

NON-TECHNICAL SUMMARY

Autologous bone marrow transplantation is a useful way of treating many cancers, including acute myeloid leukemia. Because patients still relapse after the procedure, there has been concern that the marrow that is used for the autologous transplant is contaminated with malignant cells which simply re-introduce the disease. Our early studies using retroviral gene marking of the marrow before re-infusion it has allowed us to trace the origin of relapse.

In two patients whose disease has recurred after autologous BMT, the marker gene was indeed found in the malignant cells. This demonstrates that giving back patients' own marrow in this disease may also give them back their leukemia.

In the current proposal we will try to remove these malignant cells by marrow purging. First we will mark one third portions of the marrow with the distinguishable retroviruses LNL6 and G1N. One third will be cryopreserved as a safety back up. Each of the marked portions of marrow will be treated with a purging drug, either 4HC or IL2. If the patients relapse, we will be able to see whether marked cells were still present, despite purging, and see whether any one method of purging was more effective. We propose to treat 35 patients.