Table S1 Ozawa et al.

Comparison of the amino acid sequences between FLuc, CBR and ELuc.

```
1st Amino Acid Sequence
 File Name       : PpyLuc
 Sequence Size   : 550

2nd Amino Acid Sequence
 File Name       : CBR
 Sequence Size   : 542

[48.8% / 543 aa]
   1'  MEDAKNIKKGPAPFYPLEDGTAGEQLHKAMKRYALVPGTIAFTDAHIEVDITYAEYFEM
       .. .**.  **.*..**** **** * .*..... .*   *..*.  . ...* * **
   1" MVKREKNVIYGPEPLHPLEDLTAGEMLFRALRKHSHLP--QALVDVVGDESLSYKEFFEA

  60' SVRLAEAMKRYGLNTNHRIVVCSENSLQFFMPVLGALFIGVAVAPANDIYNERELLNSMG
       .* **......* . *. . . *.**. . **.**..* . **. ***.*. *   **  . **
  59" TVLLAQSLHNCGYKMNDVVSICAENNTRFFIPVIAAWYIGMIVAPVNESYIPDELCKVMG

 120' ISQPTVVFVSKKGLQKILNVQKKLPIIQKIIIMDSKTDYQGFQSMYTFVTSHLPPGFNEY
       **.* .**..*. *.*.*.**..  .*..***.* . ... .* .* . *. * . . * *
 119" ISKPQIVFTTKNILNKVLEVQSRTNFIKRIIILDTVENIHGCESLPNFI-SRYSDG-NIA

 180' DFVPESFDRDKTIALIMNSSGSTGLPKGVALPHRTACVRFSHARDPIFGNQIIPDTAILS
       .* *  **. . .* *. ***.*******   .* .. ***. ** ** .*.*.**....*
 177" NFKPLHFDPVEQVAAILCSSGTTGLPKGVMQTHQNICVRLIHALDPRYGTQLIPGVTVLV

 240' VVPFHHGFGMFTTLGYLICGFRVVLMYRFEEELFLRSLQDYKIQSALLVPTLFSFFAKST
       .** *.**. . ****.. *.**... **..* **...***...*.. **... *..**.
 237" YLPFFHAFGFHITLGYFMVGLRVIMFRRFDQEAFLKAIQDYEVRSVINVPSVILFLSKSP

 300' LIDKYDLSNLHEIASGGAPLSKEVGEAVAKRFHLPGIRQGYGLTETTSAILITPEGDDKP
       *.******.*.*. . *.***.***.*..***..***** *.****.****. *  ... *.
 297" LVDKYDLSSLRELCCGAAPLAKEVAEVAAKRLNLPGIRCGFGLTESTSAIIQTLGDEFKS

 360' GAVGKVVPFFEAKVVDLDTGKTLGVNQRGELCVRGPMIMSGYVNNPEATNALIDKDGWLH
       *..*.*.*...**..* .***.** ** ****..***. .***** ***.. **.*****
 357" GSLGRVTPLMAAKIADRETGKALGPNQVGELCIKGPMVSKGYVNNVEATKEAIDDDGWLH

 420' SGDIAYWDEDEHFFIVDRLKSLIKYKGYQVAPAELESILLQHPNIFDAGVAGLPDDDAGE
       ***..*.******..*** *.****** ********.***..* * *..*.*.** .***
 417" SGDFGYYDEDEHFYVVDRYKELIKYKGSQVAPAELEEILLKNPCIRDVAVVGIPDLEAGE

 480' LPAAVVVLEHGKTMTEKEIVDYVASQVTTAKKLRGGVVFVDEVPKGLTGKLDARK-IREI
       **.* ** ..*...*.**. **.*..*. .* ***** ***..*...***.. .. ....
 477" LPSAFVVKQPGTEITAKEVYDYLAERVSHTKYLRGGVRFVDSIPRNVTGKITRKELLKQL

 539' LIKAKKGGKIAV
       *.**
 537" LVKAGG
```

```
1st Amino Acid Sequence
 File Name       : PpyLuc
 Sequence Size   : 550

2nd Amino Acid Sequence
 File Name       : ELuc
 Sequence Size   : 542

[47.8% / 540 aa]
   1' MEDAKNIKKGPAPFYPLEDGTAGEQLHKAMKRYALVPGTIAFTDAHIEVDITYAEYFEMS
       ** .**.  **.*.**.. **** *..*..... .*.*   *.  . ...*.*.*. .
   1" MEREKNVVYGPEPKHPLGNFTAGEMLYNALHKHSHIPQAI--LDVMGNESLSYQEFFDTT

  61' VRLAEAMKRYGLNTNHRIVVCSENSLQFFMPVLGALFIGVAVAPANDIYNERELLNSMGI
       *.*.......*  . *. . . *.**. . **.*...* .**..***.*. *   ** .  **
  59" VKLGQSLQNCGYKMNDVVSICAENNKRFFIPIISAWYIGMVVAPVNEDYIPDELCKVTGI

 121' SQPTVVFVSKKGLQKILNVQKKLPIIQKIIIMDSKTDYQGFQSMYTFVTSHLPPGFNEYD
       *.*..**...*.*.*.*.*...   *..***.**...   * .*...*....    ....
 119" SKPILVFTTRKILPKVLEVKDRTNYIKRIIILDSEENLLGCESLHNFMSRYSDNNLQT--

 181' FVPESFDRDKTIALIMNSSGSTGLPKGVALPHRTACVRFSHARDPIFGNQIIPDTAILSV
       * *  .*. . .* *. ***.*******   .**. ***..**.**  *.*.**....*.
