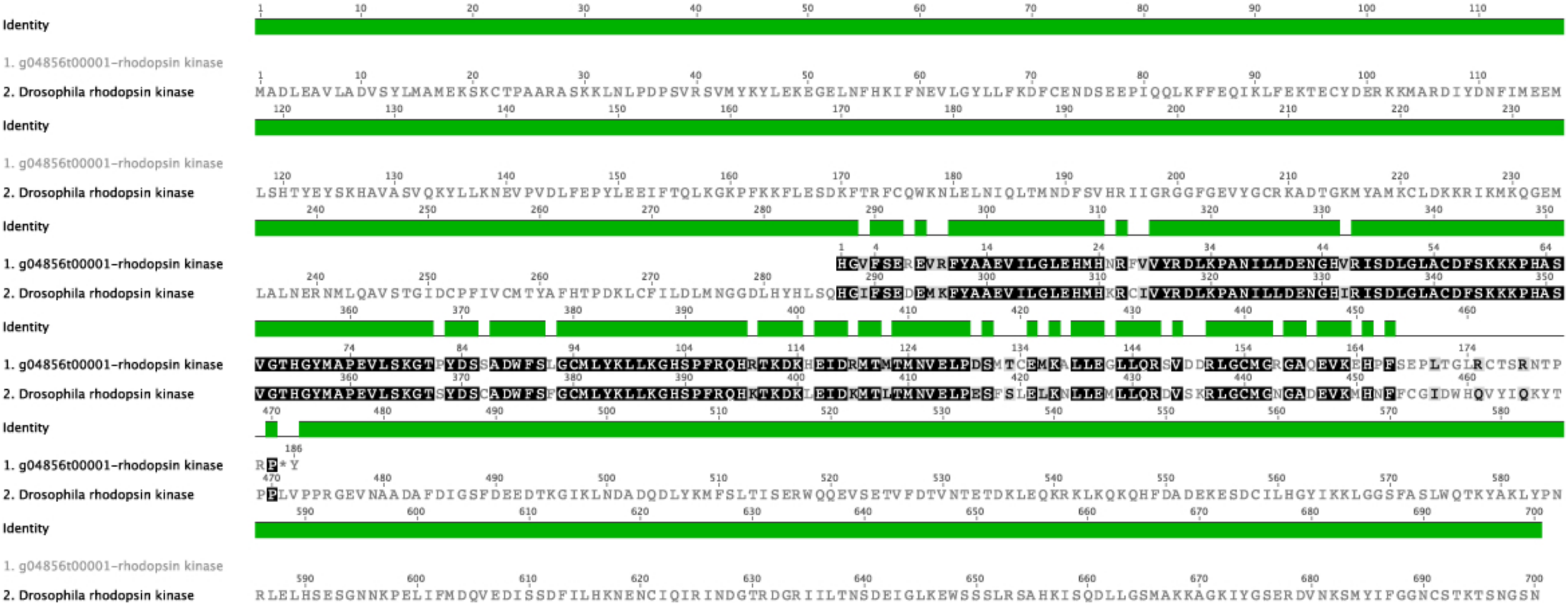
L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2. Drosophila rhodopsin kinase
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LSHTYEYSKHAVASVQKYLLKNEVPVDLFEPYLEEIFTQLKGKPFKKFLESDKFTRFCQWKNLELNIQLTMNDFSVHRIIGRGGFGEVYGCRKADTGKMYAMKCLDKKRIKMKQGEM
LALNERNMLQAVSTGIDCPFIVCMTYAFHTPDKLCFILDLMNGGDLHYHLSQHGIFSEDEMKFYAAEVILGLEHMHKRGIVYRDLKPANILLDENGHIRISDLGLACDFSKKKPHAS
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RP*Y
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