FIG. 1

```
SEQ ID NO:1 MILDTDYITENGKPVIRVFKKENGEFKIEYDRTFEPYFYALLKDDSAIEDVKKVTAKRHG    60
SEQ ID NO:2 MILDTDYITKDGKPIIRIFKKENGEFKIELDPHFQPYIYALLKDDSAIEEIKAIKGERHG    60
SEQ ID NO:7 MILDADYITEDGKPVIRVFKKEKGEFKINYDRDFEPYIYALLKDDSAIEDIKKITAERHG    60
SEQ ID NO:5 MILDTDYITEDGKPVIRIFKKENGEFKIEYDRTFEPYFYALLKDDSAIEEVKKITAERHG    60
SEQ ID NO:4 MILDVDYITEEGKPVIRLFKKENGKFKIEHDRTFRPYIYALLRDDSKIEEVKKITGERHG    60
SEQ ID NO:3 MILDADYITEDGKPIIRIFKKENGEFKVEYDRNFRPYIYALLKDDSQIDEVRKITAERHG    60
SEQ ID NO:6 MIIDADYITEDGKPIIRIFKKEKGEFKVEYDRTFRPYIYALLKDDSAIDEVKKITAERHG    60
            **:*.****::***:**:****:*:**:: *  *.**:****:*** *:::: :..:***

SEQ ID NO:1 TVVKVKRAEKVQKKFLGRPIEVWKLYFNHPQDVPAIRDRIRAHPAVVDIYEYDIPFAKRY    120
SEQ ID NO:2 KTVRVLDAVKVRKKFLGREVEVWKLIFEHPQDVPAMRGKIREHPAVVDIYEYDIPFAKRY    120
SEQ ID NO:7 TTVRVTRAERVKKKFLGRPVEVWKLYFTHPQDVPAIRDKIREHPAVVDIYEYDIPFAKRY    120
SEQ ID NO:5 TVVTVKRVEKVQKKFLGRPVEVWKLYFTHPQDVPAIRDKIREHPAVIDIYEYDIPFAKRY    120
SEQ ID NO:4 KIVRIVDVEKVEKKFLGKPITVWKLYLEHPQDVPTIREKVREHPAVVDIFEYDIPFAKRY    120
SEQ ID NO:3 KIVRIIDAEKVRKKFLGRPIEVWRLYFEHPQDVPAIRDKIREHSAVIDIFEYDIPFAKRY    120
SEQ ID NO:6 KIVRITEVEKVQKKFLGRPIEVWKLYLEHPQDVPAIREKIREHPAVVDIFEYDIPFAKRY    120
            . * :  . :*.*****: : **:* : ******:* ::* * **:**:**********

SEQ ID NO:1 LIDKGLIPMEGDEELTMLAFDIETLYHEGEEFGTGPILMISYADGSEARVITWKKIDLPY    180
SEQ ID NO:2 LIDKGLIPMEGDEELKLLAFAIATFYHEGDEFGKGEIIMISYADEEEARVITWKNIDLPY    180
SEQ ID NO:7 LIDKGLIPMEGNEELRMLAFDIETLYHEGEEFGEGPILMISYADEEGARVITWKNIDLPY    180
SEQ ID NO:5 LIDKGLVPMEGDEELKMLAFAIATLYHEGEEFAEGPILMISYADEEGARVITWKNVDLPY    180
SEQ ID NO:4 LIDKGLIPMEGEEELKILAFDIETLYHEGEEFGKGPIIMISYADENEAKVITWKNIDLPY    180
