FIG. 1: HPV6/11 Antigen Design Workflow

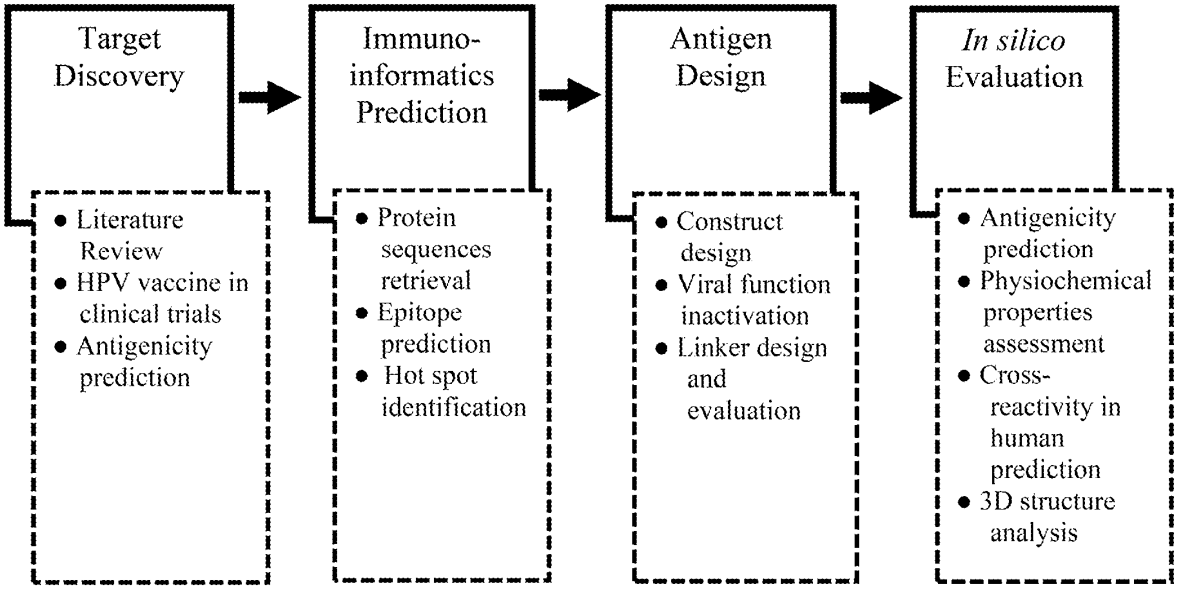
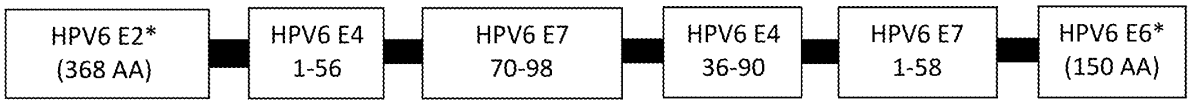


FIG. 2: A-C Design 1 Schematic Representation of HPV6/11 Antigens & 3D Models

2A) Design 1

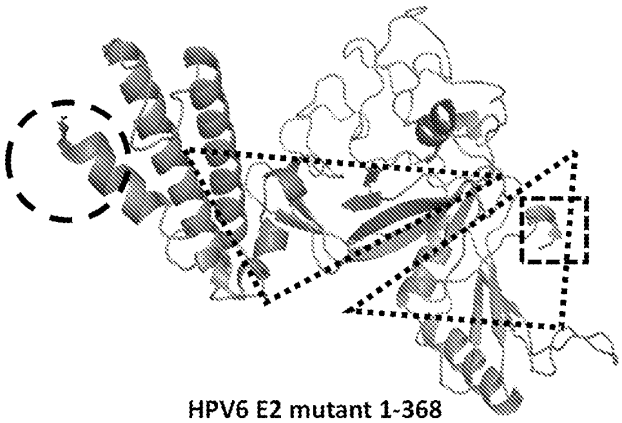


Rigid Linkers (i, ii, iii, iv, v) = ■

i) EAAAKEAAAK
ii) EAAAKEAAAK
iii) EAAAKEAAAK
iv) EAAAKEAAAK
v) EAAAKEAAAK

Homology models of each subunit of Design 1

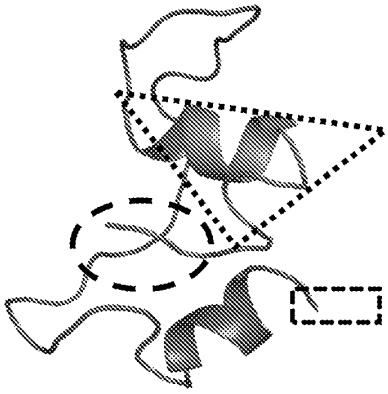
2B)



