Today molecular genetic studies are important in medicine and allergy at all. Polymorphic genes - genes is represented in the population many alleles, which makes intraspecific diversity of characters [3]. Genetic polymorphisms associated most often with the presence of point nucleotide substitutions in the DNA molecule. An important feature of these replacements is that most of them associates of in human hereditary predisposition to many multifactorial diseases, including allergic diseases [8].

Recently there is a lot of data about the pathology associated with defects in Toll-like receptor system [1]. DNA diagnostics is widely used in various scientific and clinical institutions. In recent years, accumulating more information about the pathology related to defects in the system of Toll-4 receptor SIMILAR Based on the results, 96.85% of healthy subjects determined the normal genotype TLR4 (AA) and two mutant - the frequency of heterozygotes (AG ) was 2.1% homozygotes (GG) – 1.05%, while in children with atopic asthma (BA), the frequency of the mutant heterozygous and homozygous genotypes at 5.39 and 1.79 times respectively higher than the control parameters [2,8,9].

For the results of modern scientific research, it is proved that the development of asthma in children, affect polimorphisms in the proteasome mutation protein gene (POMP), filaggrin gene (FLG), mammalian target of rapamycin gene (MTOR), autophagy gene (ATG5) [5]. The scientists found that the gene product β2-adrenergic receptors (ADRB2), plays an important role in the regulation of airways. ADRB2 gene located on chromosome 5 in the locus 5q32-34. Participation β2-adrenergic receptors in the pathogenesis of asthma is implemented through the mechanism of bronchial relaxation. Interference release of inflammatory mediators by mast cells, basophils and lymphocytes, as well as changes in response to steroid therapy patients with asthma. [4,12] Also, recent studies have demonstrated that ADAM33 gene polymorphism is associated with features of functioning muscle fibers of the airways in asthma [3].
The interaction of elevated levels of specific IgE with FSERIB plays a central role in the pathogenesis of allergic asthma. In a random voters hold the authors found an association Leu181Ile allele with high levels of total IgE. More than half (56%) studied individuals with allele Leu181Ile, was diagnosed atopy. The examination siblings of probands with allergic asthma found that carriers of alleles Leu181Ile also suffer from allergies, while 85% of children do not have this allele were healthy [5,2,12].

In the study of children patients from the Japanese population established a significant association Glu237Gly version with high total IgE and atopic asthma [7,12]. Interleukins have a special place in the pathogenesis of asthma, participating in the formulation, monitoring and regulation of inflammation in the airways. This is mainly interleukins, uncovered in the determination of Th2-type immune response: IL-4, IL-5, IL-9, IL-13 [5,14].

Another important factor that influences the course of inflammation and chronic allergic diseases are enzymes of biotransformation of xenobiotics (FCO), including glutathione-S- transferring enzyme (GSTT1 and GSTM1). The level of total IgE in groups of children with a combination of genotypes GSTT1 (-) GSTM1 (-) was significantly lower compared with other groups, indicating that the indirect influence of genetic polymorphisms of glutathione-S- transferring enzyme on the level of total IgE in patients with atopy [2,4].

Genetic markers of susceptibility to asthma in children is 105IV genotype of the gene GSTP1, del / del GSTM1 gene and the absence of wild-105II genotype of the gene GSTP1. Factor genetic predisposition to atopic dermatitis is mutant genotype 105VV of the gene GSTP1, genotype del / del of the gene GSTT1. Installed statistically significant association of genotype GSTT1del / del with the development of asthma in patients with allergic rhinitis (AR) [6,15].

For the early development of asthma is characterized by genotypes del / del gene GSTM1, del / del gene GSTT1, atopic dermatitis (AD) - the mutant genotype 105VV gene GSTP1, which increases the risk of disease more than 2 times. Later development of asthma associated with genotype 105IV of the gene GSTP1,
administrative genotype of the del / del gene GSTT1, AR late age for onset is combined with the absence of a functional gene of the genotype 462II CYP1A1 [6].

In association enzyme genotypes studied biotransformation of xenobiotics with allergies experienced a pronounced sexual dimorphism: for boys increased risk of asthma associated with genotypes del / del GSTT1, del / del GSTM1, 105IV GSTP1. The risk of developing atopic dermatitis for boys - with polymorphism del / del GSTT1. Increased risk for atopic dermatitis of girls is the presence of genotype 462IV CYP1A1. Also, a tendency to an increased risk of asthma in children's environments defined by a combination of factors (tobacco smoke) and the presence of certain genotypes: 139RR gene EPHX1, 105IV gene GSTP1 [6,12].

Thus, the genetics of asthma and allergy based on an assessment of complex circuits combinations of polymorphisms of genes.