Malignancy of blood components has been a diverse problem since long. The treatment protocol concerns both radiotherapy and chemotherapy but predominantly, the anticancer chemicals. The severity of the disease is often added up by secondary infections which obviously point to a state of immuno-suppression in the subject concerned. Surprisingly, investigations on that score have rarely been made and informations are lacking consequently. Attempts have been made to evaluate the degree of immuno-suppression in detail in the present thesis. This had the principle idea to identify the actual focus of lesion in the immune-system and to investigate into useful methods for the recovery of such problems. These involved some important immunological parameters to study the functional capability of lymphocytes, neutrophil, and macrophages for various manifestations. A group of biological components occupied a major part to elucidate the beneficial effect(s) in mice with induced leukaemia. These components now-a-days termed as Biological Response Modifiers (BRMs), have been studied in detail with a view to unearthing the mechanism of therapeutic approach, if any. The results have been inspiring and have been discussed leaving ample scope for further investigations on the above score.