Aims and objectives
Based on the literature review, the following objectives were undertaken for this investigation:

1. To study the role of hematopoietic stem cells in liver regeneration

   This study was aimed at understanding whether BMCs respond to liver damage for its regeneration. Issues like; circumstances under which BM-derived cells engraft in damaged liver tissue and differentiate into hepatocytes, the mechanism of migration, and dependence of differentiation on fusion, were targeted. The identification of the BM subpopulation involved in liver regeneration was also included in the study.

2. To establish an \textit{in vitro} model of transdifferentiation of hematopoietic stem cells to hepatocytes

   After looking at the migration of BMCs towards damaged liver and their subsequent differentiation into hepatocytes, it was planned to check their \textit{in vitro} transdifferentiation potential into hepatocytes. Analysis of differentiated cells in terms of hepatic gene expression, ultra-structure, functional activity was to be performed. And finally it was to be examined whether they are engraftable in normal liver tissue.

3. To study the mechanisms involved in transdifferentiation

   Using the \textit{in vitro} model of transdifferentiation of BM-HSCs into hepatocytes, the mechanisms involved leading to the phenomenon were to be studied. Kinetic analysis of cell surface receptors and transcription factors was to be examined. The importance of putative cytokine receptors and transcription factors was planned using antibody mediated neutralization and ectopic expression of the molecules respectively.

4. To study the ontogenic relationship of fetal liver hematopoietic stem cells and liver development

   Hepatic differentiation potential of the early stage FL-HSCs was aimed at. Kinetic analysis of hepatic gene expression in hematopoietic and non-hematopoietic FL populations was to be performed. \textit{In vitro} and \textit{in vivo} experiments were planned to examine hematopoietic and hepatic potential of putative common progenitor cells.