SEQ ID NO:3 LIDKGLIPMEGDEELKLLAFAIATLYHEGEEFAKGPIIMISYADEEEAKVITWKKIDLPY    180
SEQ ID NO:6 LIDKGLTPMEGNEELTFLAVAIATLYHEGEEFGKGPIIMISYADEEGAKVITWKSIDLPY    180
            ****** ****:*** :**. * *:****:**. * *:****** . *:*****.:****
```

FIG. 1 cont'd

```
SEQ ID NO:1 VDVVSTEKEMIKRFLRVVREKDPDVLITYNGDNFDFAYLKKRCEELGIKFTLGRDG--SE    238
SEQ ID NO:2 VDVVSNEREMIKRFVQVVKEKDPDVIITYNGDNFDLPYLIKRAEKLGVRLVLGRDKEHPE    240
SEQ ID NO:7 VESVSTEKEMIKRFLKVIQEKDPDVLITYNGDNFDFAYLKKRSETLGVKFILGRDG--SE    238
SEQ ID NO:5 VDVVSTEREMIKRFLRVVKEKDPDVLITYNGDNFDFAYLKKRCEKLGINFALGRDG--SE    238
SEQ ID NO:4 VEVVSSEREMIKRFLRIIREKDPDIIVTYNGDSFDFPYLAKRAEKLGIKLTIGRDG--SE    238
SEQ ID NO:3 VEVVSSEREMIKRFLKVIREKDPDVIITYNGDSFDLPYLVKRAEKLGIKLPLGRDG--SE    238
SEQ ID NO:6 VEVVSSEREMIKRLVKVIREKDPDVIITYNGDNFDFPYLLKRAEKLGIKLPLGRDN--SE    238
            *: **.*:*****:::::*****:::*****.**: ** **.* **:.: :*** *

SEQ ID NO:1 PKIQRMGDRFAVEVKGRIHFDLYPVIRRTINLPTYTLEAVYEAVFGKPKEKVYAEEIAQA    298
SEQ ID NO:2 PKIQRMGDSFAVEIKGRIHFDLFPVVRRTINLPTYTLEAVYEAVLGKTKSKLGAEEIAAI    300
SEQ ID NO:7 PKIQRMGDRFAVEVKGRIHFDLYPVIRRTINLPTYTLETVYEAIFGQPKEKVYAEEIAQA    298
SEQ ID NO:5 PKIQRMGDRFAVEVKGRIHFDLYPVIRRTINLPTYTLEAVYEAVFGQPKEKVYAEEITTA    298
SEQ ID NO:4 PKMQRIGDMTAVEVKGRIHFDLYHVITRTINLPTYTLEAVYEAIFGKPKEKVYADEIAKA    298
SEQ ID NO:3 PKMQRLGDMTAVEIKGRIHFDLYHVIRRTINLPTYTLEAVYEAIFGKPKEKVYAHEIAEA    298
SEQ ID NO:6 PKMQRMGDSLAVEIKGRIHFDLFPVIRRTINLPTYTLEAVYEAIFGKSKEKVYAHEIAEA    298
            **:**:**  ***:********: *: **********:****::*: *.*: *.**:

SEQ ID NO:1 WESGEGLERVARYSMEDAKVTYELGREFFPMEAQLSRLIGQSLWDVSRSSTGNLVEWFLL    358
SEQ ID NO:2 WETEESMKKLAQYSMEDARATYELGKEFFPMEAELAKLIGQSVWDVSRSSTGNLVEWYLL    360
