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Trent et al.

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(54) **ORDERED BIOLOGICAL
NANOSTRUCTURES FORMED FROM
CHAPERONIN POLYPEPTIDES**

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C07K 14/00 (2006.01)

A61K 38/00 (2006.01)

(52) **U.S. Cl.** **530/350; 514/2; 977/773**

(58) **Field of Classification Search** None
See application file for complete search history.

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(57) **ABSTRACT**

The following application relates to nanotemplates, nanostructures, nanoarrays and nanodevices formed from wild-type and mutated chaperonin polypeptides, methods of producing such compositions, methods of using such compositions and particular chaperonin polypeptides that can be utilized in producing such compositions.

17 Claims, 36 Drawing Sheets

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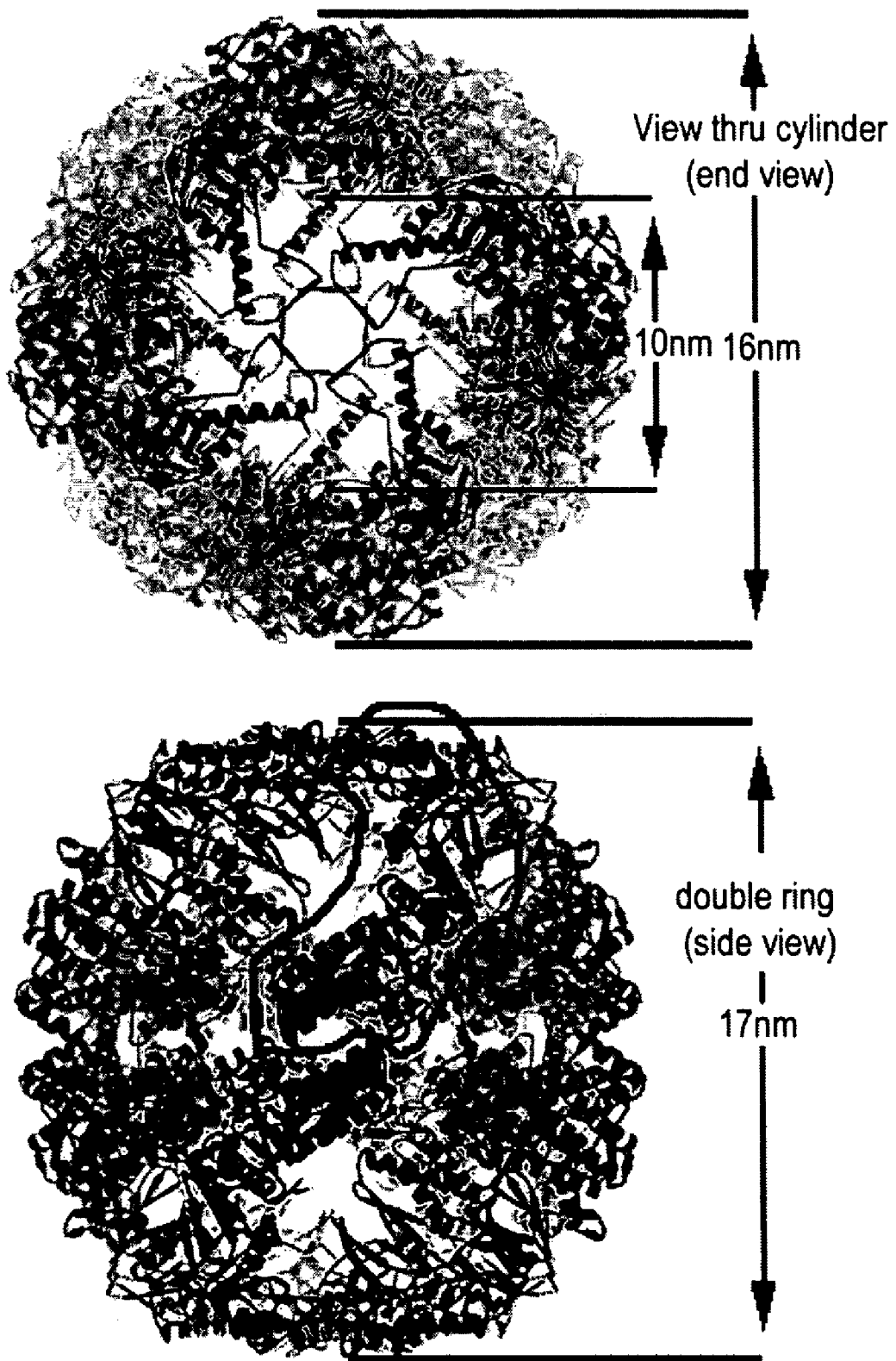
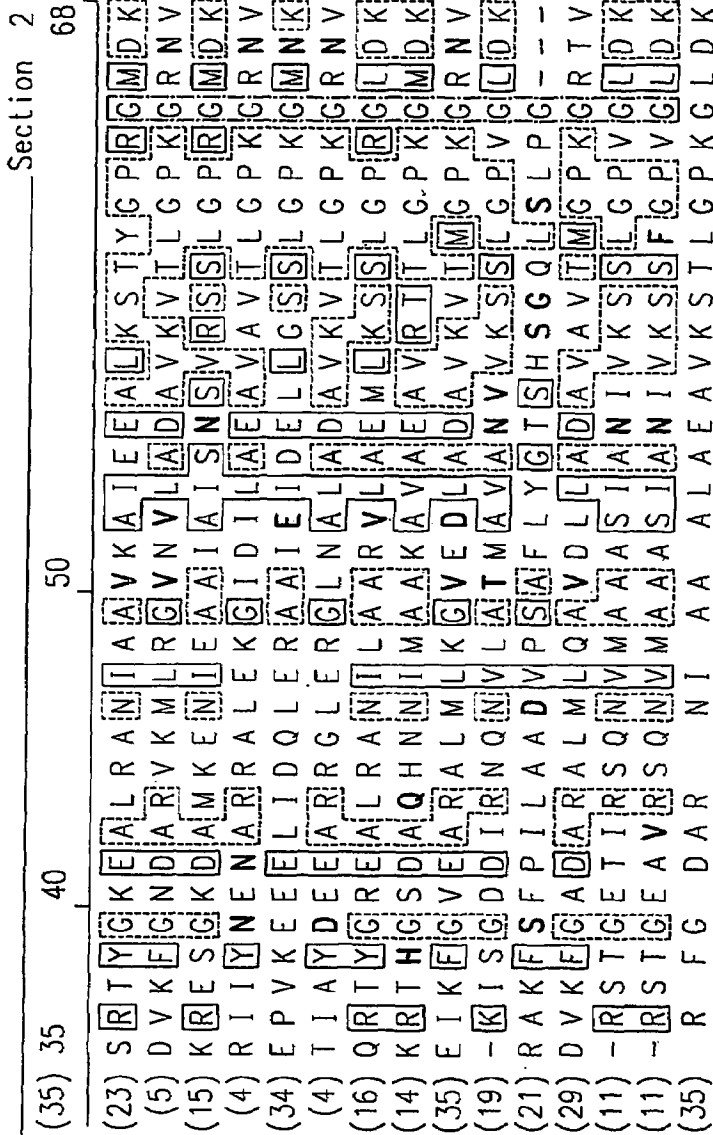


