Recent immunophenotypic studies of hairy cell leukemia (HCL) have suggested specific patterns of immunoreactiv- ity that may aid in diagnosis.We conclude that two-color flow cytometry with specific antibody combinations is an efficacious method for characterization and sensitive de- tection of hairy cells in PB. Application of the phenotypic criteria describedshould helpto increaseaccuracy indiag- nosis of HCL.We studied peripheral blood (PB)from 161 casesof HCLusingtwo-color direct immuno- fluorescenceflow cytometry and an extended panel of an- tibody combinations.Circulating hairy cells were identified by immunophenotypic features in 92% of the cases and could be detected even when representing ~ 1 of%circulat- ing lymphocytes.Based on these features, HCL waseasilydistinguishedfrom50casesofchroniclympho- cytic leukemia (CLL).The 133 cases with 22% detectable hairy cells were analyzed in detail.