

**A**

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      10      20      30      40      50      60      70      80      90     100
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni MGAQVSTQKTGAHETGLSASGNSVIHYTNINYYKDSASNSLNRQDFTQDPSRFTEPVKDVMIKTLPALNSPTVEECGYSDRVRISITLGNSTITTTQECANV
13311     .....S.N...S.I.....S.....K.....
13759     .....K.....F.....
14397     .....SS.N...S.I.....K.....

      110     120     130     140     150     160     170     180     190     200
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni VVGYGWPTYLSDEHATAVDQPTQPDVATCRFYTLSEVKWESSAGWWKFPPEALSDMGLFGQNMQYHYLGRAGYTIHVQCNAKFFHQGCLLVVCPPEAE
13311     .....N.....T.....
13759     .....E.....R.....A.....S.....
14397     .....N.....T.....

      210     220     230     240     250     260     270     280     290     300
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni MGAATTDHAMNHTKLSNIGQAMEFSACKSTDQTPQAVHNAGMGVAVGNLTIYPHQWINLRTNNSATVMPYINSVPMDDNMYRHYNFTLMVIPFAKLEH
13311     .....E.....F.....
13759     .....E.....F.....
14397     .....F.....

      310     320     330     340     350     360     370     380     390     400
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni SPQASTYVPIVTVAPMCAEYNGRLRAGHQGLPTMNTPGSTQFLTSDDFQSPSAMPQFDVTPEIQIPGQVRNLMIEAEVDSVVPVNNTEEHVNSIEAYRI
13311     .....V.....GN...M.....
13759     .....V.....GN...M.....
14397     .....V.....GN...M.....

      410     420     430     440     450     460     470     480     490     500
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni PVRPQTNSGEQVFGQLRPGYDVLKHTLLGELILNYANWSGSMKLTIFYCGAAMATGKFLIAYSPPGAGVPGSRKDAMLGTHVIVDVLQSSCVLCVPW
13311     .....S.....Q..H.....T.....
13759     .....S.....Q..H.....R.....M.....
14397     .....S.....Q..H.....

      510     520     530     540     550     560     570     580     590     600
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni ISQTNRYVTSDAYTDAGYITCWYQTSIVTTPDIPPTSTILCFVSACNDFSVRLLRDTPFITQQALYQNDPEGALNKAVGRVADTIASGPNTEQIPALT
13311     .....S.....I.R.....V.....
13759     .....S.....I.R.....V.....
14397     .....V.....S..I..RT.....V.....

      610     620     630     640     650     660     670     680     690     700
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni AVETGHTSQVVPDSTMQTRHVVNPHTRSESSLENFMGRAACVYIAHYATEKANDDLDRYTNWEITTRQVAQLRRKLEMFTYMRFDLEITFVITSSQRTSN
13311     .....I.Y.....I.....Q....V..E.....L.....T.....
13759     .....Y.....I.....Q....V..E.....T.....
14397     .....I.Y.....I.....Q....V..E.....L.....T.....

      710     720     730     740     750     760     770     780     790     800
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni RYASDSPPLTHQIMYVPPGGPIPTGYEDFAWQTSNPSVFWTEGNAPPRMSIPFMSVGNAYCNFYDGWSHFSQSGVYGYTTLNNMGHLYFRHVNKSTGYP
13311     T.....V.....KS.....
13759     T.....V.....RS.....
14397     T.....V.....KS.....

      810     820     830     840     850     860
-----+-----+-----+-----+-----+-----+
Bastianni VNSVARVYFKPKHVKAWVPRAPRLCPYLYAKNWNFDVQGVTESRGITLDRSTHNPVLT
13311     .....R.....D.....LTN.....
13759     .....L.N.....
14397     .....Q....R.....D.....LTN.....

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**B**

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      870      880      890      900
-----+-----+-----+-----+
Bastianni  GAFEQQSGAAYVGNRYLVRNHLATHTDWQNCVWEDYNRDL
13311      .V.G.....V.....N.....
13759      .V.G.....V.....V.....
14397      .V.G.....V.....N.....

      910      920      930      940      950      960      970      980      990      1000
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  LVSPTTAHGCDTIARCQCTTGVIYFCASRNKHYPVTFEGPGLVEVQESEYYPKRYQSHVLLAAGFSEPGDCGGILRCEHGVIGLVTMGGEGVGFADVRDL
13311      .....V.....S.....S.....
13759      .....N.....A.....
14397      .....V.....S.....S.....

      1010     1020     1030     1040     1050     1060     1070     1080     1090     1100
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  LWLEDDAMEQGKDYVEQLGNAPGSGFTNQICEQVNLLKESLIGQDSILEKSLKALVKIISALVIVVRNHDDLITVTATLALIGCTTSPWRWLKHKVSQY
13311      .....V.....I.....V.....V.....S.....Q.....
13759      .....R.....V.....V.....A.....V.....Q.....T.....
14397      .....V.....I.....V.....V.....S.....Q.....

