Common Cysteine Backbone

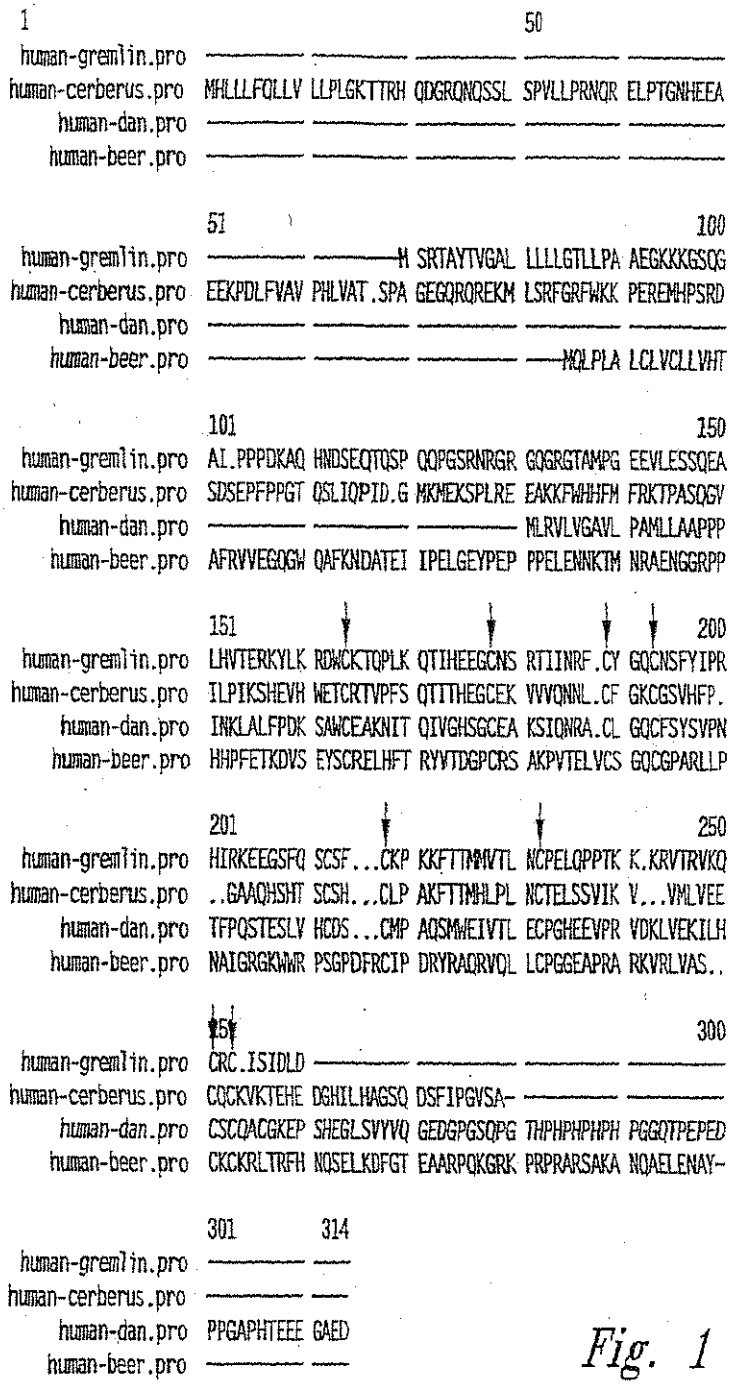


Fig. 1

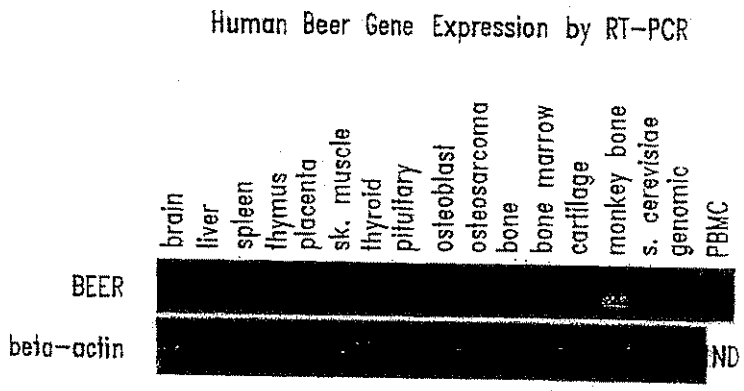
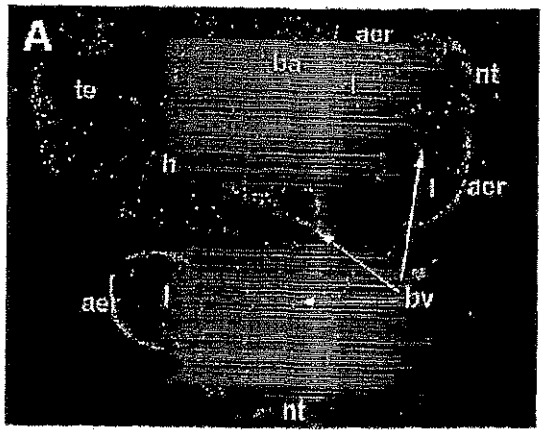