SEQ ID NO:7 WESGEGLERVARYSMEDAKATYELGKEFFPMEAQLSRLVGQSLWDVSRSSTGNLVEWFLL    358
SEQ ID NO:5 WETGENLERVARYSMEDAKVTYELGKEFLPMEAQLSRLIGQSLWDVSRSSTGNLVEWFLL    358
SEQ ID NO:4 WESGENLERVAKYSMEDAKATYELGKEFLPMEIQLSRLVGQPLWDVSRSSTGNLVEWFLL    358
SEQ ID NO:3 WETGKGLERVAKYSMEDAKVTYELGREFFPMEAQLSRLVGQPLWDVSRSSTGNLVEWYLL    358
SEQ ID NO:6 WETGKGLERVAKYSMEDAKVTFELGKEFFPMEAQLARLVGQPVWDVSRSSTGNLVEWFLL    358
            **: :.:::::*:******:.*:***:**:*** :*::*:** :**************:**
```

FIG. 1 cont'd

```
SEQ ID NO:1 RKAYKRNELAPNKPDERELARR-RGGYAGGYVKEPERGLWDNIVYLDFRSLYPSIIITHN    417
SEQ ID NO:2 RVAYARNELAPNKPDEEEYKRRLRTTYLGGYVKEPEKGLWENIIYLDFRSLYPSIIVTHN    420
SEQ ID NO:7 RKAYERNELAPNKPDERELARR-AESYAGGYVKEPEKGLWENIVYLDYKSLYPSIIITHN    417
SEQ ID NO:5 RKAYERNELAPNKPDEKELARR-RQSYEGGYVKEPERGLWENIVYLDFRSLYPSIIITHN    417
SEQ ID NO:4 RKAYERNEVAPNKPSEEEYQRRLRESYTGGFVKEPEKGLWENIVYLDFRALYPSIIITHN    418
SEQ ID NO:3 RKAYERNELAPNKPDEREYERRLRESYAGGYVKEPEKGLWEGLVSLDFRSLYPSIIITHN    418
SEQ ID NO:6 RKAYERNELAPNKPDEREYERRLRESYEGGYVKEPEKGLWEGIVSLDFRSLYPSIIITHN    418
            * ** ***:*****.*.*  ** * **:*****:***:.:: **:::******:***

SEQ ID NO:1 VSPDTLNREGCKEYDVAPEVGHKFCKDFPGFIPSLLGDLLEERQKIKRKMKATVDPLEKK    477
SEQ ID NO:2 VSPDTLEKEGCKNYDVAPIVGYRFCKDFPGFIPSILGDLIAMRQDIKKKMKSTIDPIEKK    480
SEQ ID NO:7 VSPDTLNREGCREYDVAPQVGHRFCKDFPGFIPSLLGDLLEERQKVKKKMKATVDPIERK    477
SEQ ID NO:5 VSPDTLNREGCKEYDVAPQVGHRFCKDFPGFIPSLLGDLLEERQKIKKKMKATIDPIERK    477
SEQ ID NO:4 VSPDTLNLEGCKNYDIAPQVGHKFCKDIPGFIPSLLGHLLEERQKIKTKMKETQDPIEKI    478
SEQ ID NO:3 VSPDTLNREGCREYDVAPEVGHKFCKDFPGFIPSLLKRLLDERQEIKRKMKASKDPIEKK    478
SEQ ID NO:6 VSPDTLNRENCKEYDVAPQVGHRFCKDFPGFIPSLLGNLLEERQKIKKRMKESKDPVEKK    478
            ******: *.*::**:** **::****:******:*  *:  **.:* :** : **:*:

