

Long-term stabilized blood samples as controls for flow cytometric HLA-B27 screening: a feasibility study.

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BACKGROUND: Long-term stabilized blood samples are potentially useful as positive or negative procedure controls for flow cytometric HLA-B27 screening, and could serve as test samples in an external quality assessment (EQA) scheme. We evaluated long-term stabilized whole blood specimens as prepared for the UK NEQAS for Leucocyte Immunophenotyping EQA scheme (Sheffield, UK). **METHODS:** Peripheral blood samples were obtained from nine blood bank donors with known HLA-B typing. Short-term stabilization with Trans-FIX[®] was performed before shipment to Sheffield. Thereafter, long-term stabilization was performed. Commercially available HLA-B27 mAb were tested periodically between 1 week and 12 months on (i) fresh, (ii) short-term stabilized, and (iii) long-term stabilized blood samples using a stain, lyse, and wash technique. We compared the forward scatter (FSC), sideward scatter (SSC), and fluorescence signals of lymphocytes as a function of time. Furthermore, a pilot send-out with stabilized blood samples of four blood bank donors was distributed among the participants to the Benelux EQA scheme for HLA-B27 screening, and results were compared with historical EQA data obtained using nonstabilized blood samples from the same donors. **RESULTS:** There were no major effects on FSC and SSC characteristics of lymphocytes. Background fluorescence of stabilized samples increased and specific fluorescence of stabilized HLA-B27 positive samples decreased as compared with fresh samples. However, discrimination between the investigated HLA-B27 positive and HLA-B27 negative samples remained feasible poststabilization. In the pilot send-out, the results obtained with stabilized samples were less concordant than with the corresponding fresh samples due to variable quality of the stabilized samples. **CONCLUSION:** Long-term stabilized whole blood samples are potentially useful as true HLA-B27 positive and true HLA-B27 negative control cells for daily and longitudinal quality control of flow cytometric HLA-B27 screening. In the same way, long-term stabilized samples may be used for EQA purposes. However, these samples are currently not feasible for reagent validation purposes. Extensive quality control of long-term stabilized samples is necessary before distribution in multicenter surveys.

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