Human Beer Gene Expression by RT-PCR
brain
liver
spleen
thymus
placenta
sk. muscle
thyroid
pituitary
osteoblast
osteosarcoma
bone
bone marrow
cartilage
monkey bone
s. cerevisiae
genomic
PBMC
BEER
beta-actin
ND

Fig. 2

RNA In Situ Hybridization of Mouse Embryo Sections

Fig. 3A



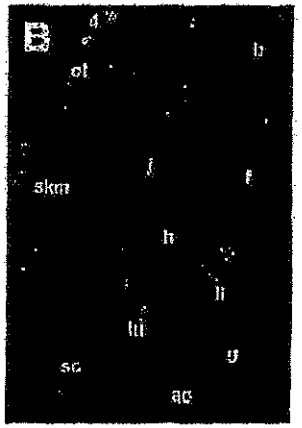


Fig. 3B

Fig. 3C

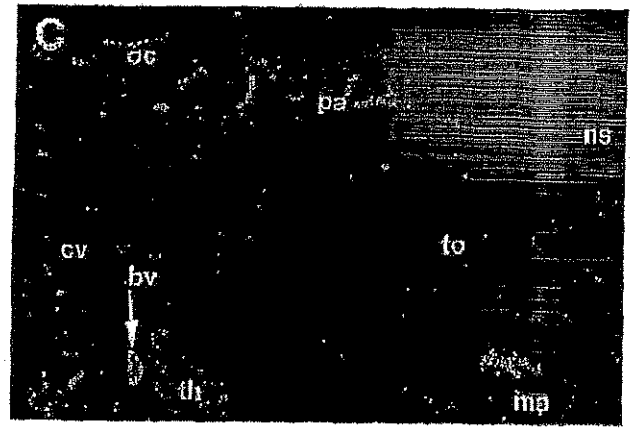
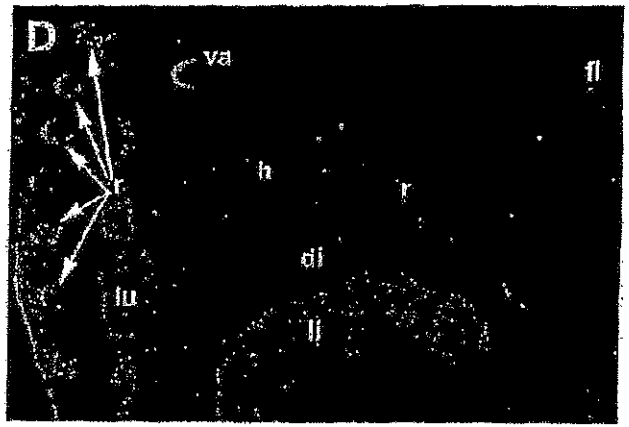


