**پانل اختلالات خونی و ایمنی**

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| **ردیف** | **نام بیماری** | **تعداد ژن** | **ژن های مورد بررسی** |
| 1 | Erythrocytes, Anemia | 30 | AMN, ANK1, C15orf41, CDAN1, COX4I2, CUBN, EGLN1, EPAS1, EPB42, EPOR, G6PD, GIF, HBB, HBD, HFE, KIF23, KLF1, LPIN2, RPL11, RPL35A, RPL5, RPS10, RPS19, RPS24, RPS26, RPS7, SEC23B, SH2B3, SPTA1, SPTB |
| 2 | Platelets, Coagulation | 17 | ADAMTS13, DSG1, ENTPD1, ETV6, F10, F11, F12, F13A1, F2, F5, F8, PDGFRB, SERPINC1, SERPINE1, TET2, VHL, VWF |
| 3 | Thrombocytopenia | 13 | ADAMTS13, AP3B1, GATA1, GP1BA, GP1BB, GP9, ITGA2B, ITGB3, MASTL, MPL, MYH9, RBM8A, THBD |
| 4 | BMFS | 36 | BRCA2, BRIP1, CTC1, DKC1, FANCA, FANCB, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, IFNG, LIG4, LYST, MRE11A, NBN, NHP2, NOP10, PALB2, PRF1, RAD51C, RTEL1, SBDS, SLX4, SRP72, STX11, STXBP2, TERC, TERT, TINF2, WAS, WRAP53, XRCC2 |
| 5 | BMFS, Lukemia | 5 | CASP10, CEBPA, GATA1, NBN, RUNX1 |
| 6 | BMFS, Metabolism | 4 | SLC35C1, SLC37A4, SLC46A1, TCN2 |
| 7 | Antibody deficiency | 26 | AICDA, BLNK, BTK, CD19, CD40, CD40LG, CD79A, CD79B, CD81, CR2, DKC1, ICOS, IGLL1, IL21, LRBA, LRRC8A, MS4A1, NFKB2, PIK3R1, RTEL1, TCF3, TCF4, TNFRSF13B, TNFRSF13C, TNFSF12, UNG |
| 8 | Complement deficiency | 31 | C1QA, C1QB, C1QC, C1R, C1S, C2, C3, C6, C7, C8A, C8B, C8G, C9, CD46, CD59, CFB, CFD, CFH, CFHR1, CFHR3, CFI, CFP, COLEC11, DGKE, FCN3, ITGB2, MASP1, MASP2, PIGA, SERPING1, THBD |
| 9 | Autoinflammatory | 20 | CARD14, HFE, IL10, IL10RA, IL10RB, IL1RN, IL36RN, LPIN2, MEFV, MVK, NLRP12, NLRP3, NOD2, PLCG2, PSMB8, PSTPIP1, RBCK1, SH3BP2, SLC29A3, TNFRSF1A |
| 10 | Immune dysregulation | 22 | AIRE, AOAH, AP3B1, CARD11, CASP10, CASP8, FAS, FASLG, FCGR2B, FOXP3, IL2RA, ITCH, LYST, PRF1, PRKCD, RAB27A, SH2D1A, STX11, STXBP2, TREX1, UNC13D, XIAP |
| 11 | Defects of phagocytes | 59 | ACKR1, ACTB, AP3B1, BLOC1S3, CEBPE, CSF2RA, CSF3R, CTSC, CXCR4, CYBA, CYBB, DNM2, DTNBP1, ELANE, FCGR3B, FERMT3, FPR1, G6PC3, GATA1, GATA2, GFI1, HAX1, HFE, HPS1, HPS3, HPS4, HPS5, HPS6, IFNGR1, IFNGR2, IL12B, IL12RB1, IRF8, ISG15, ITGB2, JAGN1, LAMTOR2, MLPH, MPO, MYO5A, NCF1, NCF2, NCF4, RAB27A, RAC2, SBDS, SLC35C1, SLC37A4, SLC46A1, STAT1, TAZ, TCIRG1, TCN2, TERT, USB1, VPS13B, VPS45, WAS, WIPF1 |
| 12 | Innate Immunity Defects | 19 | APOL1, CARD9, CXCR4, IL17F, IL17RA, IRAK4, MCM4, MYD88, NFKBIA, STAT1, TBK1, TICAM1, TIRAP, TLR3, TMC6, TMC8, TRAF3, TRAF3IP2, UNC93B1 |
| 13 | Combined immunodeficiencies | 59 | ACP5, ADA, AK2, CARD11, CD247, CD27, CD3D, CD3E, CD3G, CD40, CD40LG, CD8A, CHD7, CIITA, CORO1A, CR2, DCLRE1C, DOCK8, FOXN1, IKBKB, IL12RB1, IL21R, IL2RG, IL7R, ITK, JAK3, LCK, LIG4, LRBA, MAGT1, MALT1, MBL2, NHEJ1, ORAI1, PIK3CD, PNP, POLE, PRKDC, PTPRC, RAG1, RAG2, RFX5, RFXANK, RFXAP, RHOH, RMRP, SEMA3E, STAT5B, STIM1, STK4, TAP1, TAP2, TAPBP, TBX1, THBD, TNFRSF4, TTC7A, UNC119, ZAP70 |
