

Contents

Title	Page Number
List of Figures	i-ii
List of Tables	iii
List of Abbreviations	iv
Abstract	v
Aim and Objectives	vi
Introduction	1-2
<i>Chapter 1</i>	
Protein-Protein Interaction Network	3-7
1.1 Introduction	3
1.2 Methods to construct PPI	4
1.2.1 Experimental methods	4
1.2.2 Computational methods	5
<i>Chapter 2</i>	
Herpes Simplex Virus-1	8-12
2.1 Introduction	8
2.2 Viral Structure	8
2.3 Cellular Entry	9
2.4 Immune Evasion	11
2.5 Replication	11
<i>Chapter 3</i>	
Alzheimer	13-16
3.1 Introduction	13
3.2 Characteristics and Classification	13
3.3 Theories related to Alzheimer	14
3.4 Risk factors	14
3.5 Genetics	15
3.6 Mechanism	16

Chapter 4

Methodology	17-31
4.1 Primary phase or Data collection	19
4.1.1 Alzheimer data collection from AlzGene database	19
4.1.2 Collection of Virus-Host interactions	20
i. From Virus MINT	20
ii. From VirHostNet	21
iii. From Literature	23
4.2 Secondary phase or Protein-Protein Interaction Network construction	24
4.2.1 Network construction for Alzheimer	24
4.2.2 Network construction for Host-Virus	25
4.2.3 Network construction for HOST	26
4.2.4 Perform Intersection	27
4.3 Tertiary phase or Network Classification	28
4.3.1 Clustering of Intersection network	28
4.3.2 Pathway Analysis	28
4.3.3 Clustering based on GO	29
4.3.4 Sub-cellular localization classification	30

Chapter 5

Results	32-52
5.1 More positive association refers to strong link between Alzheimer and Gene/Protein	32
5.2 HSV-1 and Host (Human) data collection needs much attention	34
5.3 Protein-protein interaction network	35
i. For Alzheimer	36
ii. For Host-Virus	37
iii. For Host	38
5.4 Common interacting partners can solve the biological puzzle	39
5.5 Clustering of Intersection network	42
5.6 Pathway and Go based clustering can reveal hidden meaning of PPI network	44
i. KEGG pathway results	44

ii.	Gene Ontology Results	46
5.7	Subcellular localization classification	51
	Discussion	53-54
	Conclusion	55
	References	56-62
	Appendix	63-96