Fig. 3D



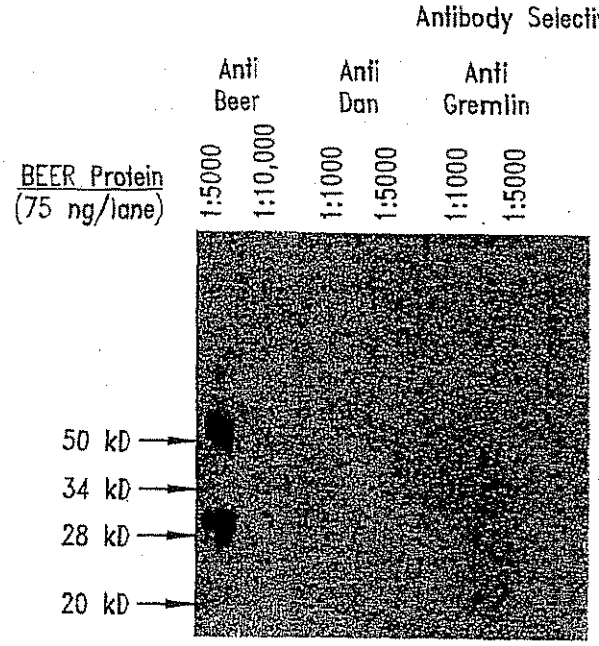


Fig. 4A

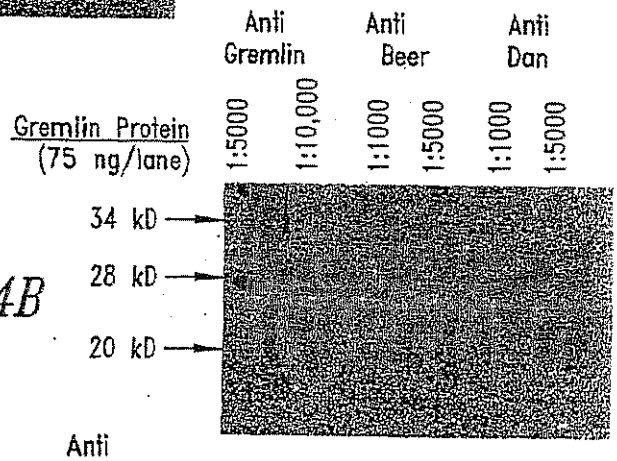


Fig. 4B

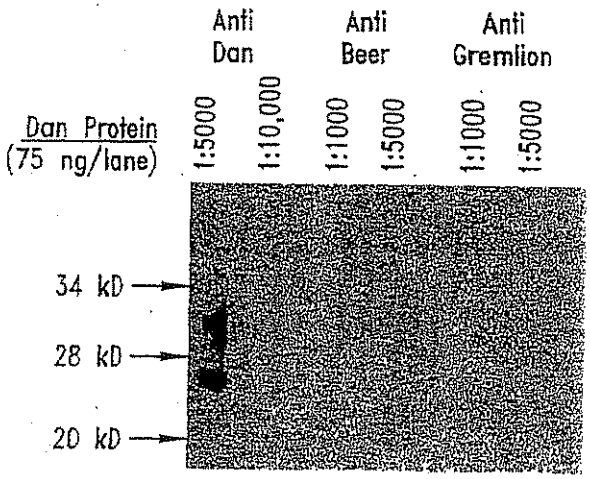


Fig. 4C

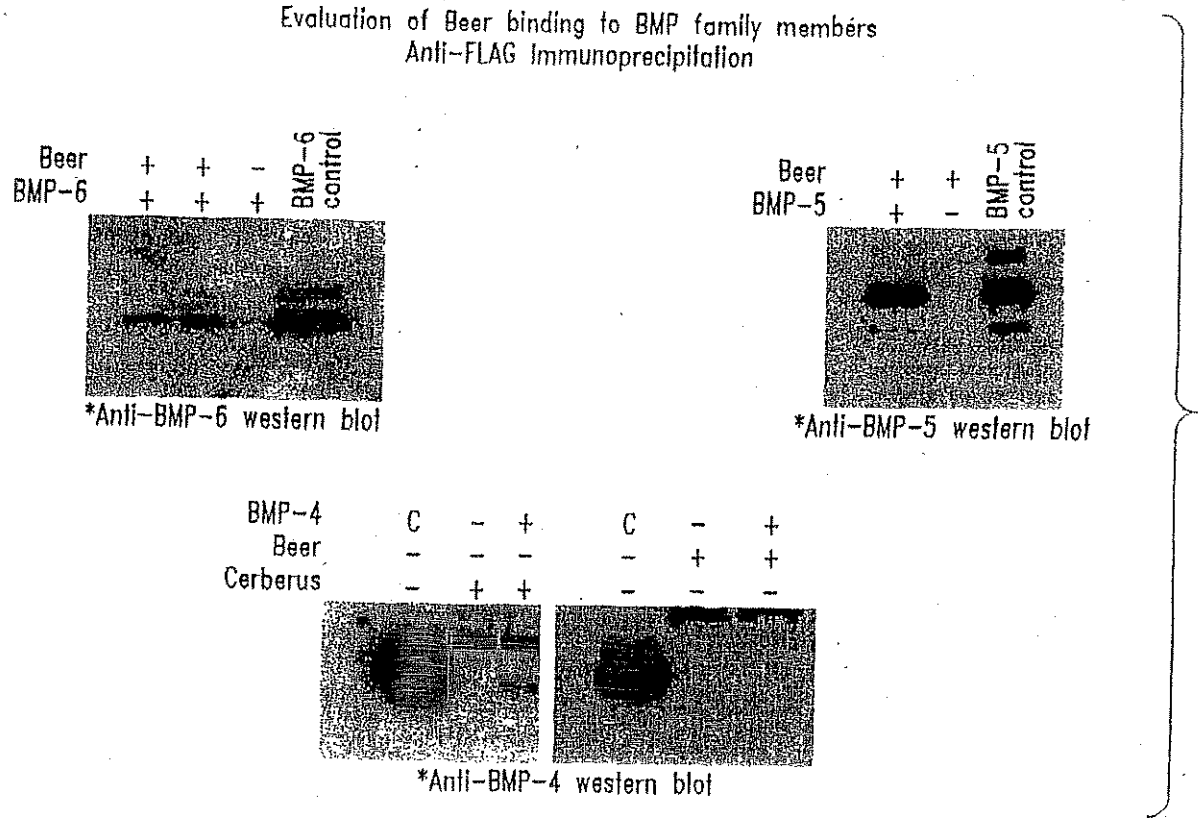

Evaluation of Beer binding to BMP family members
Anti-FLAG Immunoprecipitation
Beer + + -
BMP-6 + + +
BMP-6 control
*Anti-BMP-6 western blot
Beer + +
BMP-5 + -
BMP-5 control
*Anti-BMP-5 western blot
BMP-4 C - + C - +
Beer - - - - + +
Cerberus - + + - - -
*Anti-BMP-4 western blot

