ApoE StripA[ssay]

INTENDED USE

The *ViennaLab* Apo E StripA[ssay] provides materials for the isolation of DNA from human whole blood, the *in vitro* amplification of apolipoprotein E (apo E) gene sequences, and the subsequent detection of isoforms apo E2, E3 and E4 by reverse-hybridization.

INTRODUCTION

Apolipoprotein E (apo E) plays a key role in lipid metabolism by mediating the interaction of lipoproteins with their receptors. The protein exists in three major isoforms (E2, E3, E4) due to two polymorphic sites (C versus T at codons 112 and 158) within the apo E gene located on chromosome 19q13.2. There is strong evidence that the different apo E variants play a causative role both for cardiovascular disease (CVD) and Alzheimer´s Disease (AD).

Compared to the most frequent variant apo E3 (~ 77%), the apo E2 isoform (~ 8%) is usually associated with decreased and the apo E4 isoform (~ 15%) with increased serum total and LDL cholesterol levels. It has been suggested that up to 10% of the phenotypic variance of serum cholesterol level is attributable to apo E. The apo E4 isoform has been described as a risk factor for atherosclerosis and premature coronary and peripheral vascular disease. On the other hand, homozygosity for the apo E2 variant seems to predispose individuals to type III hyperlipoproteinemia.

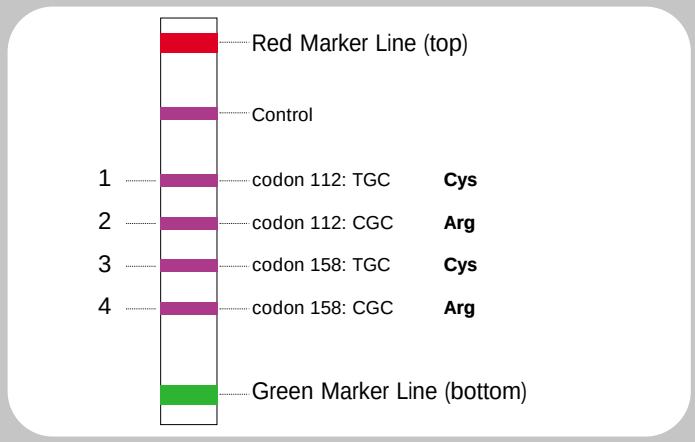
The apo E4 isoform is also a well established risk factor for late-onset familial and sporadic forms of AD. Conversely, the E2 isoform is underrepresented among AD patients and seems to confer protection against the disease.

PRINCIPLES OF THE ASSAY

The Apo E StripA[ssay] is based on the reverse-hybridization principle, and includes three successive steps: DNA is isolated from anticoagulated blood by a rapid and convenient procedure. Then, apo E gene sequences are *in vitro* amplified and biotin-labelled. Finally, the amplification product is selectively hybridized to a test strip, which contains allele-specific oligonucleotide probes immobilized as parallel lines. Bound biotinylated sequences are detected using streptavidin-alkaline phosphatase and color substrates.

The assay allows the discrimination between six possible heterozygous or homozygous genotypes: E2/2, E2/3, E2/4, E3/3, E3/4, E4/4.

References: Wilson, P.W.F., Schaefer, E.J., Larson, M.G., et al. (1996), Arterioscler. Thromb. Vasc. Biol. 16, 1250-1255. Poirier, J. (2000), Ann. N.Y. Acad. Sci. 924, 81-90. Selkoe, D.J. (2001), Physiol. Reviews 81, 741-766.



ApoE StripAssay

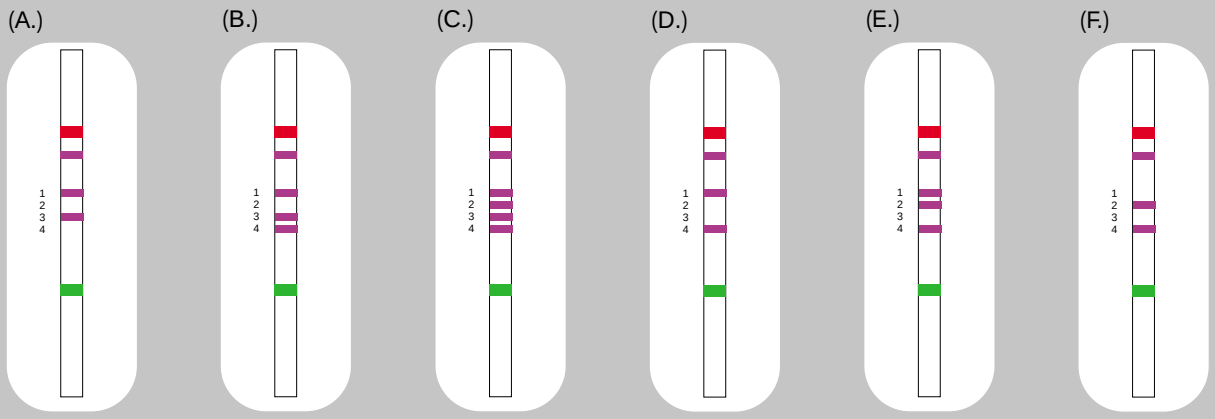
TEST RESULTS:

For the three apo E isoforms E2, E3 and E4 the following staining patterns are obtained:

E2 (112: Cys, 158: Cys)	lines 1+3
E3 (112: Cys, 158: Arg)	lines 1+4
E4 (112: Arg, 158: Arg)	lines 2+4

The six possible homozygous and heterozygous apo E genotypes (E2/2, E3/3, E4/4, E2/3, E2/4, E3/4) will result in a combination of the respective individual isoforms.

EXAMPLES:



(A.) apo E2/2 (lines 1+3)
(B.) apo E2/3 (lines 1+3+4)
(C.) apo E2/4 (lines 1+2+3+4)
(D.) apo E3/3 (lines 1+4)
(E.) apo E3/4 (lines 1+2+4)
(F.) apo E4/4 (lines 2+4)

VIENNA LAB
Labordiagnostika GmbH
Manufactured by:
ViennaLab
Vienna, Austria

www.viennalab.com

CAT.NO.:
4-4280 / 4-4281

CODE: VL 4-280-01/HVD