ORIGINAL ARTICLE

SERF: a new antigen in the Cromer blood group system

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Abstract

The Cromer blood group system consists of eight high incidence and three low incidence antigens carried on decay-accelerating factor (DAF). This report describes the identification and characterization of a new Cromer high incidence antigen, named SERF. Sequence analyses of DNA from a Thai female whose serum contained the alloantibody to a high incidence antigen in the Cromer blood group system (anti-SERF) and from her two children were performed. Reverse transcriptase-polymerase chain reaction (RT-PCR) and sequence analysis on cDNA from the proband and PCR-restriction fragment length polymorphism analysis on DNA from Thais were also performed. To map the epitope, DAF deletion mutants were tested by immunoblotting with anti-SERF. Sequence analysis revealed a substitution of 647C > T in exon 5 DAF in the proband. The proband’s two children and two of 100 Thais were heterozygotes 647C/T. Analysis using DAF deletion mutants revealed the antigenic determinant to be within short consensus repeat 3 (SCR3), which is encoded by exon 5. This study describes a novel high incidence antigen (SERF) in the Cromer blood group system characterized by the amino acid proline at position 182 in SCR3 of DAF. The SERF-negative proband has a substitution mutation that predicts for leucine at this position. SERF has been provisionally assigned the International Society of Blood Transfusion number 021_012 (CROM 12).

Key words: CD55, Cromer blood group, decayaccelerating factor, high incidence antigen, SERF

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