Fig. 5

BMP-5/Beer Dissociation Constant Characterization

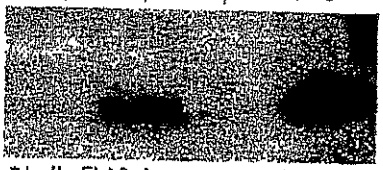
.75 1.5 7.5 15 30 60 120 nM BMP-5



*Anti-FLAG *immunoprecipitation*
*Anti-BMP-5 western blot

Ionic Disruption of BMP-5/Beer Binding

NaCl(mM)	500	150	150	BMP-5 western control
Beer	+	+	–	
BMP-5	+	+	+	



*Anti-FLAG immunoprecipitation
*Anti-BMP-5 western blot

Fig. 6

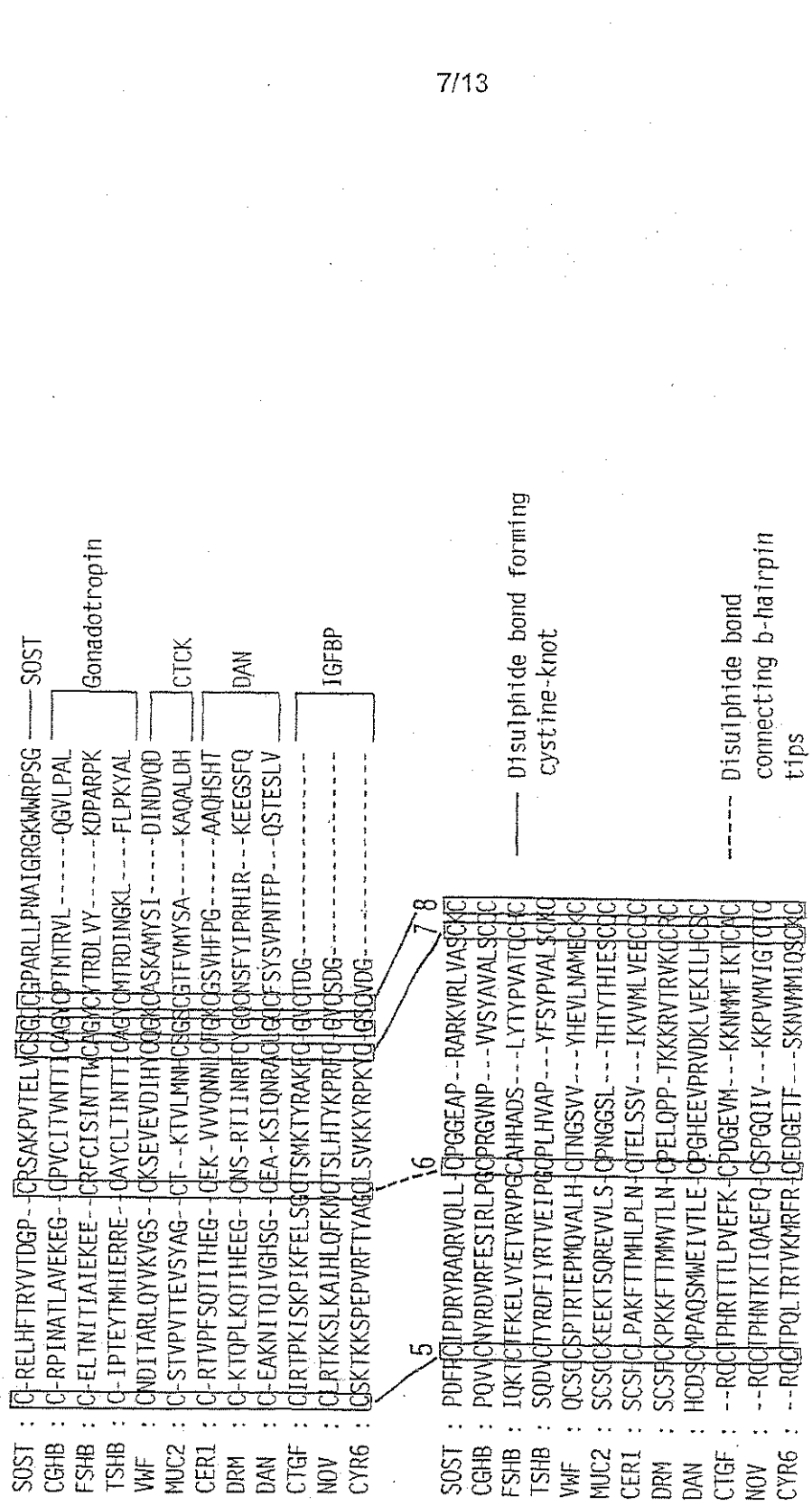

SOST
Gonadotropin
CTCK
DAN
IGFBP
Disulphide bond forming cystine-knot
Disulphide bond connecting b-hairpin tips