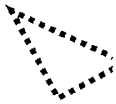
HPV6 E2 mutant 1-368

C-terminus is part of epitope region

2C)



HPV6 E4 1-56



= Predicted epitopes; dotted triangles



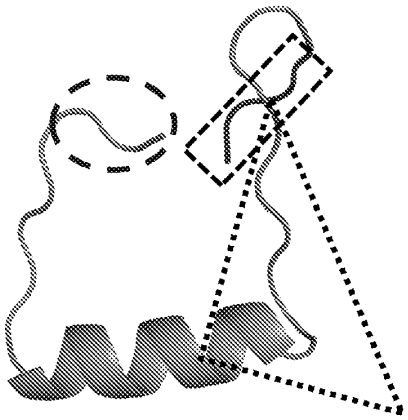
= N-terminus; dashed circles



= C-terminus; dashed boxes

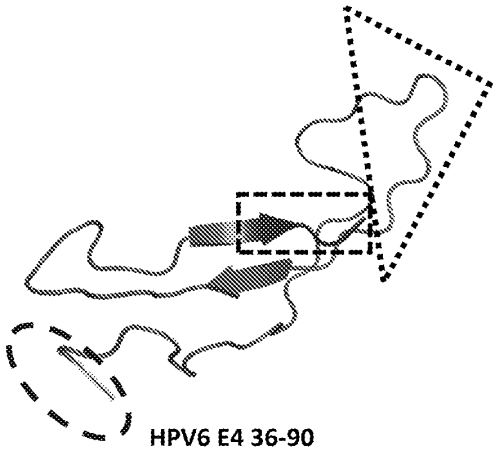
FIG. 2: D-G Design 1 Schematic Representation of HPV6/11 Antigens & 3D Models

2D)



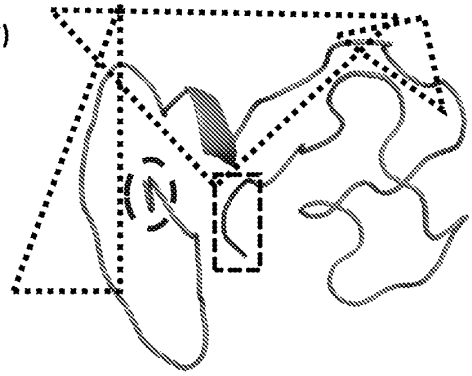
HPV6 E7 70-98

2E)



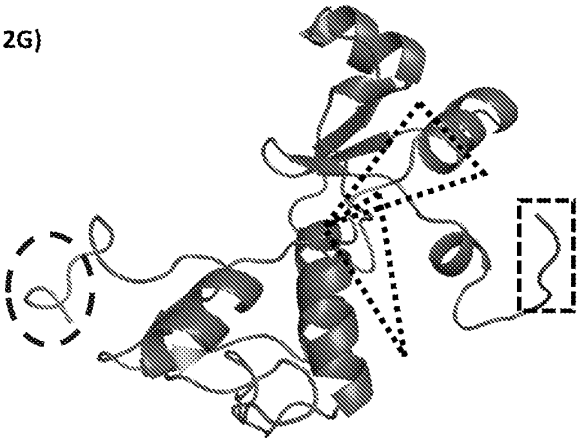
HPV6 E4 36-90

2F)



HPV6 E7 1-58

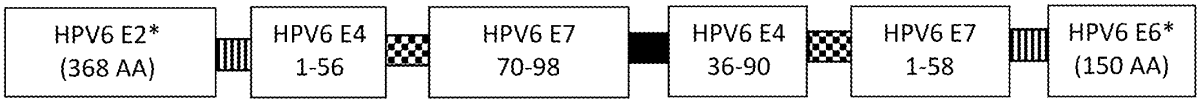
2G)



