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Lactobacillus paracasei and *Lactobacillus plantarum* Strains Downregulate Proinflammatory Genes in an *Ex Vivo* System of Cultured Human Colonic Mucosa

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Online Resource 7: Summary of most significant networks

Table a: Significant networks (Score ≥ 15) derived from the up - and downregulated genes in Inflamed compared to Control sample.

Net-work	Molecules in network	Score	Focus molecules	Top functions
1	Ap1, ATP2A3 , CCR3, CHEMOKINE; CIITA , Creb, CXCL5 , CXCL6 , CXCL9 , CXCL11 , CXCR3, EHMT2 , ETS1 , GABBR1 , GBP2 , GZMB , Histone h3, Histone h4, IFNG , IL2 , IL17A , IL17F, IL2RA , IRF1 , MCM4 , NF1 , Nfat (family), NFκB (complex), PIAS2 , REL/RELA/RELB, RNA polymerase II, SERPINB2 , STAT5a/b, TNFRSF4 , TNFSF4	39	21	Cell-to-Cell Signaling and Interaction, Inflammatory Response, Hematological System Development and Function
2	CXCL10, CYB561 , DGKA, FGF2 , FGFR1, GBP1 , GBP4 , heparin, IDO1 , IFIT3, IFNAR2, IL2 , IL11 , IL15, IL2RA , IRF7, IRF9 , LCK, MAGEA11, MIR31, MX2 , NUMB , PF4, SLPI, SPRYD5 , STAT1, TNFRSF9 , TNFSF9, TP53, VAV1, XCL1 , XCL2 , XCR1, ZNF148, ZNF655	26	15	Cellular Growth and Proliferation, Cell-to-Cell Signaling and Interaction, Inflammatory Response,
3	B3GAT1 , C13ORF15 , C1ORF144 , CADM1, CD226 , CDC2, CRTAM , EGR2 , ERBB2, FLOT2, FOSL1, FYN, GADD45, GADD45G , GBX2, GJB1, GLRA1, HMGA2, HOPX , ID4, MAPKBIP1, MIR9-1, MR1 , PIK3CB , Plexin A, Plexin B, PLXNA1, PRX, PTPN13 , REST, RND1 , SLC18A3, SRC, SRF, TXK	21	12	Cell-to-Cell Signaling and Interaction, Neurological Disease, Cellular Development
4	A1CF, ABCG8 , ANPEP, ANTXR1, APOB, ARFGAP1, CD55, CEBPB, COPB1, CPN1 , DMC1 , FYCO1 , GBE1, GJB1, HNF1A, HNF4A, JUNB, LRP5, LRP6 , MGEA5 , NUF2, PEX13, PLG, PPP1CA, PPP1R2, PPP1R8, PPP1R11 , PPP1R2P9, PPP1R9A , PPP2R5B, PRG2 , SCD, SLPI, STK19 , WBP1	18	11	Cardiovascular Disease, Lipid Metabolism, Molecular Transport

Table b: Significant networks (Score ≥ 15) derived from the up- and downregulated genes in iLP compared to inflamed sample.

Net-work	Molecules in network	Score	Focus molecules	Top functions
1	Ap1, ATP2A3 , BAT2L , Calbindin, CCR3, CD59 , CHEMOKINE, Creb, CXCL5 , CXCL6 , CXCL9 , CXCL11 , EHMT2 , ELP3 , ETS1 , GZMB , H3F3B, Histone h3, Histone h4, HIVEP3, IFNG , IL2 , IL17A , MCM4 , NF1 , Nfat (family), NFκB (complex), REL/RELA/RELB, RNA polymerase II, SERPINB2 , SRGN, TFIIA, THAP7, TNFRSF4 , TNFSF4	31	18	Cell-to-Cell Signaling and Interaction, Hematological System Development and Function, Immune Cell Trafficking
2	ABCG8 , ACTR5, ACTR8, ADSS, CD226 , DHX8, DSN1, ERVK6, GATS, GBE1 , HLA-B, HNF4A, INO80, INO80B, INO80D , INO80E, ITGAL, ITGB1, LGALS8 , LILRB3 , MIS12 , NSL1, NUF2, PGD, PPARA, PPP1R11 , PRIC285 , PTPN13 , RPRD1B , RPS14 , RUVBL1, SLC16A6 , STK19 , TPP2, ZNF317	27	15	Endocrine System Disorders, Immunological Disease, Metabolic Disease
3	B3GAT1 , CA11, COL11A1, EHMT2 , FGF2 , FGF5, FGF9, FGF19, FGFRL1, GATA1, GBP1 , GBP4 , HDAC2, heparin, HOPX , IDO1 , IFIT3, IFITM1, INHBB , Interferon Regulatory Factor, IRF7, IRF9 , LRDD, MX2 , PRKAA2 , RCOR1, REST, RIPK1 , STMN2, TP53, TRIO , XCL1 , XCL2 , XCR1, ZBP1	24	14	Gene Expression, Cellular Development, Cell Cycle
4	AHNAK, ALDOC, BAG1, C1ORF144 , CSH1, DFFA, FOS, GRIN1, HIF1A, HTT, JUN/JUNB/JUND, KDM3A , L3MBTL , LCK, LOX , LYST , MIR17, MIRLET7A1, PHF8 , PHF13 , PRRX1 , RAI14 , RB1, RBP1, RTN1, SEMA4B , SH3BP4, SLC4A7 , SRGAP1 , TNFRSF9 , UCP3, VSNL1, YWHAB, YWHAZ, ZNF655	23	14	Cell Morphology, Hematological System Development and Function, Cell Cycle

Table c: Significant networks (Score \geq 15) derived from the up - and downregulated genes in iLP(A) compared to inflamed sample.

