The study population comprised 110 Italian individuals (all Caucasians) with newly diagnosed high-grade NHL according to the Revised European American Lymphoma (REAL) classification. Patients were recruited from files of the Unit of Haematology at the University of Ferrara in the period between January 1997 and December 2000. The patients were aged 18-80 years with a mean age of 56.8±17.1 years and 60.9% of them were male. Among the patients with high-grade NHL (B-NHL n=95 and T-NHL n=15), 81% (n=89) had diffuse large B-cell lymphoma and 19% (n=21) were anaplastic large cell lymphoma.

Inclusion criteria were as follows: biopsy-proven diagnosis of high-grade NHL according to the REAL classification; no prior chemotherapy and radiotherapy; stage I-IV disease according to the Ann Arbor Conference criteria including or not mediastinal mass; intermediate/high or high risk International Prognostic Index; renal, pulmonary, cardiac and hepatic function in the normal range.

Cases diagnosed with NHL within 6 months of being diagnosed with a prior hematologic malignancy or within 2 years of any other cancer were considered ineligible. Peripheral blood samples for all cases were collected by venipuncture at the date of diagnosis before any pharmacological treatment. At the moment of peripheral blood collection, patients gave informed consent to participate in the study, which was approved by the local Ethical Committee.