LIST OF FIGURES

S.No.	Name of figure	Page No.
1.	Phenomenon showing atherosclerosis progression	3
2.	Difference in normal and atherosclerotic condition of blood vessel	4
3.	Mechanism of infectious agents in Atherosclerosis	5
4.	Approaches for vaccine development.	9
5.	BLAST results of Porphyromonas gingivalis ATCC33277	15
6.	The similarity searches against Porphyromonas gingivalis ATCC33277	15
7.	BLAST results of Porphyromonas gingivalis W83	16
8.	BLAST results of Porphyromonas gingivalis TDC60	16
9.	Phylogenetic Analysis of different strains of Porphyromonas gingivalis	16
10.	Conserved Domains of TG2	17
11.	Conserved domains with query sequence and four other hits.	17
12.	Phyre2 result-predicted 3D structure	18
13.	Results of Phyre2	18
14.	Binding sites of TG2 protein	19
15.	Visualisation of 3D predicted structure of TG2 using PYMOL	20
16.	Sequence submission for B-cell epitope prediction by ABCpred	20
17.	Predicted B-cell epitope by ABCpred	21
18.	Screenshot of DiscoTope 2.0 server	21
19.	Screenshot of BepiPred 1.0 server	22
20.	Predicted epitopes in yellow peaks by BepiPred	22
21.	Predicted epitope stretches obtained from BepiPred	23
22.	Predicted epitopes in yellow peaks by Kolaskar and Tngaonkar antigenecity	23
23.	Predicted epitopes in yellow peaks by Karplus and Schulz Flexibility	24
24.	Resulted peptides and their scores obtained from Karplus and Schulz Flexibility	24
25.	Predicted epitopes in yellow peaks by Emini Surface Accessibility	24
26.	Resulted peptides and their lengths obtained by Emini Surface Accessibility	25
27.	Screenshot of NetMHC 3.4 Server	25

28.	Predicted peptides and their score by NetMHC	26
29.	Input sequence data for predicting HLA class I and II binders by Multipred2	27
30.	Predicted peptides are shown in yellow on the basis of their IC50 value	27
31.	Screenshot of CTLPred epitope prediction tool	28
32.	Predicted peptides and their threshold value obtained from CTLPred	28
33.	Screenshot of PrediVac	29
34.	Screenshot of Predivac-population coverage prediction tool	30
35.	Screenshot of TAPPred prediction tool	30
36.	Predicted sequence and their score obtained from TAPPred tool	31
37.	Screenshot of PAProc and predicted cleavage sites	32
38.	Predicted epitopes : the two yellow coloured are finally predicted epitopes	32
39.	Input sequence as arginin gingipains in Phyre2	33
40.	APLQYNPVTKTLRIYT (white in color) site on arginin gingipain protein	33
41.	SNLYSANFEYLIPANA(white in color) site on arginin gingipain protein	33

LIST OF TABLES

S.No.	Name of Table	Page No.
1.	All the information of retrieved bacterial strains	15
2.	Binding regions and their length	19
3	Peptide size and number of peptides obtained by ABCpred	21
4.	Sequences obtained from DiscoTope	22
5.	Selected peptides of length more than 10mer obtained from Emini Surface Accessibility	25
6.	Strong and weak binders HLA molecules obtained from NetMHC	26
7.	Number of peptides obtained for MHC class I and II	28
8.	Number of peptides obtained from different T-cell epitope prediction approaches from CTLPred	28
9.	T-cell epitopes which are lying in B cell predicted peptides	29
10.	Number of peptides obtained in different geographical regions	30
11.	Highlighted regions as peptides containing TAP sites in T cell predicted peptides	31

LIST OF ABBREVATIONS

ANN	Artificial neural network
AR	Adenosine receptors
A2bAR	A2b adenosine receptor
CAD	Coronary arterial disease
CDD	Conserved domain database
CHD	Coronary heart disease
CVD	Cardiovascular disease
FN	Fibronectin
HDL	High density lipoprotein
HLA	Human leukocyte antigen
Kgp	Gingipain k
LDL	Low density lipoprotein
MHC	Major histocompatibility complex
RgpA	Arginine gingipain A
RgpB	Arginine gingipin B
TLR	Toll-like receptors
TG2	Transglutaminase2
SVM	Support vector machine