      1110     1120     1130     1140     1150     1160     1170     1180     1190     1200
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  YGIPMAERQNNWLKFPTEMTNACKGMEWIAIKIQFIEWLKVKILPEVKEKHEFLNRLKQLPLESQIATIEQSAPSQSDQEQLFSNVQYFAHYCRKYA
13311      ..L.....G.....N.....R.....T.....
13759      .....G.....R.....
14397      .....G.....N.....R.....T.....

      1210     1220     1230     1240     1250     1260     1270     1280     1290     1300
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  PLYAAEAKRVFSLEKKMSNYIQFKSKRIEIPVCLLLHGSPGAGKSVATNLIGRSLAEKLNSSVYSLPPDPDFDGYKQQAVVIMDDLQONPDGRDVSFLFC
13311      .....T.....K.....
13759      .....G.....K.....
14397      .....T.....K.....

      1310     1320     1330     1340     1350     1360     1370     1380     1390     1400
-----+-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  QMVSSVDFVPPMAALEEKGILFTSPFVLASTNAGSINAPTVDSDRALARRFHFDMNIEVISMYSQNGKINMPMSVKTCDEECCPVNFKRCCPLVCGKAIQ
13311      .....K.....K.....
13759      .....A.....K.....L.....
14397      .....K.....

      1410     1420     1430
-----+-----+-----+-----+
Bastianni  FIDRRRTQVRYSLDMLVTEMFREYNHRHSVGTLEALF
13311      ....K.....
13759      .....T.....
14397      ....K.....

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C

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      1440      1450      1460      1470      1480      1490      1500
-----+-----+-----+-----+-----+-----+-----+
Bastianni  QGPPVYREIKISVAPETPPPPAIADLLKSVDEAVREYCKEKGWLVPEINSTLQIEKHVSRAF
13311      .....R.....
13759      .....T.....V.....
14397      .....R.....

      1510      1520      1530      1540      1550      1560      1570      1580      1590      1600
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  ICLQALTTFFVSVAGIIYIYKLFAGFQGAYSGMPNQSKVPTLRQAKVQGPAPAFVAVAMMKRNASTVKTEYGEFTMLGIYDRWAVLPRHAKPGPTIIMND
13311      .....T.....P.....S.....R.....L...
13759      .....T.....P.....AR.....L...
14397      .....T.....P.....S.....R.....L...

      1610      1620      1630      1640      1650      1660      1670      1680      1690      1700
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  QEVGVVDAKELVDKDGTLNLELTLKLNREKFRDIRGFLAREEAEVNEAVLAINTSKFPNMYIPVGQVTDYGFNLGGTPTKRMLMNFPTTRAGQCGGVL
13311      .....L.....K.....V.....
13759      .....L.....V.....A.....
14397      .....L.....K.....V.....

      1710      1720      1730      1740      1750      1760      1770      1780      1790      1800
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  MSTGKVLGVHVGNGHQGFSAAALLRHVFNDQGEIEFIESKKEAGFPVINTPSKTKLEPSVFHVFEGNKEPAVLRNGDPRLKANFEEAIFSKYIGNVNT
13311      .....I.....K.....D.....Q.....V.....
13759      .....I.....K.....E.....RD.....Q.....
14397      .....I.....K.....D.....Q.....V.....

      1810      1820      1830      1840      1850      1860      1870      1880      1890      1900
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  HVDEYMMEAVDHYAGQLATLDISTEPMKLEDAVYGTGLEALDLTTSAGYPVALGIKKRDILSKKTKDLAKLKECMDKYGLNLPMTYVVKDELRSAEKV
13311      .....L.....T.....VD..
13759      .....L.....R.....T.....T...
14397      .....I.....T.....T.....VD..

      1910      1920      1930      1940      1950      1960      1970      1980      1990      2000
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  AKGKSRLIEASSLNDVAMRQTFGNLYKTFHMNPGIVTGSVAGCDPDLFWSKIPVMLDGHILAFDYSGYDASLSPVWFACLKLLLEKLGYSHKETNYIDY
13311      .....L.....
13759      .....L.....V.....G...TN...
14397      .....L.....

      2010      2020      2030      2040      2050      2060      2070      2080      2090      2100
-----+-----+-----+-----+-----+-----+-----+-----+
Bastianni  LCNSHHLRYDKHYFVRGGMPSCSGTSIFNSMNNIIIRTLMKVYKIDLDQFRMIAYGDDVVIASYPHPIDASLLAEAGKGYGLIMTPADKGECPNEVT
13311      .....W.....
13759      .....W.....D.....
14397      .....W.....