SEQ ID NO:1 LLDYRQRAIKILANSFYGYYGYAKARWYCKECAESVTAWGREYIEMVIRELEEKFGFKVL    537
SEQ ID NO:2 MLDYRQRAIKLLANSYYGYMGYPKARWYSKECAESVTAWGRHYIEMTIREIEEKFGFKVL    540
SEQ ID NO:7 LLDYRQRAIKILANSYYGYYGYANARWYCRECAESVTAWGRQYIETTMREIEEKFGFKVL    537
SEQ ID NO:5 LLDYRQRAIKILANSYYGYYGYARARWYCKECAESVTAWGREYITMTIKEIEEKYGFKVI    537
SEQ ID NO:4 LLDYRQKAIKLLANSFYGYYGYAKARWYCKECAESVTAWGRKYIELVWKELEEKFGFKVL    538
SEQ ID NO:3 MLDYRQRAIKILANSYYGYYGYAKARWYCKECAESVTAWGREYIEFVRKELEEKFGFKVL    538
SEQ ID NO:6 LLDYRQRAIKILANSYYGYYGYAKARWYCKECAESVTAWGRQYIDLVRRELES-RGFKVL    537
            :*****:***:****:*** ** .****.:**********.**  . :*:*.  ****:
```

FIG. 1 cont'd

```
SEQ ID NO:1 YADTDGLHATIPGADAETVKKKAKEFLKYINPKLPGLLELEYEGFYVRGFFVTKKKYAVI    597
SEQ ID NO:2 YADTDGFYATIPGEKPELIKKKAKEFLNYINSKLPGLLELEYEGFYLRGFFVTKKRYAVI    600
SEQ ID NO:7 YADTDGFFATIPGADAETVKKKTKEFLNYINPRLPGLLELEYEGFYRRGFFVTKKKYAVI    597
SEQ ID NO:5 YSDTDGFFATIPGADAETVKKKAMEFLKYINAKLPGALELEYEGFYKRGFFVTKKKYAVI    597
SEQ ID NO:4 YIDTDGLYATIPGGESEEIKKKALEFVKYINSKLPGLLELEYEGFYKRGFFVTKKRYAVI    598
SEQ ID NO:3 YIDTDGLYATIPGAKPEEIKKKALEFVDYINAKLPGLLELEYEGFYVRGFFVTKKKYALI    598
SEQ ID NO:6 YIDTDGLYATIPGAKHEEIKEKALKFVEYINSKLPGLLELEYEGFYARGFFVTKKKYALI    597
            * ****:.***** . * :*:*: :*:.*** :*** ********* ********:**:*

SEQ ID NO:1 DEEGKITTRGLEIVRRDWSEIAKETQARVLEAILKHGDVEEAVRIVKEVTEKLSKYEVPP    657
SEQ ID NO:2 DEEGRITTRGLEVVRRDWSEIAKETQAKVLEAILKEGSVEKAVEVVRDVVEKIAKYRVPL    660
SEQ ID NO:7 DEEDKITTRGLEIVRRDWSEIAKETQARVLEAILKHGDVEEAVRIVKEVTEKLSRYEVPP    657
SEQ ID NO:5 DEEGKITTRGLEIVRRDWSEIAKETQARVLEALLKDGDVEKAVRIVKEVTEKLSKYEVPP    657
SEQ ID NO:4 DEEGKVITRGLEIVRRDWSEIAKETQARVLETILKHGDVEEAVRIVKEVIQKLANYEIPP    658
