METHODS FOR MULTIPLEX DETECTION OF ALLELES ASSOCIATED WITH OPHTHALMIC CONDITIONS

ABSTRACT OF THE DISCLOSURE

Systems and methods for detecting at least two genomic alleles associated with corneal dystrophy in a sample from a human subject are disclosed in which cells (e.g., epithelial) of the subject are adhered to a tip of a substrate. The tip of the substrate is agitated in a lysis solution that lyses cells adhered to the substrate. The substrate is removed from the lysis solution upon completion of this agitation. The resulting lysis solution is incubated and then genomic DNA from the lysis solution is isolated to form a gDNA solution. From this, identity of at least two nucleotides present in the human TGFβI gene is determined using at least two oligonucleotide primer pairs and the gDNA solution. These at least two nucleotides are located at respective independent positions of the TGFβI gene corresponding to respective independent single nucleotide polymorphisms (SNPs) associated with corneal dystrophy.