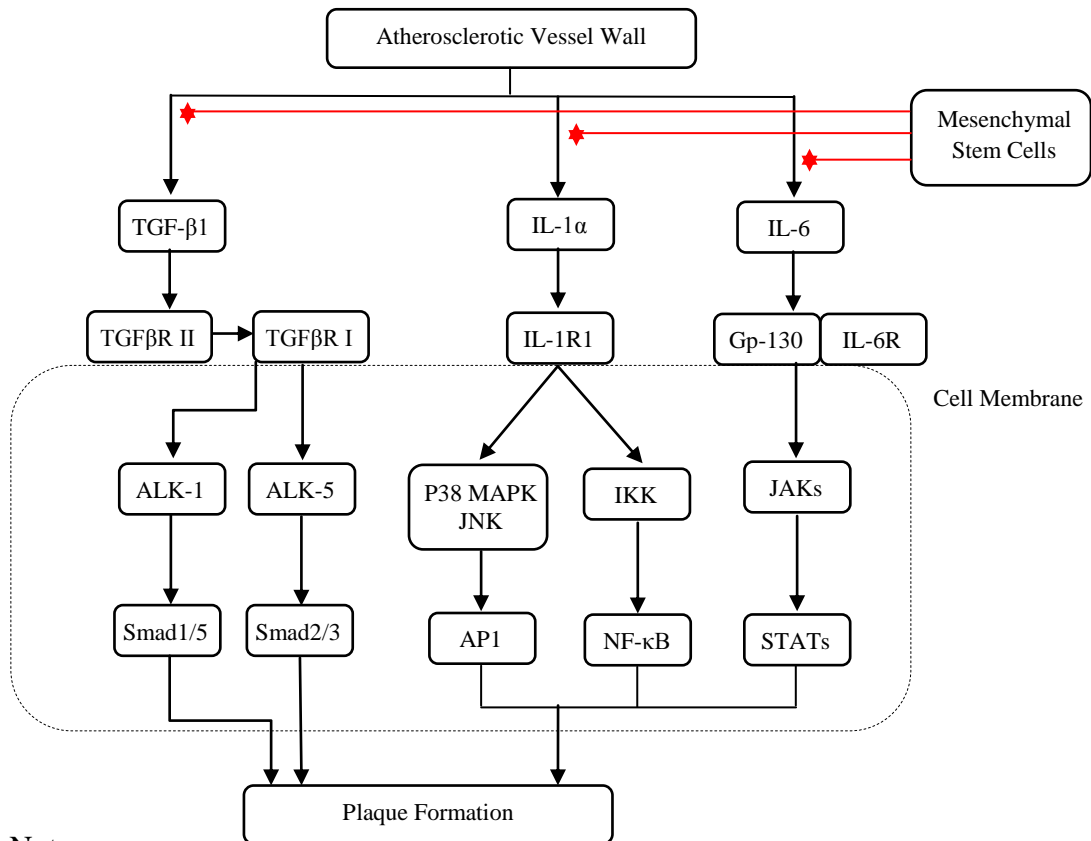


## CHAPTER 3

### THEORETICAL FRAMEWORK, CONCEPTUAL FRAMEWORK, AND HYPOTHESIS

#### 3.1. Theoretical framework

Based on the description in the literature, the theoretical framework is governed as follows:



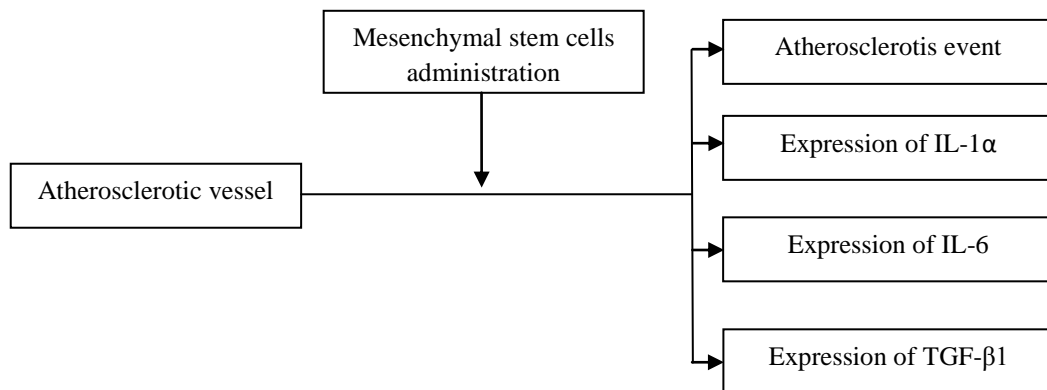
Note:

→ : Signaling Pathway

—★ : Interfere

### 3.2. Conceptual Framework

Based on the description in theoretical framework, conceptual framework is governed as follows:



### 3.3. Hypothesis

#### 3.3.1. Major Hypothesis

Mesenchymal stem cells ameliorate atherosclerotic plaque by influence the production of IL-1 $\alpha$ , IL-6 and TGF- $\beta$ 1 cytokines.

#### 3.3.2. Minor Hypothesis

- a. Atherosclerotic plaque in Sprague Dawley rats that treated with allogeneic mesenchymal stem cells was lower than without allogeneic mesenchymal stem cells.
- b. Abdominal aorta IL-1 $\alpha$  expression of atherosclerotic Sprague Dawley rats that treated by allogeneic mesenchymal stem cells was different with without treated by allogeneic mesenchymal stem cells.

- c. Abdominal aorta IL-6 expression of atherosclerotic Sprague Dawley rats that treated by allogeneic mesenchymal stem cells was different with without treated by allogeneic mesenchymal stem cells.
- d. Abdominal aorta TGF- $\beta$ 1 expression of atherosclerotic Sprague Dawley rats that treated by allogeneic mesenchymal stem cells was different with without treated by allogeneic mesenchymal stem cells.