      2110      2120      2130      2140      2150      2160      2170      2180      2190
-----+-----+-----+-----+-----+-----+-----+-----+RdRp--
Bastianni  WTNVTFLLKRYFRADEQYPFVLVHPVPMKDIHESIRWTKDPKNTQDHVRSLLCLLAWHNGEQEYEEFVSKIRSVVGRCLTLPFSTLRRKWLDSF
13311      .A.....H.....IQ.....
13759      .....H.....IR.....I.....
14397      .A.....I.....H.....IQ.....

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D

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-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      10      20      30      40      50      60      70      80      90     100
Bastianni -----ACCCACCCACAGGCCCACTGGGCGCCAGCACACTGGTATCGTGGTACCTTTGTGCGCCTGTTTTATACCCCTAC
13311  --TTAAAAACAAGCCTGTGGGTTGA.....T.....A.....T.....AC.....C.A...TT
13759  TTTTAAAAACAAGC-TGTGGGTTGAT.....T.T.....AC.....CCTA...CT-
14397  -TTTAAAAACAAGCCTGTGGGTTGA.....A.....T.....AC.....C.A...T-

      110     120     130     140     150     160     170     180     190     200
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  CCCCACAGTACTCTAGAAGCAAGGCAACCTGACCAATAGTAGGTGGCACACCCAGCCGATTTGGTCAAGCACTTCTGTTCCCGGACCGAGTAT
13759  ....GA...A.ACT.....TTT.AATT.AAC.GT.....G.AACCCA.T.....A.T.GGC.G.AC.....GA.....
14397  ....GA.A.A.ACT.....TCAA.TT.TG..GT.....A.CTCA.T.G...A.T.AGCCAC.AC.....CG.....T.....

      210     220     230     240     250     260     270     280     290     300
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  CAATAAGCTGCTCAGCGCGCTGAAGGAGAAACCGTTTCGTTACCCGACCAGCTACTTCGAGAAACCTAGTAACACTATGACGTTGCGGAGTGTTCGTTTC
13759  .....A.....T.....A.....G...AT.....T.....C...C...A.....C.C.....C..
14397  .....T.....A.....T.....G...AT.....C...C...A.....CG.C.....C..

      310     320     330     340     350     360     370     380     390     400
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  AGCACTTCCCCCGTGTAGATCAGGTCGATGAGTCACCGCATTCCTCACGGGTGACCGTGGCGGTGGCTGCGTTGGCGGCCTGCCTACGGGTTCGCCCGTA
13759  C...GA...A.....CT.....G.A..C.....CTT...GCAA...AAG
14397  C...AA...A.....G..C.....G...C.....A.....C.T..AGCAAT..A.G

      410     420     430     440     450     460     470     480     490     500
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  GGACGCTTAATACCGACATGGTGTGAAGAGTCCATTGAGCTAGCTGGTAGTCCCTCCGGCCCTGAATGCGGCTAATCCCTAACTGCGGAGCAGGTGCTCA
13759  .....TC.....T.....C.....T.....AT.....C.....A.A.C..
14397  .....TC.....T.....C.....T.....AT.....C.....A.A.C..

      510     520     530     540     550     560     570     580     590     600
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  CAGACCAGTGAAGTACCGTGTGTAACGGCACTCTCAGCGGCAACCGACTACTTTGGGTGTCCTGTTTCCCTTTTTCCTTTTATATATGGCTGCTT
13759  ..T.....G.C.T.....T.....A-----T.....C.C.....
14397  ..C.....G.C.T.....TC.....A.T.....C.C.....

      610     620     630     640     650     660     670     680     690     700
Bastianni -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
13311  ATGGTGACAATTAAGAATTGTTACCATATAGCTATTGGATTGGCCATCCGGTGACGAGCAGAGCCATTGTTTACCTCTTTGTTGGATTGTTACCTTTGA
13759  .....G.GAG.....G.....T.T.AT.....A..A.C.....T.....A.T..AC.T.
14397  .....G.GAG.....G.....T.T.AT.....A..A.C.....T.....A.T..AC.T.

      710     720     730     740     750
Bastianni -----+-----+-----+-----+-----+-----+
13311  ACCACAAGTCTTGAATACCATTCATCTCATTTTAAAGTTCAACTCAGCTAAAAGAAA
13759  ..T.T...CAC.C..A..AC..ATATA...G..G.TC....A...A..
14397  ..T.T...CAC.C..A..AC..ATATA...G..G.TC....A...A..

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E

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-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      10      20      30      40      50      60      70      80      90     100
Bastianni -----ATTAGAGTACAATTATATAATTTTAAATTTAATTTGGCTTAAACCTACCACACTTACCGAACTAGACAACGGTGTGGTAGGGGTAATTTCCCGCA
13311  -.....A.C.....G.....ACC.....T.....TTCGGTGA
13759  A.....C.....C.GTG.....ACG.....T.C.....G..TGA.....T...CAA...C.....TTCGGTG
14397  -.....A.C.....G.....ACC.....T.....TTCGGTGA

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