HPV6 E6 mutant

FIG. 3: A-B. Design 2 Schematic Representations of HPV6/11 Antigens

3A)



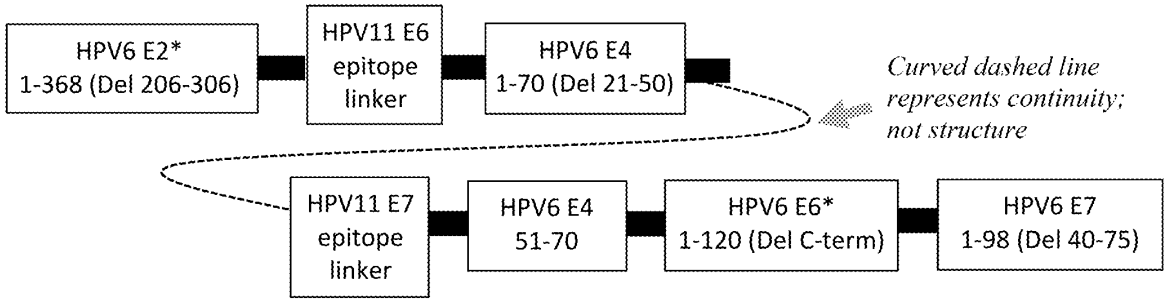
- Homology models of subunits are identical to Design 1

3B) Design 2 linkers

i) HCYEQLEDSSEDEVD = HPV11 E7 Epitope linker
ii) TAEIYAYAYKNLKVV = HPV11 E6 Epitope linker
iii) TAEIYSYAYKQLKVL = HPV6 E6 Epitope linker
iv) TAEIYAYAYKNLKVV = HPV11 E6 Epitope linker
v) HCYEQLEDSSEDEVD = HPV11 E7 Epitope linker

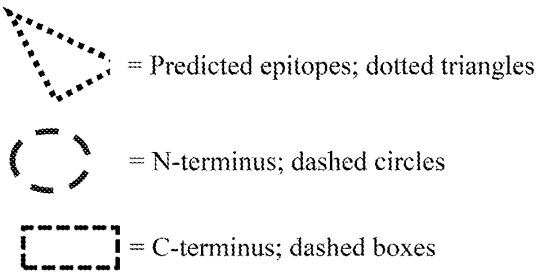
FIG. 4: A-C. Design 3 Schematic Representations of HPV6/11 Antigens & 3D Models

4A)

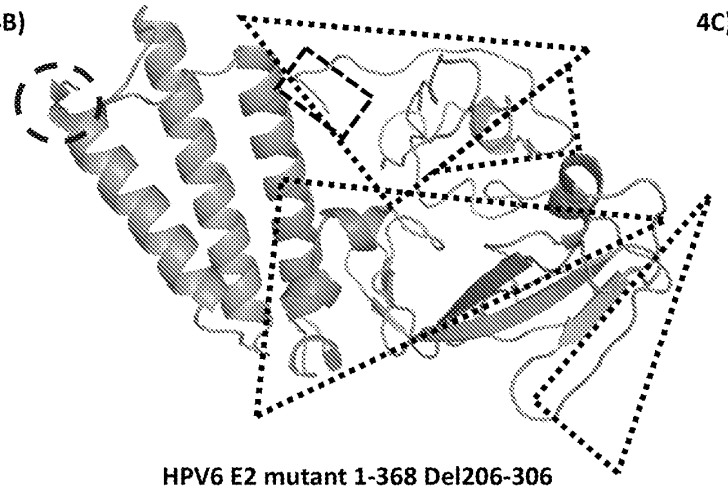


Rigid linkers: EAAAKEAAAK = ■ **i), ii), iii), iv), v), vi)**

Homology models of each subunit of Design 3



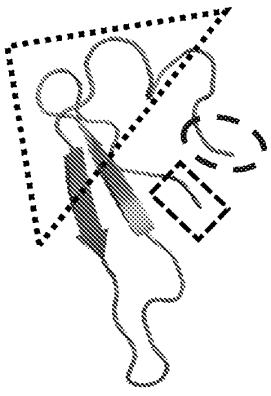
4B)



