PREFACE

Inflammation is an adaptive and protective measure taken by the body against various exogenous and endogenous infectious agents. Regardless of the cause, inflammation presumably evolved as an adaptive response for restoring homeostasis. An acute inflammatory response mounts rapidly and gets resolved after successful removal of infectious agent. But the continuous trigger generates a persistent or chronic inflammatory process. The chronic inflammation provides an attractive environment for various diseases including cancer. The available literature doesn’t suggest any mechanistic difference between acute and chronic inflammation except the strength and duration. These two factors depend on expression of various inflammatory mediators. Thus the expression of these mediators e.g. cytokines, chemokines etc. needs to be tightly regulated, which in turn depends on epigenetic mechanisms.

The epigenetic marks, or specifically, post-translational modifications on histones, both globally and at specific inflammatory gene promoters, have been hypothesized to play a regulatory role in inflammation. Also, any deregulated inflammatory response can be attributed to either failure of down-regulation of pro-inflammatory genes or up-regulation of anti-inflammatory genes. In both the cases, it’s the epigenetic mechanisms that regulate the chromatin structure and hence in turn, regulate gene expression. Thus, epigenetic-inflammation link seems to exist which we targeted to address in the present thesis.

Present study, entitled as “Studies on a murine model of sepsis: Epigenetic modifications of histones in systemically inflamed/ septic liver”, has been divided into five sections. The first section is preface of the thesis which introduces the overall thesis structure, followed by next three sections as chapters 1, 2 and 3. The first chapter provides a review of available literature in the related field. The next two chapters cover two broad divisions of work that has been done. These chapters individually introduce their content, followed by objective addressed
therein, respectively. Materials used and methodology adopted to achieve these objectives, results obtained from the experiments done, discussion of the obtained results, references cited and appendices for additional information are also included in each chapter itself. The fifth section provides an overall conclusion & future perspectives followed by summary of the thesis.