

Molecular cloning of the new fourth allotype of the factor H in the Russian and Kazakhstan wild mouse population

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Factor H protein (H), a plasma protein that binds to C3b inactivator, is composed of 20 repeated units called a short consensus repeat (SCR), which is found mostly in the regulatory proteins of the complement system. Three allotypes of murine factor H have been identified in the serological and molecular studies of our previous reports. H. 1 was found in the most laboratory mice and H. 2 was mostly found in Asia including Japan and China, while H. 3 was only observed in France.

cDNA clones coding for the entire length of these three factor H allotypes were isolated from the cDNA libraries constructed from the livers of type strains. cDNA sequences with these three clones showed multiple amino acid replacement / nucleotide substitution at the different position on their coding region.

In the present work, wild mice in Russian and Kazakhstan have a serologically distinguishable new allotype of factor H and molecular cloning coding entire length of the fourth allotype was done. When cDNA sequences were compared between H. 1 and H. 4, amino acid replacement / nucleotide substitution were multiple, characteristic and gathered to the 12th, 19th and 20th SCR units. Furthermore, H. 4 gene (new allotypic gene) deleted the 19th SCR unit was duplicated. The genetic events with H. 4 serum were discussed. Finally alloanti H. 4 allotype was successfully produced in BALB/c mice. Alloanti H. 4 serum developed a single precipitin line against all of H. 4 mouse serum, but did not with other allotype sera.

Amino acid differences between H. 1 and H. 4 allotypic genes

