## a) Biology Ser

His

TCC CA- --G

TCC CAT

TCC CAT

TCC CAG

Gln

His

Ser

Ser

Lys

AAG

Ser GIn Glv Arg Ser Pro Asp Ala Thr b) PRANK (codon) and MACSE Ser His Lys Gly Arg Ser Ala Asp AAG GGG CGG TCC CAT TCG GAC GCC D: TCC CAG | ---GGG CGG TCC ICCG I GAC GCC ACG Ser Gln Gly Ser Pro Asp Ala Thr Arg c) MAFFT and Clustal $\Omega$ Ser His Lys Gly Arg Ser Asp Ala

CGG

TCC

Ser

Arg

Arg

**TCG** 

Pro

Ser

CGG T-- -CG GAC

CGG TCC CCG GAC

Pro

Ser

GAC

Asp

CCG GAC GCC ACG

GCC

Ala

Asp

Asp

Thr

Ala

**GCC** 

Ala

GCC I

ACG

Thr

GGG

CGG

Arg

Gly

GGG

GGG

Gly

AAG

GGG

Glv

Lys

--G

Gln

Gly Arg

Ser

CCG

GGG CGG [T-- -CG]

GGG CGG TCC

Ala

GCC

GCC

**ACG** 

Asp

GAC

GAC

## d) COATi

D·

## Ser TCC CAT AAG

TCC CA-