that the clinically observed subgroups of MDS may represent stages in the progression of the gradually evolving preleukemic process.\textsuperscript{3} We interpreted our therapeutic results as suggesting that 13CRA may be effective at one stage of the disease but not at others. Criteria for the diagnosis of refractory anemia may be interpreted differently in different centers, and indeed it has been suggested that they may sometimes be difficult to interpret at all. This is reflected by the threefold difference in median survival seen in various series. The criteria used in the Cardiff series, including a strict interpretation of blast cells, tend to include cases of somewhat greater malignancy than do many other series, and this accounts for the lower median survival in our control group as compared with cases from other centers.

Despite the difficulties in standardizing diagnostic criteria, we would like to suggest that therapeutic trials in patients with MDS take care, as far as possible, to consider responses in relation to the stage of the disease. The inclusion in the same analysis of good-prognosis patients, such as those with sideroblastic anemia, together with refractory anemia and RAEB can only weaken the significance of the results.

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\section*{REFERENCES}


\section*{RESPONSE}

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\section*{THE MURINE ERYTHROPOIETIN GENE IS LOCALIZED ON CHROMOSOME 5}

\section*{To the Editor:}

Erythropoietin (Epo) is a plasma glycoprotein hormone which controls RBC production through oxygen tension mechanisms. Both human and mouse Epo genes were recently cloned.\textsuperscript{4} The human gene has been localized to the q21-22 region of chromosome 7.\textsuperscript{5,6} We report the mapping of the mouse Epo gene to the distal region of chromosome 5 by in situ hybridization and by genetic analysis, using restriction fragment length polymorphisms (RFLPs) in interspecific mouse backcross DNAs.

For these interspecific backcross analyses, C57B1/6, BALB/c, WMP/Pas, SPE/Pas (\textit{Mus spreitus}) and the interspecific backcross progeny (C57B1/6 \texttimes SPE) F\textsubscript{1} \texttimes C57B1/6 or (BALB/c \texttimes SPE) F\textsubscript{1} \texttimes BALB/c, raised at the Institut Pasteur, Paris, were used.

Male backcross animals were also characterized by F. Bonhomme and colleagues (CNRS UA 327, Montpellier, France) for the segregation of 15 biochemical markers already localized on the mouse genetic map. High-mol-wt DNA was extracted from frozen spleen as previously described\textsuperscript{7} and was digested with appropriate restriction enzymes. Agarose gel electrophoresis, Southern blot transfers, and hybridizations were performed as described.\textsuperscript{8} The Epo probe used for the Southern blot analysis was a 1-kb \textit{Pst} I restriction fragment of the mouse Epo gene,\textsuperscript{9} encompassing part of exon IV and V.

In situ hybridization experiments were performed using metaphase spreads from a male mouse of the WMP/Pas inbred strain, in which all autosomes except autosome 19 are involved in Robertsonian translocations. Concanavalin A-stimulated lymphocytes were cultured at 37°C for 72 hours; 5-bromodeoxyuridine was added for the final six hours of culture (60 \textmu g/mL medium) to ensure a good quality chromosomal R-banding. The entire pUC 19 plasmid containing the 1-kb Epo fragment was tritium labeled by nick-translation to a specific activity of 1 \times 10\textsuperscript{6} dpm \textmu g\textsuperscript{-1}. The radiolabeled probe was then hybridized to metaphase spreads at a final concentration of 25 ng/mL hybridization solution, as previously described.\textsuperscript{10} After being coated with nuclear track emulsion (Kodak NTB\textsubscript{3}), the slides were exposed for 13 days at 4°C, then developed.