FIG. 7

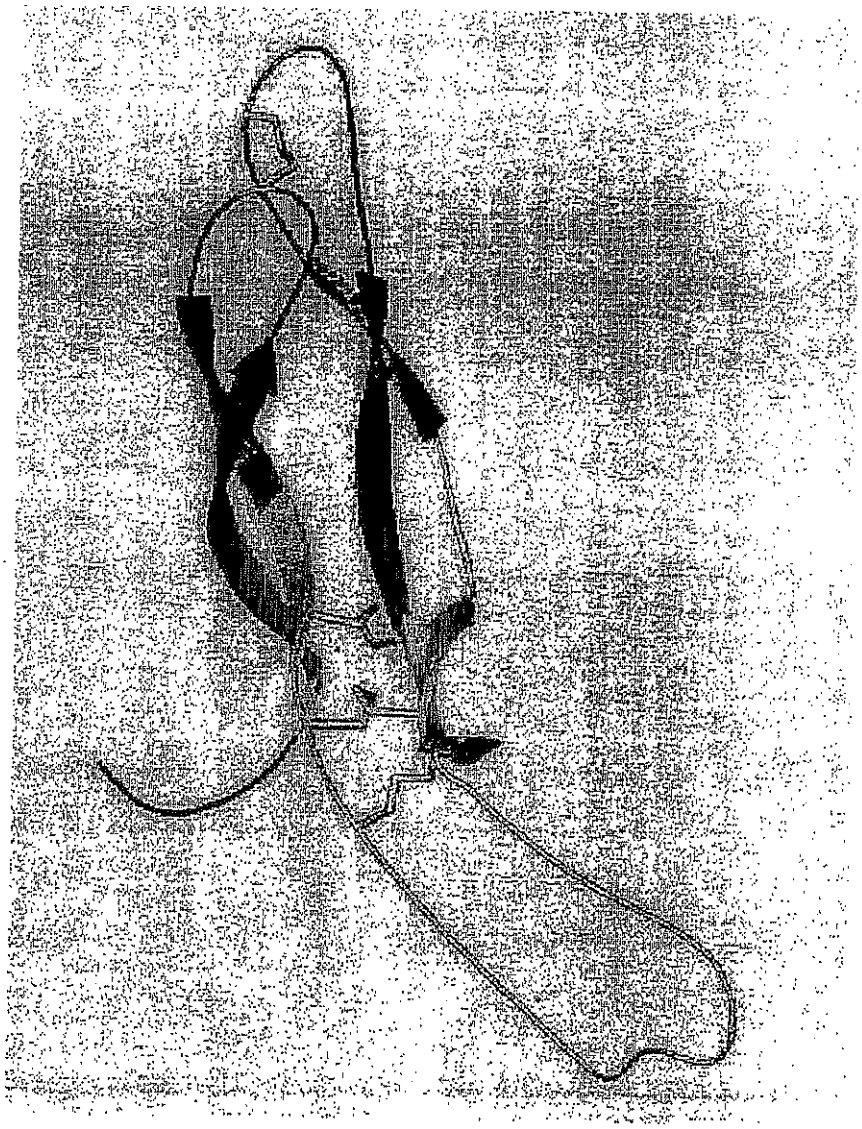


FIG. 8

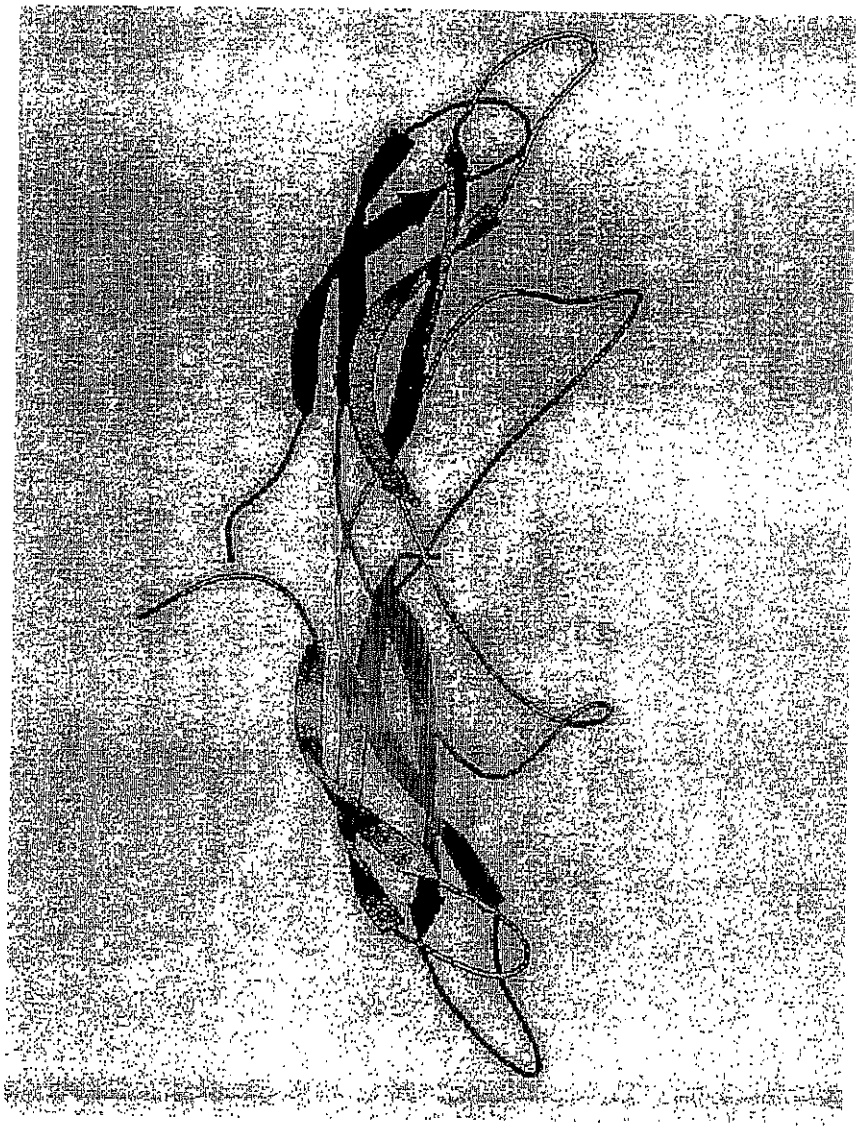


FIG. 9

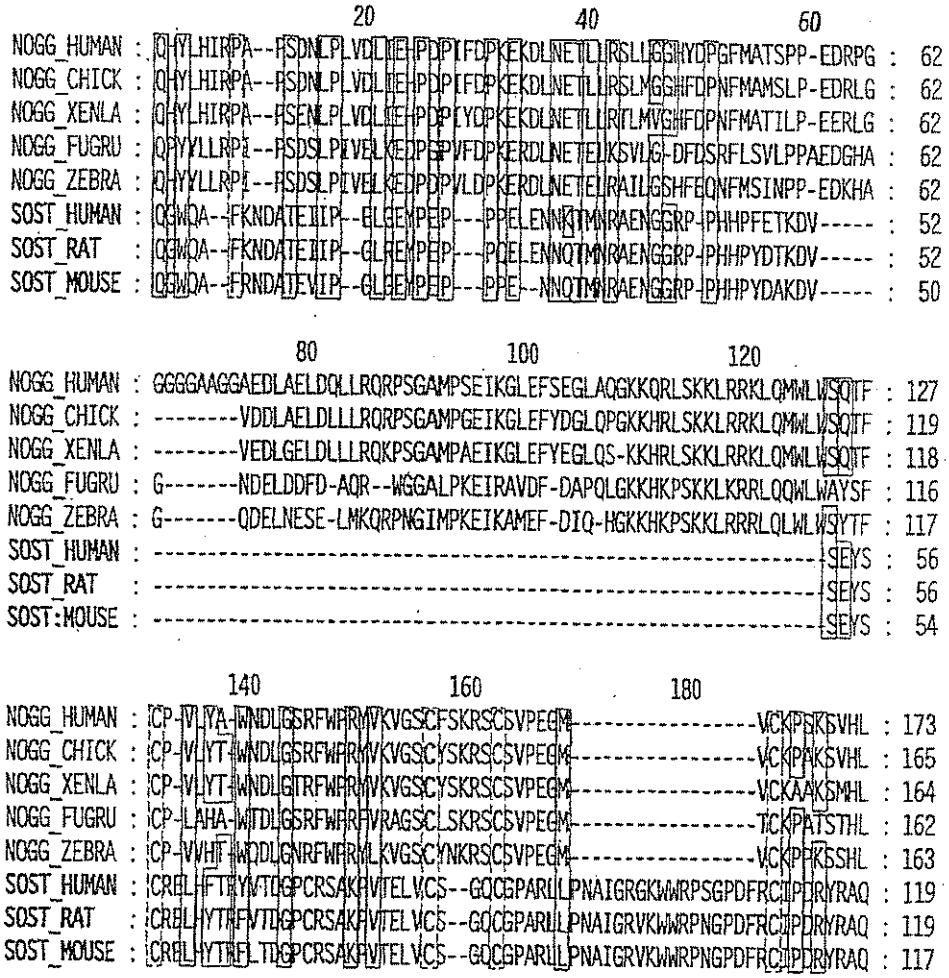


FIG. 10A

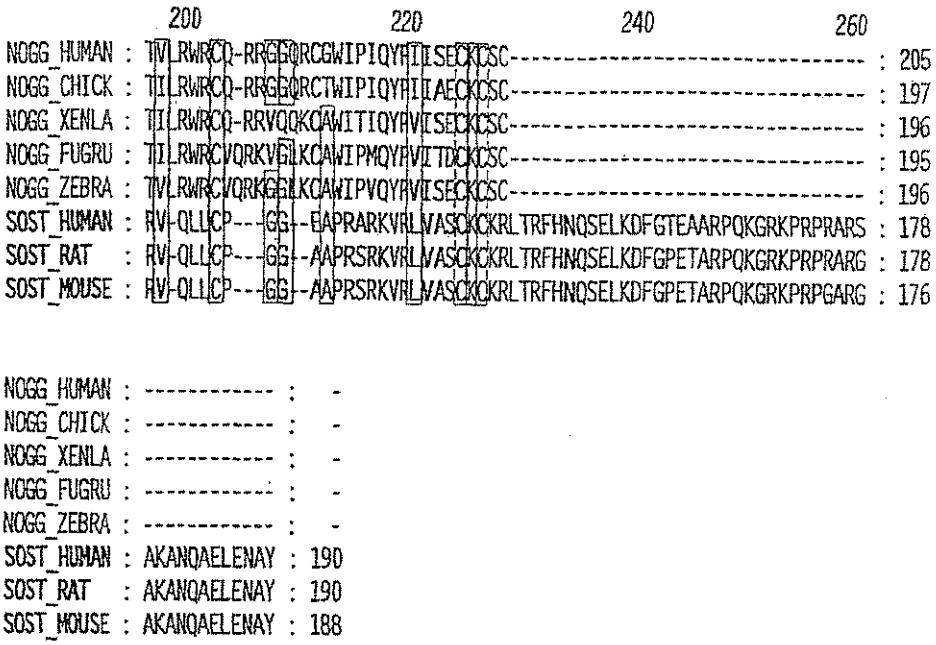

200
220
240
260
NOGG_HUMAN : TVLRWRCQ-RPGGQRCGWIPIQYPIISECKCSC---------- : 205
NOGG_CHICK : TILRWRCQ-RPGGQRCTWIPIQYPIIAECKCSC---------- : 197
