

TABLE OF CONTENTS

SHEET OF TITTLE.....	i
SHEET OF VALIDITY	ii
STATEMENT LETTER	iii
CURICULLUM VITAE	iv
PREFACE	v
TABLE OF CONTENTS	vii
LIST OF ABBREVIATIONS	x
LIST OF FIGURES.....	xii
LIST OF TABLES	xiv
LISTS OF SUPPLEMENTARIES.....	xv
ABSTRACT.....	xvi
CHAPTER I	1
1.1. INTRODUCTION.....	1
1.2. RESEARCH PROBLEM	5
1.3. STUDY OBJECTIVE	5
1.4. RESEARCH BENEFICIARIES	6
1.5. RESEARCH ORIGINALITY	7
CHAPTER 2.....	10
REVIEW OF LITERATURE	10
2.1. Subset T helper.....	10
2.1.1. Th1.....	12
2.1.2. Th17.....	14
2.1.3. Treg.....	15
2.1.4. Interaction Between Lymphocytes B and T with Dendritic Cells.	16
2.1.5. Th1 and Th17 Roles in SLE Pathobiology Mechanism	19
2.2. Systemic Lupus Erythematosus (SLE).....	20
2.2.1. Definition.....	20
2.2.2. Epidemiology	20
2.2.3. Etiology	22
2.2.4. Pathobiology.....	23

2.2.5. Molecular Analysis of SLE	25
2.2.6. Treatment.....	26
2.3. MSCs.....	28
2.3.1. Definition.....	28
2.3.2. Source of MSCs.....	29
2.3.3. Mechanism of Action	29
2.3.4. Immunomodulatory Effects of MSCs	32
2.4. The Role of MSCs in Regulating Th1 and Th17 in SLE	38
2.5. Theoretical Framework	42
2.6. Conceptual Framework	42
2.7. Hypothesis	43
2.7.1. Major Hypothesis	43
2.7.2. Minor hypothesis	43
CHAPTER III.....	44
3.1. Research Scope and Limitation.....	44
3.2. Research Design	44
3.3. Research Time and Place	45
3.4. Study Population	45
3.5. Study Sample.....	45
3.6. Sample Size	46
3.7. Research Variable.....	47
3.7.1. Independent Variable.....	47
3.7.2. Dependent Variable	47
3.8. Operational Definition.....	47
3.9. Operational Method.....	49
3.10. Data Analysis	51
3.11. Research Plan.....	53
CHAPTER IV	54
4.1. Results	54
4.1.1. Isolation of MSCs.....	54
4.1.2. MSCs validation and differentiation test.....	55