

Fibromyalgia Report

Project name: John Doe

Date: 1/1/1111

Report summary: The report presented a characterization of *Fibromyalgia* through the identification of relevant biomarkers and pathways. The analysis revealed underlying characterization of *Systemic Lupus Erythematosus* in connection to Fibromyalgia.

Pathway related treatment found: Belimumab (*Benlysta*), Pregabalin

Fibromyalgia Biomarkers Detected

15.3%
Enrichment

FMR1 COMT FLNA TAAR1

Fibromyalgia Library

SLC6A4 TAAR1 ADRB2 COMT HTR2A CPA3 TTLL7 FMR1 RBMX ARHGEF6 ATRX BRWD3 CDKL5 CUL4B FLNA HPRT1 HUWE1 MECP2 OPHN1 PHF6 RBM10 RLIM SLC9A7 THOC2 UPF3B ZNF41

Enriched Fibromyalgia Pathways

ID	Pathway	FDR	Fibromyalgia Relation
hsa04722	Neurotrophin signaling pathway	0.001	Neurotrophin signaling pathway can disrupt the balance of neuronal function and contribute to the sensitization and amplification of pain signals observed in Fibromyalgia
hsa04060	Cytokine-cytokine receptor interaction	0.001	Cytokine-cytokine receptor interaction play a crucial role in cell signaling and communication within the immune system. They are involved in regulating inflammation, immune responses, and various physiological processes
hsa04010	MAPK signaling pathway	0.01	the MAPK signaling pathway can contribute to the amplification of pain signals, increased sensitivity to pain (hyperalgesia), and enhanced central sensitization observed in Fibromyalgia
hsa04064	NF-kappa B signaling pathway	0.01	the NF-kappa B pathway can contribute to the chronic low-grade inflammation observed in Fibromyalgia. The pathway is involved in the production of pro-inflammatory cytokines

Systemic Lupus Erythematosus Biomarkers Detected

16%
Enrichment

BANK1 TNFSF13B TNFSF4 IRF5

Systemic Lupus Erythematosus Library

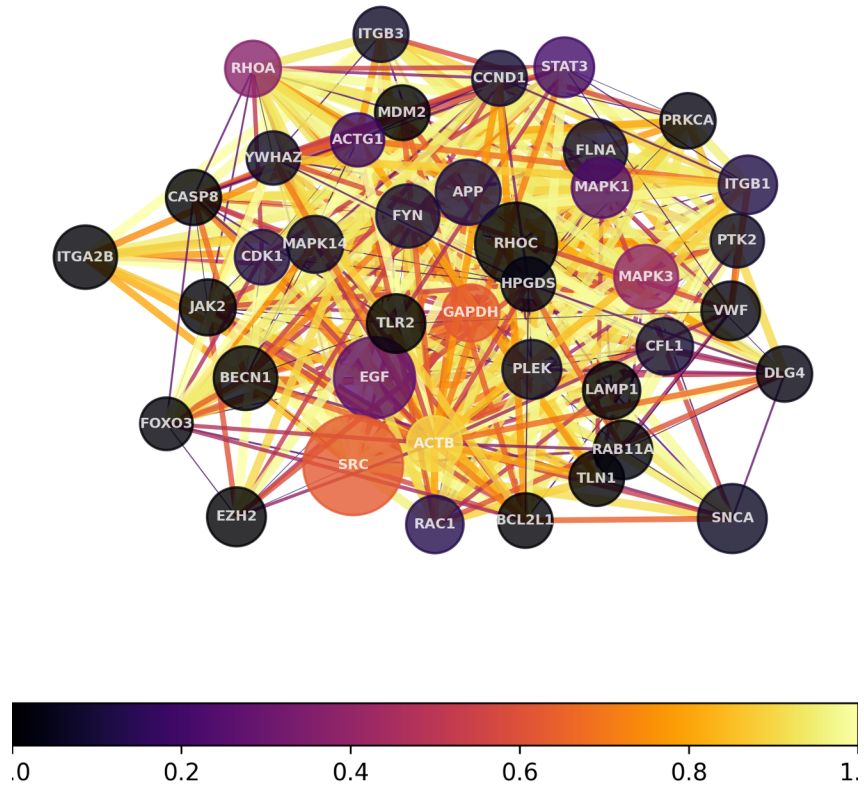
PTPN22 FCGR2A FCGR2B CTLA4 TREX1 DNASE1 TLR5 PDCD1 CR2 IRF5 STAT4 DNASE1L3 TLR7 HLA-DRB1 HLA-DQA1 HLA-DQB1 C2 C4A FCGR3A FCGR3B ZNF423 BANK1 TNFSF13B TNFSF4 ITGAM

Enriched Systemic Lupus Erythematosus Pathways

ID	Pathway	FDR	Lupus Relation
hsa04692	Antigen processing and presentation	0.001	This pathway can result in the presentation of self-antigens to B cells, leading to the production of autoantibodies. This process is a hallmark of SLE, with the presence of circulating autoantibodies against various self-antigens.
hsa04662	B cell receptor signaling pathway	0.001	The B cell receptor (BCR) signaling pathway plays a crucial role in the activation and function of B cells, which are involved in the immune response and the production of antibodies
hsa04064	NF-kappa B signaling pathway	0.01	The NF-kappa B pathway is involved in the activation of immune cells, including B cells, T cells, and dendritic cells, as well as the production of pro-inflammatory cytokines and chemokines

List of hub genes ranked by degree of connectivity

ACTB, SRC, GAPDH, MAPK3, RHOA, EGF, MAPK1, STAT3, ACTG1, RAC1, CDK1, ITGB1, APP, FYN, CFL1, CCND1, FLNA, MAPK14, ITGB3, PLEK, YWHAZ, PTK2, SNCA, HPGDS, PRKCA, VWF, DLG4, RAB11A, BECN1, MDM2, RHOC, FOXO3, LAMP1, TLN1, TLR2, ITGA2B, BCL2L1, JAK2, EZH2, CASP8



Pathway Related Treatment Identified			
Drug ID	Drug Name	Target Disease	Targeted Pathways
DR:D03068	Belimumab (<i>Benlysta</i>)	Systemic Lupus Erythematosus	NF-kappa B signaling pathway, Cytokine-cytokine receptor interaction, B cell receptor signaling pathway
DR:D02716	Pregabalin	Fibromyalgia	MAPK signaling pathway