| 14 | Syndromes with immunodeficiency | 38 | ADAR, ATM, BLM, CFH, DKC1, DNMT3B, DOCK8, FCGR3A, FGF10, FGFR2, MCM4, MRE11A, NBN, NHP2, NLRP3, NOD2, PDGFRA, PMS2, RMRP, RNASEH2A, RNASEH2B, RNASEH2C, RNF168, RPSA, RUNX2, SAMHD1, SMARCAL1, SP110, SPINK5, STAT3, TBX1, TERC, TERT, TINF2, TREX1, TYK2, WAS, ZBTB24 |
| 15 | Complete Panel- Blood and Immune Disorders | 326 | ACKR1, ACP5, ACTB, ADA, ADAMTS13, ADAR, AICDA, AIRE, AK2, AMN, ANK1, AOAH, AP3B1, APOL1, ATM, BLM, BLNK, BLOC1S3, BRCA2, BRIP1, BTK, C15orf41, C1QA, C1QB, C1QC, C1R, C1S, C2, C3, C6, C7, C8A, C8B, C8G, C9, CARD11, CARD14, CARD9, CASP10, CASP8, CD19, CD247, CD27, CD3D, CD3E, CD3G, CD40, CD40LG, CD46, CD59, CD79A, CD79B, CD81, CD8A, CDAN1, CEBPA, CEBPE, CFB, CFD, CFH, CFHR1, CFHR3, CFI, CFP, CHD7, CIITA, COLEC11, CORO1A, COX4I2, CR2, CSF3R, CTC1, CTSC, CUBN, CXCR4, CYBA, CYBB, DCLRE1C, DGKE, DKC1, DNM2, DNMT3B, DOCK8, DSG1, DTNBP1, EGLN1, ELANE, ENTPD1, EPAS1, EPB42, EPOR, ETV6, F10, F11, F12, F13A1, F2, F5, F8, FANCA, FANCB, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, FAS, FASLG, FCGR2B, FCGR3A, FCGR3B, FCN3, FERMT3, FGF10, FGFR2, FOXN1, FOXP3, FPR1, G6PC3, G6PD, GATA1, GATA2, GFI1, GIF, GP1BA, GP1BB, GP9, HAX1, HBB, HBD, HFE, HPS1, HPS3, HPS4, HPS5, HPS6, ICOS, IFNG, IFNGR1, IFNGR2, IGLL1, IKBKB, IL10, IL10RA, IL10RB, IL12B, IL12RB1, IL17F, IL17RA, IL1RN, IL21, IL21R, IL2RA, IL2RG, IL36RN, IL7R, IRAK4, IRF8, ISG15, ITCH, ITGA2B, ITGB2, ITGB3, ITK, JAGN1, JAK3, KIF23, KLF1, LAMTOR2, LCK, LIG4, LPIN2, LRBA, LRRC8A, LYST, MAGT1, MALT1, MASP1, MASP2, MASTL, MBL2, MCM4, MEFV, MLPH, MPL, MPO, MRE11A, MS4A1, MVK, MYD88, MYH9, MYO5A, NBN, NCF1, NCF2, NCF4, NFKB2, NFKBIA, NHEJ1, NHP2, NLRP12, NLRP3, NOD2, NOP10, ORAI1, PALB2, PDGFRA, PDGFRB, PIGA, PIK3CD, PIK3R1, PLCG2, PMS2, PNP, POLE, PRF1, PRKCD, PRKDC, PSMB8, PSTPIP1, PTPRC, RAB27A, RAC2, RAD51C, RAG1, RAG2, RBCK1, RBM8A, RFX5, RFXANK, RFXAP, RHOH, RMRP, RNASEH2A, RNASEH2B, RNASEH2C, RNF168, RPL11, RPL35A, RPL5, RPS10, RPS19, RPS24, RPS26, RPS7, RPSA, RTEL1, RUNX1, RUNX2, SAMHD1, SBDS, SEC23B, SEMA3E, SERPINC1, SERPINE1, SERPING1, SH2B3, SH2D1A, SH3BP2, SLC29A3, SLC35C1, SLC37A4, SLC46A1, SLX4, SMARCAL1, SP110, SPINK5, SPTA1, SPTB, SRP72, STAT1, STAT3, STAT5B, STIM1, STK4, STX11, STXBP2, TAP1, TAP2, TAPBP, TAZ, TBK1, TBX1, TCF3, TCF4, TCIRG1, TCN2, TERC, TERT, TET2, THBD, TICAM1, TINF2, TIRAP, TLR3, TMC6, TMC8, TNFRSF13B, TNFRSF13C, TNFRSF1A, TNFRSF4, TNFSF12, TRAF3, TRAF3IP2, TREX1, TTC7A, TYK2, UNC119, UNC13D, UNC93B1, UNG, USB1, VHL, VPS13B, VPS45, VWF, WAS, WIPF1, WRAP53, XIAP, XRCC2, ZAP70, ZBTB24 |