FIG.1 Prior Art



TF55 beta - *S. shibatae*
 GroEL - *E. coli*
 thermosome beta - *T. acidophilum*
 cyanobacterial HSP60 synchococcus
 HSP60-4 *M. acetivorans*
 HSP65 - *M. tuberculosis*
 thermosome alpha - *A. pernix*
 thermosome alpha - *M. mazei*
 mitochondrial HSP60 - *A. thaliana*
 TCP1 alpha - YEAST
 mitochondrial HSP60 - HUMAN
 mitochondrial HSP60 - MOUSE
 TCP1 alpha - HUMAN
 TCP1 alpha - MOUSE
 Consensus

LEGEND:
 [G] IDENTICAL RESIDUES EXA.
 [G] BLOCK OF SIMILAR EXA.
 [G] CONSERVATIVE EXA.
 G WEAKLY SIMILAR EXA.
 G NON-SIMILAR EXA.

FIG.2B

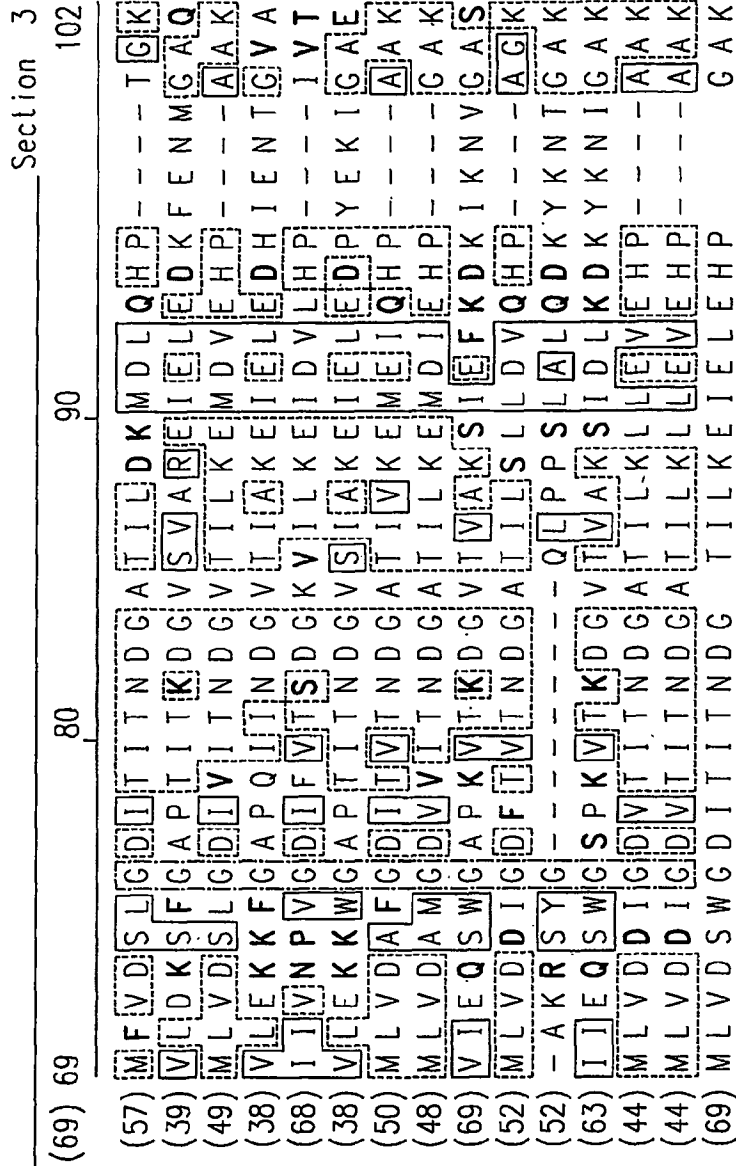


FIG.2C

LEGEND:

- G IDENTICAL RESIDUES EXA.
- G BLOCK OF SIMILAR EXA.
- G CONSERVATIVE EXA.
- G** WEAKLY SIMILAR EXA.
- G NON-SIMILAR EXA.