Net-work	Molecules in network	Score	Focus molecules	Top functions
1	Ap1, BAT2L , BCL10 , Caspase, CHEMOKINE, Creb, CXCL5 , CXCL6 , CXCL9 , CXCL11 , EHMT2 , ETS1 , GZMB , Histone h3, Histone h4, HOXA9 , IFNG , IL2 , IL17A , IL2RA , IL7R , MCM4 , MED6 , MS12 , Nfat (family), NF κ B (complex), REL/RELA/RELB, RIPK1 , RNA polymerase II, SERPINB2 , STAT4 , STAT5a/b, TNFRSF4 , TNFSF4, WHSC1L1	41	22	Cellular Development, Cellular Growth and Proliferation, Inflammatory Response
2	A1CF, ANPEP, ARFGAP1, C12ORF11, CD55, CD226 , COPB1, CPN1 , DUSP15 , EFS, ERFF1, FYCO1 , FYN, GBE1 , GJB1, GRB2, HIST2H2AA3, HNF1A, HNF4A, IL11 , IL11RA, IL2RB, IL6ST, NUF2, ORC1L, PEX13, RAI14 , SF3B4, SLC16A6 , SLPI, STK19 , VAV1, WBP1 , ZNF317 , ZNF655	16	10	Cell Death, Cell-to-Cell Signaling and Interaction, Cell Morphology
3	APP, BACE1, BLMH, chondroitin sulfate C, Ck2, COL11A1, FAM57A , FGF2 , FGF5, FGF7, FGF9, FGF10, FGF19, FGFR4, FGFR1, FMR1, ganglioside GM1, GZMB , HABP2, heparan sulfate, heparin, LRP, MIR1-2, MIR29A, MIRLET7A1, NUFIP2 , PAPD5 , PAWR, PF4, PHF8 , SLC4A7 , TNRC6C , XCL1 , XCL2 , XCR1	16	10	Cellular Assembly and Organization, Carbohydrate Metabolism, Small Molecule Biochemistry

Table d: Significant networks (Score ≥ 15) derived from the up - and downregulated genes in iBL23 compared to inflamed sample.

Net-work	Molecules in network	Score	Focus molecules	Top functions
1	Ap1, ATP2A3 , BAT2L , CCR3, CHEMOKINE, Creb, CXCL5 , CXCL6 , CXCL9 , CXCL11 , CXCR3, EHMT2 , ETS1 , FSCN1 , GABBR1 , GZMB , Histone h3, Histone h4, HIVEP3, HOXA9 , IFNG , IL2 , Il12 (family), IL17A , MCM4 , NF1 , Nfat (family), NFκB (complex), REL/RELA/RELB, RNA polymerase II, SRGN, STAT4 , TNFRSF4 , TNFSF4, WHSC1L1	32	18	Cell-to-Cell Signaling and Interaction, Inflammatory Response, Hematological System Development and Function
2	CCNG2 , CDK4, DGKA, EGR2, FN1, GATA1, GBP1 , GBP4 , heparin, ID2 , IDO1 , IFITM1, INHBB , Interferon Regulatory Factor, IRF7, IRF9 , LCK, LOX , MR1 , MX2 , PITPNC1 , PPT2, PRKAA2 , PRRX1 , RB1, TNFRSF9 , TNFSF9, TP53, TRIO , XCL1 , XCL2 , XCR1, ZFB36, ZNF148, ZNF655	30	17	Cell Cycle, Cellular Development, Cellular Growth and Proliferation
3	ARFGAP1, B3GAT1 , CD55, CD226 , COPB1, DLG4, DSN1, FYN, GABBR1 , GIPC2, HNF4A, IER5L , IL11 , IL11RA, IL2RB, IL6ST, LPIN1, MIS12 , NDC80, NSL1, NUF2, POU5F1, PPARA, PRIC285 , REST, SCD, SEMA4B , SF3B4, SLC16A6 . ST13, TCF7, WBP1 , WIPF1, WWP2, ZNF317	19	11	Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry
4	ACTR5, AIF1L , BLMH, BMP1, C1ORF144 , CASP2, CASP3, CCDC50, CPA5 , CTRL, CTSS, ERVK6, FGL2, GATS, HABP2, INO80, INO80D INO80E, KDM3A , LRP6 , MAP3K7IP3, MIR17, PAPP, peptidase, PHF13 , PPP1R11 , PPP2R5C, RAI14 , RIPK1 , RIPK3, RNF130, RUVBL1, TAX1BP1, UBC, ZBP1	17	10	Protein Degradation, Protein Synthesis, Reproductive System Disease