 177" FKPLHYDPVDQVAAILCSSGTTGLPKGVMQTHRNICVRLTHASDPRVGTQLIPGVSVLAY

 241' VPFHHGFGMFTTLGYLICGFRVVLMYRFEEELFLRSLQDYKIQSALLVPTLFSFFAKSTL
       .** *.**. ..***.. *.***.. **..*.**...***...*.. **. . *..** *
 237" LPFFHAFGFSINLGYFMVGLRVVMLRRFNQEVFLKAIQDYEVRSVINVPSTILFLSKSPL

 301' IDKYDLSNLHEIASGGAPLSKEVGEAVAKRFHLPGIRQGYGLTETTSAILITPEGDDKPG
       .******.* *. . *.***.***.* ..**..***** ******.***  . *  ... *.*
 297" VDKYDLSTLAELCCGAAPLAKEVAEIAVKRLNLPGIRCGYGLTESTSANIHTLHNEFKSG

 361' AVGKVVPFFEAKVVDLDTGKTLGVNQRGELCVRGPMIMSGYVNNPEATNALIDKDGWLHS
       ..***.*...**..* .**..** ** ****..***. .******.**.. **.******
 357" SLGKVTPYMAAKIIDRNTGEALGPNQVGELCIWGPMVTKGYVNNPQATKEAIDDDGWLHS

 421' GDIAYWDEDEHFFIVDRLKSLIKYKGYQVAPAELESILLQHPNIFDAGVAGLPDDDAGEL
       **..*.****.*.**** *.***********.***.******.* *..*.*.** .****
 417" GDFGYYDEDEYFYIVDRYKELIKYKGYQVAPVELEEILLQHPGIRDVAVVGIPDIEAGEL

 481' PAAVVVLEHGKTMTEKEIVDYVASQVTTAKKLRGGVVFVDEVPKGLTGKLDARKIREILI
       **. ** ..*   .*.**. *..* .*. . * ***** ***..*...***.. ...** *.
 477" PAGFVVKQPGAQLTAKEVYDFLAQRVSHSKYLRGGVRFVDSIPRNVTGKISRKELREALM

 541' KAKKGGKIAV

 537" EKASKL
```

```
1st Amino Acid Sequence
 File Name       : ELuc
 Sequence Size   : 542

2nd Amino Acid Sequence
 File Name       : CBR
 Sequence Size   : 542

[81.3% / 540 aa]
   1'  MEREKNVVYGPEPKHPLGNFTAGEMLYNALHKHSHIPQAILDVMGNESLSYQEFFDTTV
       ..*****.***** ***...******..**.****.***..**.*.*****.***..**
   1" MVKREKNVIYGPEPLHPLEDLTAGEMLFRALRKHSHLPQALVDVVGDESLSYKEFFEATV

  60' KLGQSLQNCGYKMNDVVSICAENNKRFFIPIISAWYIGMVVAPVNEDYIPDELCKVTGIS
       *.***.***************.*****.*.******.******.********* ***
  61" LLAQSLHNCGYKMNDVVSICAENNTRFFIPVIAAWYIGMIVAPVNESYIPDELCKVMGIS

 120' KPILVFTTRKILPKVLEVKDRTNYIKRIIILDSEENLLGCESLHNFMSRYSDNNLQTFKP
       ** .****..** *****..***.*********. **. *****.**.*****.*...***
 121" KPQIVFTTKNILNKVLEVQSRTNFIKRIIILDTVENIHGCESLPNFISRYSDGNIANFKP

 180' LHYDPVDQVAAILCSSGTTGLPKGVMQTHRNICVRLTHASDPRVGTQLIPGVSVLAYLPF
       **.***.*********************.******.** *** ********.**.****
 181" LHFDPVEQVAAILCSSGTTGLPKGVMQTHQNICVRLIHALDPRYGTQLIPGVTVLVYLPF

 240' FHAFGFSINLGYFMVGLRVVMLRRFNQEVFLKAIQDYEVRSVINVPSTILFLSKSPLVDK
       ****** *.**********.*.***.**.*****************.************
 241" FHAFGFHITLGYFMVGLRVIMFRRFDQEAFLKAIQDYEVRSVINVPSVILFLSKSPLVDK

 300' YDLSTLAELCCGAAPLAKEVAEIAVKRLNLPGIRCGYGLTESTSANIHTLHNEFKSGSLG
       ****.* ***************.*.***********.******** *.** .********
 301" YDLSSLRELCCGAAPLAKEVAEVAAKRLNLPGIRCGFGLTESTSAIIQTLGDEFKSGSLG

 360' KVTPYMAAKIIDRNTGEALGPNQVGELCIWGPMVTKGYVNNPQATKEAIDDDGWLHSGDF
       .*** ***** **.**.************ ****.******  .*****************
 361" RVTPLMAAKIADRETGKALGPNQVGELCIKGPMVSKGYVNNVEATKEAIDDDGWLHSGDF

 420' GYYDEDEYFYIVDRYKELIKYKGYQVAPVELEEILLQHPGIRDVAVVGIPDIEAGELPAG
       *******.**.************ ****.*******..* ***********.******..
 421" GYYDEDEHFYVVDRYKELIKYKGSQVAPAELEEILLKNPCIRDVAVVGIPDLEAGELPSA

 480' FVVKQPGAQLTAKEVYDFLAQRVSHSKYLRGGVRFVDSIPRNVTGKISRKELREALMEKA
       *******...*******.**.****.********************.****  ..*. **
 481" FVVKQPGTEITAKEVYDYLAERVSHTKYLRGGVRFVDSIPRNVTGKITRKELLKQLLVKA

 540' SKL
       .
 541" GG
```