NOGG_XENLA : TILRWRCQ-RRVQQKCAWITIQYPVISECKCSC---------- : 196
NOGG_FUGRU : TILRWRCVQRKVGLKCAWIPMQYPVITDCKCSC---------- : 195
NOGG_ZEBRA : TVLRWRCVQRKGGLKCAWIPVQYPVISECKCSC---------- : 196
SOST_HUMAN : RV-QLLCP---GG--EAPRARKVRLVASCKCKRLTRFHNQSELKDFGTEAARPQKGRKPRPRARS : 178
SOST_RAT : RV-QLLCP---GG--AAPRSRKVRLVASCKCKRLTRFHNQSELKDFGPETARPQKGRKPRPRARG : 178
SOST_MOUSE : RV-QLLCP---GG--AAPRSRKVRLVASCKCKRLTRFHNQSELKDFGPETARPQKGRKPRPGARG : 176
NOGG_HUMAN : ---------- : -
NOGG_CHICK : ---------- : -
NOGG_XENLA : ---------- : -
NOGG_FUGRU : ---------- : -
NOGG_ZEBRA : ---------- : -
SOST_HUMAN : AKANQAELENAY : 190
SOST_RAT : AKANQAELENAY : 190
SOST_MOUSE : AKANQAELENAY : 188

FIG. 10B

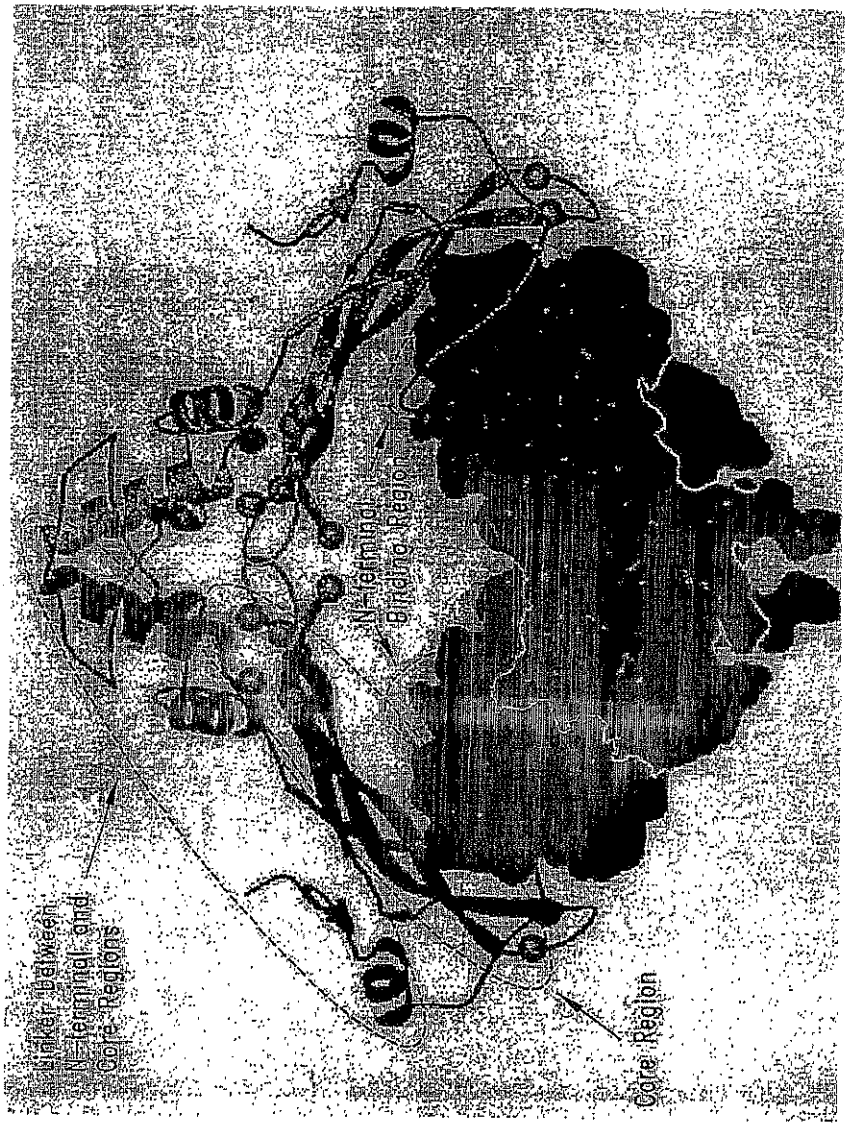

Linker between
N-terminal and
Core Regions
N-terminal
Binding Region
Core Region

FIG. 11


Pro-connected turn
Anchor turn connecting the linker
Phe inserted into the hydrophobic pocket

FIG. 12