HPV6 E2 mutant 1-368 Del206-306

**C-terminus is part of epitope region*

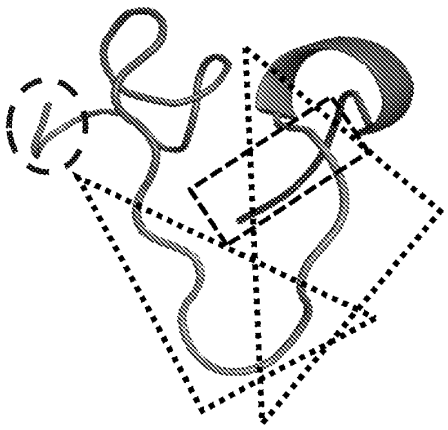
4C)



HPV6 E4 1-70 Del21-50

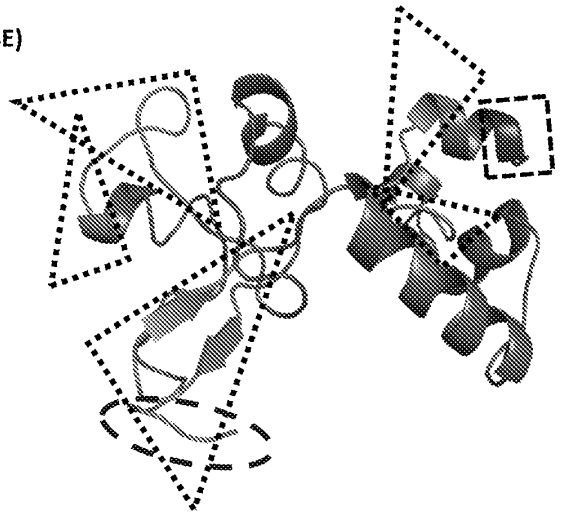
FIG. 4: D-F. Design 3 Schematic Representations of HPV6/11 Antigens & 3D Models

4D)



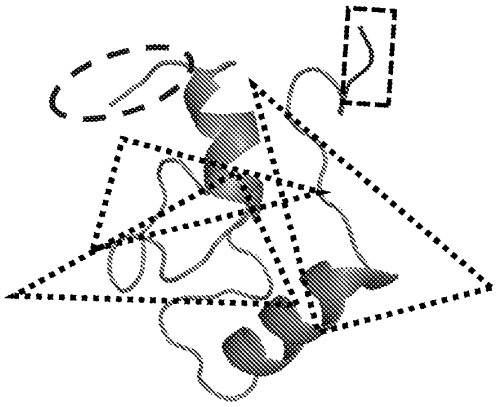
HPV6 E4 51-70

4E)



HPV6 E6 1-120 DelC-Term

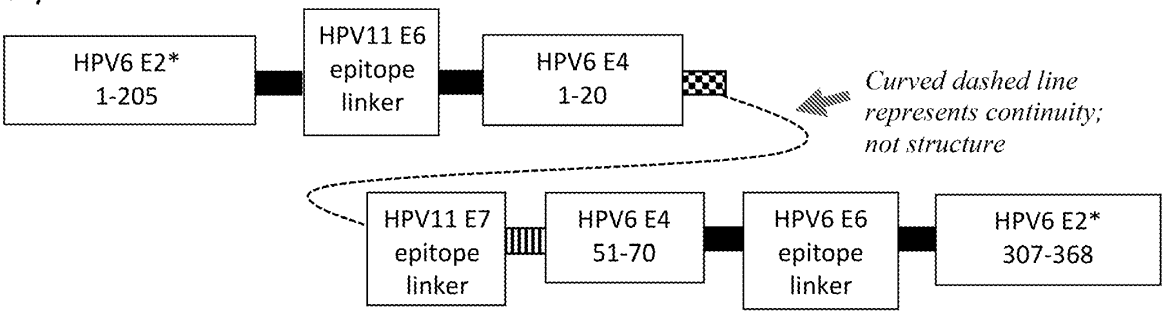
4F)