Section 4

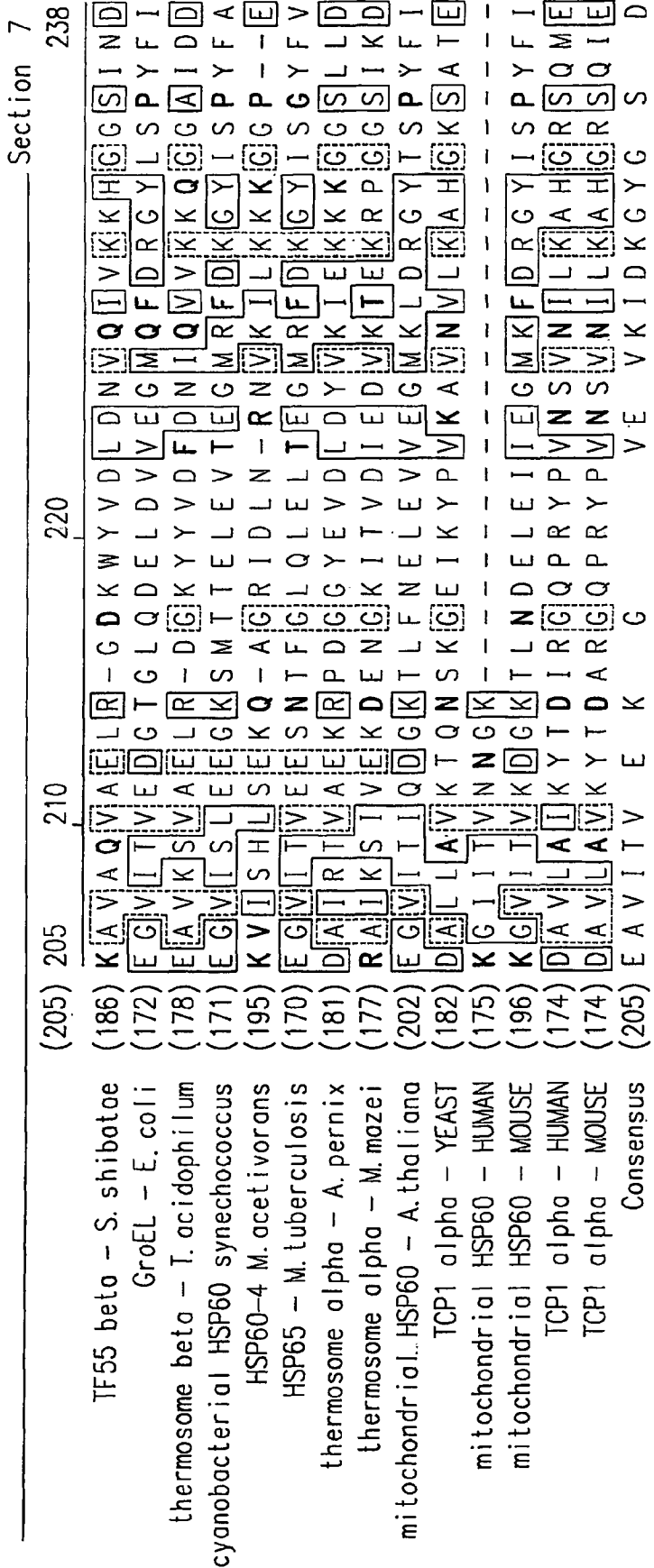
(103)	103	110	120	136
(87)	L V Q I A K G Q D E E T A D G T K T A V I L A G E L A K A E D L			
(73)	M V K E V A S K A N D A A G C D G T T T A T V L A Q A I I T E G L K A			
(79)	M M V E V S K T Q D S F V G D G T T T A V I I A G C L Q Q A Q G L			
(72)	L I R Q A A S K T N D A A G D G T T T A T V L A H A V V K E G L R N			
(98)	S L K L A E S M D K A C G D G T T A V I F A S N L I I K N A V R L			
(72)	L V K E V A K K T I D V A G D G T T A T V L A Q A L V R E G L R N			
(80)	L V E V A K A Q D A E V G D G T T A V V L A G A L L E K A E K L			
(78)	M I V E V A K T Q D A E V G D G T T A V V L A G E L L T K A E D L			
(103)	L V K Q V A N A T N D V A G D G T T C A T V L T R A I F A E G C K S			
(82)	I L V E L A Q Q D R E I G D G T T S V I I A S E L L K R A N E L			
(76)	L V Q D V A N N T N E E A V D G T T V T A L A R S I A K E G F E K			
(97)	L V Q D V A N N T N E E A G D G T T S T V L A R S I A K E G F E K			
(74)	V L C E L A D L Q D K E E V G D G T T S V I I A A E L L K N A D E L			
(74)	V L C E L A D L Q D K E E V G D G T T S V I I A A E L L K N A D E L			
(103)	L L E V A Q D D E G D G T T A V V L A A L L K A E L			

TF55 beta - *S. shibatae*
 GroEL - *E. coli*
 thermosome beta - *T. acidophilum*
 cyanobacterial HSP60 *synecococcus*
 HSP60-4 *M. acetivorans*
 HSP65 - *M. tuberculosis*
 thermosome alpha - *A. pernix*
 thermosome alpha - *M. mazei*
 mitochondrial HSP60 - *A. thaliana*
 TCP1 alpha - YEAST
 mitochondrial HSP60 - HUMAN
 mitochondrial HSP60 - MOUSE
 TCP1 alpha - HUMAN
 TCP1 alpha - MOUSE
 Consensus

LEGEND:

- G IDENTICAL RESIDUES EXA.
- G BLOCK OF SIMILAR EXA.
- G CONSERVATIVE EXA.
- G WEAKLY SIMILAR EXA.
- G NON-SIMILAR EXA.

FIG.2D



LEGEND:

- G IDENTICAL RESIDUES EXA.
- G BLOCK OF SIMILAR EXA.
- G CONSERVATIVE EXA.
- G** WEAKLY SIMILAR EXA.
- G** NON-SIMILAR EXA.

FIG. 2G