SEQ ID NO:3 DEEGKIITRGLEIVRRDWSEIAKETQAKVLEAILKHGNVEEAVKIVKEVTEKLSKYEIPP    658
SEQ ID NO:6 DEEGKIVTRGLEIVRRDWSEIAKETQAKVLEAILKHGNVDEAVKIVKEVTEKLSKYEIPP    657
            ***.:: *****:**************:***::**.*.*::**.:*::* :*::.*.:*

SEQ ID NO:1 EKLVIHEQITRDLRDYKATGPHVAVAKRLAARGVKIRPGTVISYIVLKGSGRIGDRAIPA    717
SEQ ID NO:2 EKLVIHEQITRDLKDYKAIGPHVAIAKRLAARGIKVKPGTIISYIVLKGSGKISDRVILL    720
SEQ ID NO:7 EKLVIYEQITRNLRDYRATGPHVAVAKRLAARGIKIRPGTVISYIVLKGPGRVGDRAIPF    717
SEQ ID NO:5 EKLVIHEQITRDLKDYKATGPHVAVAKRLAARGVKIRPGTVISYIVLKGSGRIGDRAIPF    717
SEQ ID NO:4 EKLAIYEQITRPLHEYKAIGPHVAVAKKLAAKGVKIKPGMVIGYIVLRGDGPISNRAILA    718
SEQ ID NO:3 EKLVIYEQITRPLHEYKAIGPHVAVAKRLAARGVKVRPGMVIGYIVLRGDGPISKRAILA    718
SEQ ID NO:6 EKLVIYEQITRPLSEYKAIGPHVAVAKRLAAKGVKVKPGMVIGYIVLRGDGPISKRAIAI    717
            ***.*:***** * :*:* *****:**:***:*:*::** :*.****:* * :..*.*
```

FIG. 1 cont'd

```
SEQ ID NO:1 DEFDPTKHRYDAEYYIENQVLPAVERILKAFGYRKEDLRYQKTKQVGLGAWLKVKGKK-     775
SEQ ID NO:2 TEYDPRKHKYDPDYYIENQVLPAVLRILEAFGYRKEDLRYQSSKQTGLDAWLKR-----     774
SEQ ID NO:7 DEFDPAKHRYDAEYYIENQVLPAVERILRAFGYRKEDLRYQKTKQAGLGAWLKPKTGS-     775
SEQ ID NO:5 DEFDPTKHKYDAEYYIENQVLPAVERILRAFGYRKEDLRYQKTRQVGLSAWLKPKGT--     774
SEQ ID NO:4 EEYDPKKHKYDAEYYIENQVLPAVLRILEGFGYRKEDLRYQKTRQVGLTSWLNIKKS--     775
SEQ ID NO:3 EEFDLRKHKYDAEYYIENQVLPAVLRILEAFGYRKEDLRWQKTKQTGLTAWLNIKKKGS     777
SEQ ID NO:6 EEFDPKKHKYDAEYYIENQVLPAVERILRAFGYRKEDLKYQKTKQVGLGAWLKFGS---     773
              *:*  **:** :*********** ***..********::*.::*.** :**:
```

FIG. 2

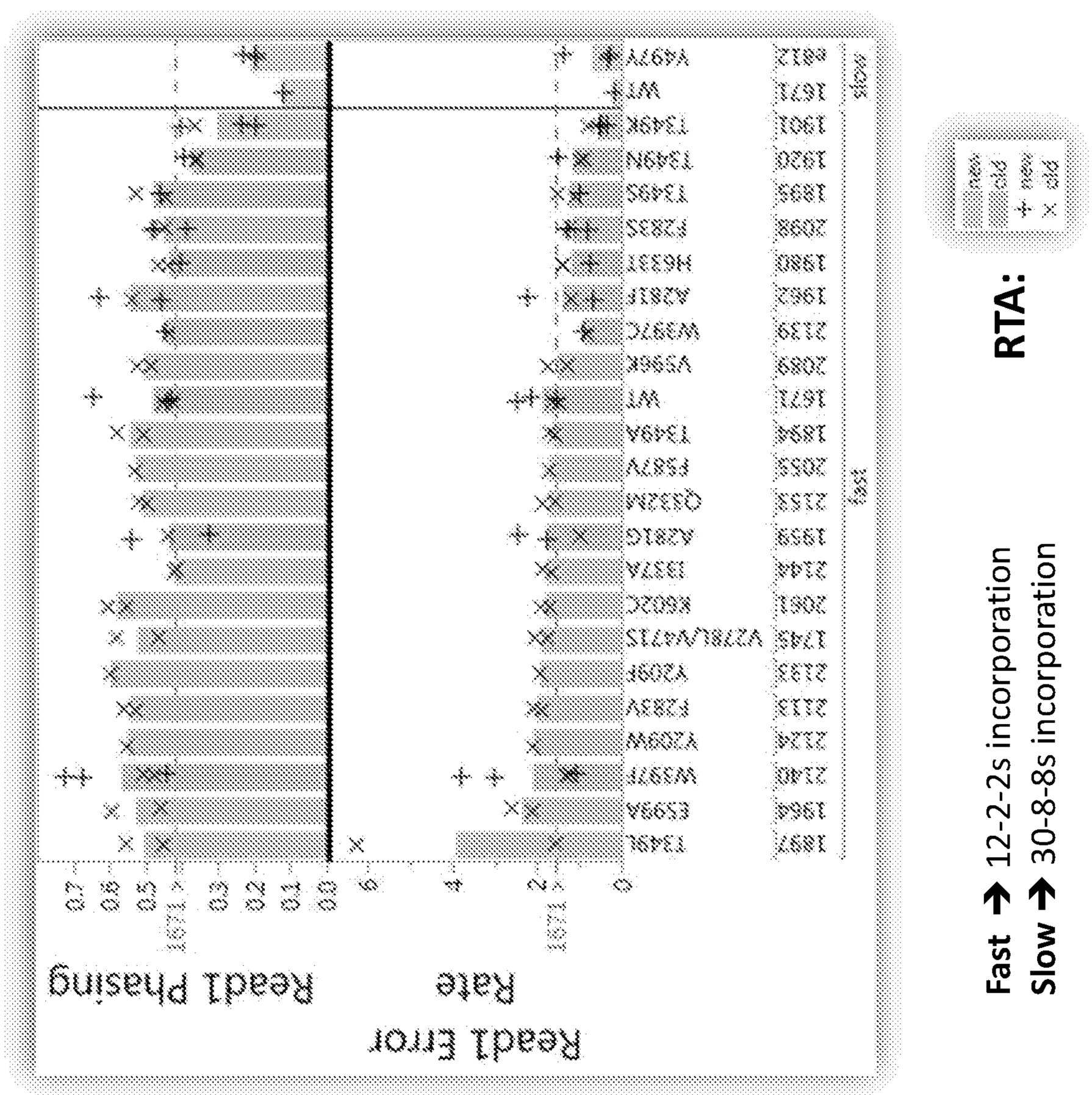

Read Error Rate
Read Phasing
RTA:
Fast → 12-2-2s incorporation
Slow → 30-8-8s incorporation

FIG. 3