HPV6 E7 1-98 Del40-75

FIG. 5: A-C. Design 4 Schematic Representations of HPV6/11 Antigens & 3D Models

5A)

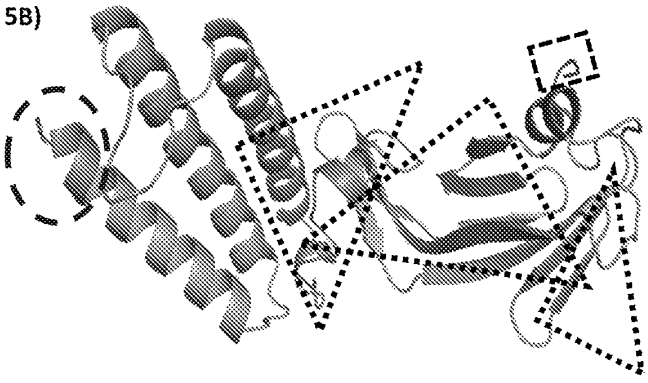


Design 4 linkers:

i) RTLEDLLMGV = HPV16 E7 Agonist enhancer
ii) RTLEDLLMGV = HPV16 E7 Agonist enhancer
iii) KLPQLCTEV = HPV16 E6 Agonist enhancer No.1
iv) QLYNKPLCDV = HPV16 E6 Agonist enhancer No.2
v) RTLEDLLMGV = HPV16 E7 Agonist enhancer
vi) RTLEDLLMGV = HPV16 E7 Agonist enhancer

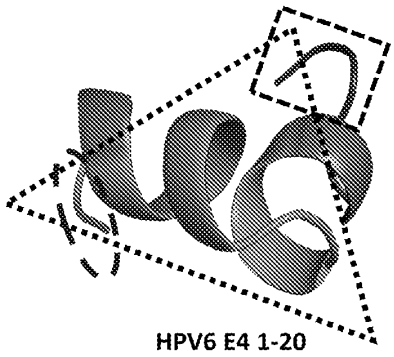
Homology models of each subunit of Design 4

5B)



HPV6 E2 mutant 1-205

5C)



HPV6 E4 1-20

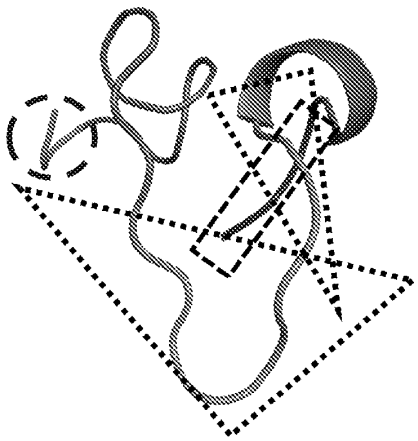
= Predicted epitopes; dotted triangles

= N-terminus; dashed circles

= C-terminus; dashed boxes

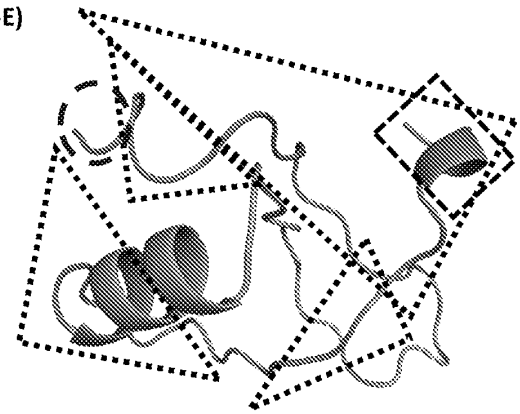
FIG. 5: D-E. Design 4 Schematic Representations of HPV6/11 Antigens & 3D Models

5D)



HPV6 E4 51-70

5E)

