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Leukaemia, malignant stage of the white blood cells in individuals, has been reported to bear a bad prognostic approach leading to fatality in majority of individuals within a short period of time. Attempts to provide appropriate therapeutic measures principally concerned chemotherapeutic modalities including antimetabolites, alkylating agents, cytotoxic and cytostatic drugs. Such conventional therapeutic measures are supposed to minimise the tumor load, transiently with a reduction of residual tumor volume in the individuals concerned. But, unfortunately, the therapeutic index (TI) under the circumstances comes down to less than unity in majority of cases treated. Investigations conducted under such events provided us with the data that the reasons of fatality under the conditions are associated with a drastic loss of immunocompetence of cell mediated immunity (CMI) and associated humoral components. As a result, an invading secondary infections prevailed in the subject concerned leading to irrecoverable health conditions. The present day investigations on the problems posed have, therefore, been directed towards the immunological aspects of leukaemia before and after the treatment procedures. The immunocompromising states in the individuals concerned under the events, therefore, need to be supported through elegant methods of "immunopotentiation" or "immunomodulations". Attempts are now being made to maintain the immunological status in leukaemic individuals through immunotherapeutic approaches as some of these are reported to achieve success. It is felt, however, that such attempts made for the purpose are inconsistent, largely incomplete and lack proper sequential investigations imparting both quality and quantity. It was further realised that these investigations should include the intricate mechanistic approach on the
standpoint of molecular, cellular, tissue and organ specific organisations to evaluate the exact physiological manifestations. An experimental animal model for leukaemia and some interesting Biological Response modifiers (BRMs) constituted the major part of the thesis.