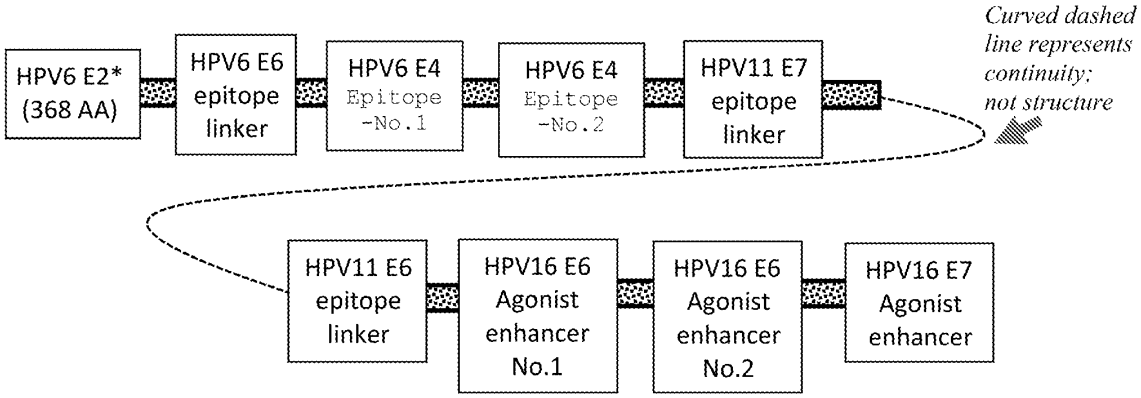


HPV6 E2 mutant 307-368

**C-terminus is part of epitope region*

FIG. 6: A-B. Design 5 Schematic Representations of HPV6/11 Antigens & 3D Models

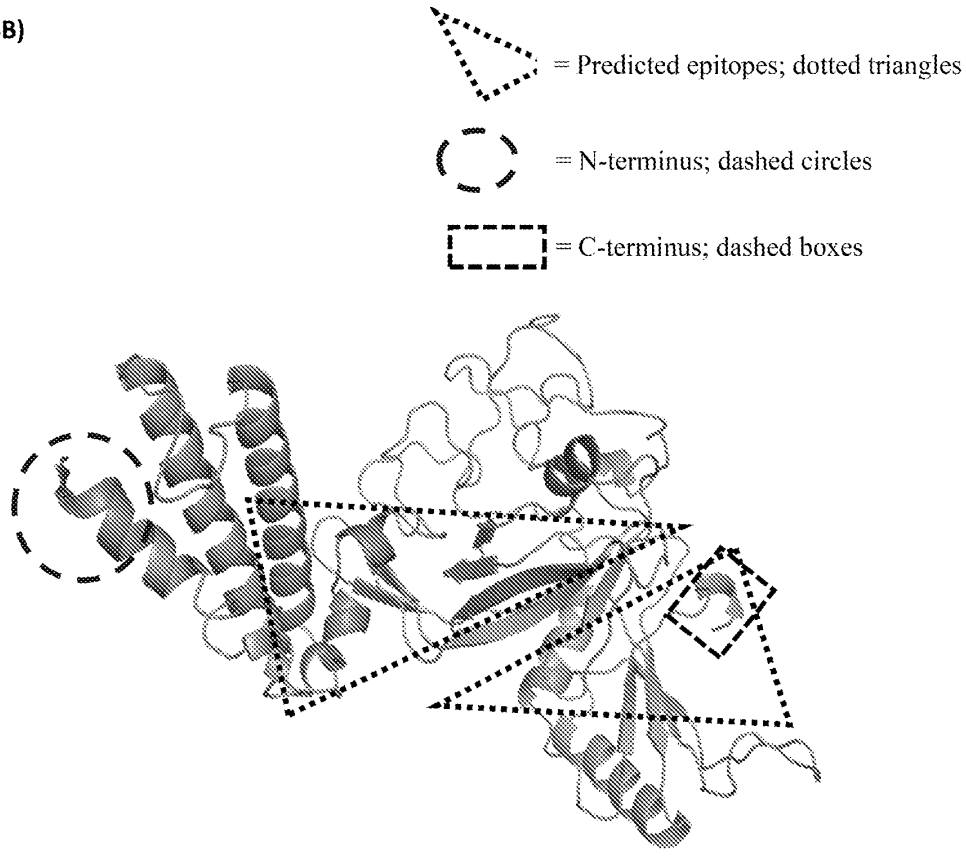
6A)



Design 5 linkers: `i)-viii)` `VSQTSKLTR (Flex linker)=`

Homology models of each subunit of Design 5

6B)



HPV6 E2 mutant 1-368

**C-terminus is part of epitope region*