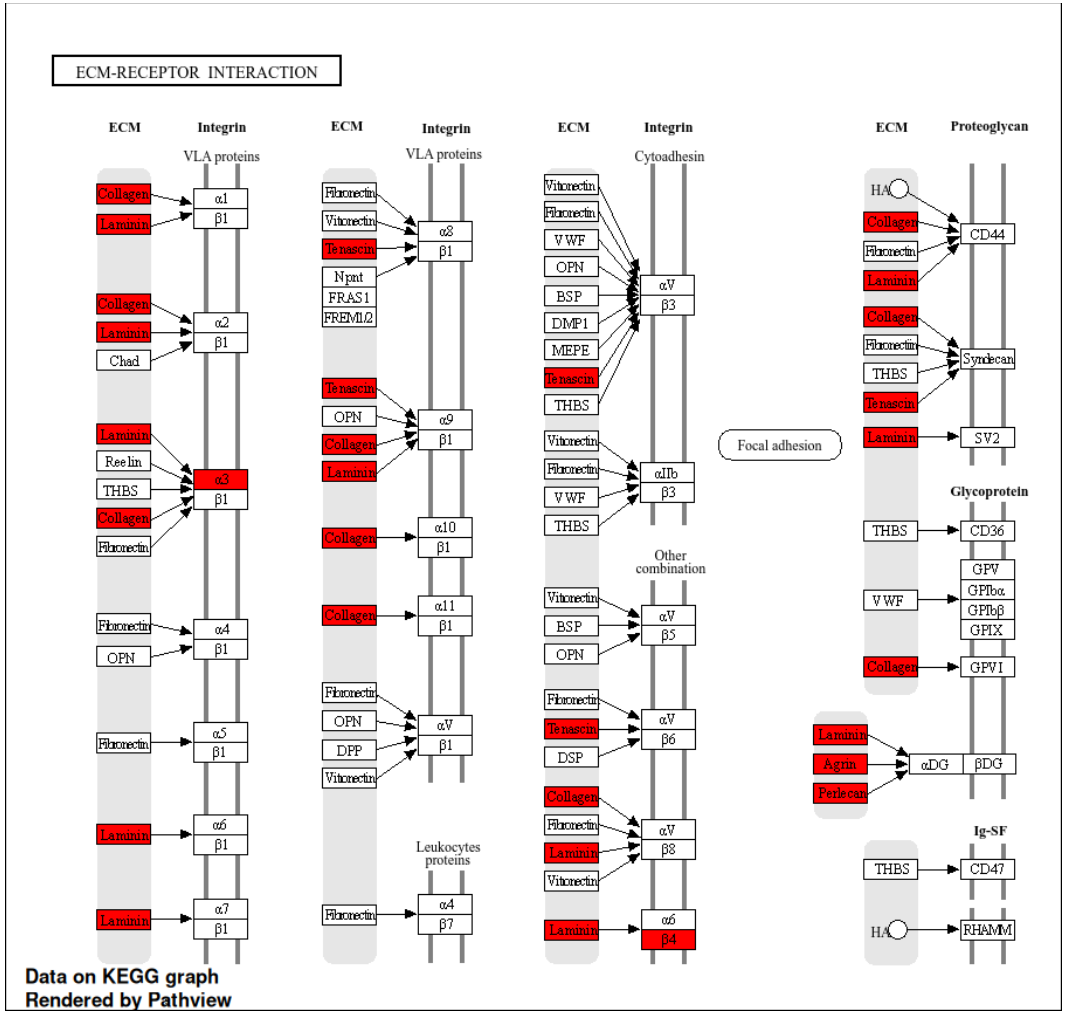
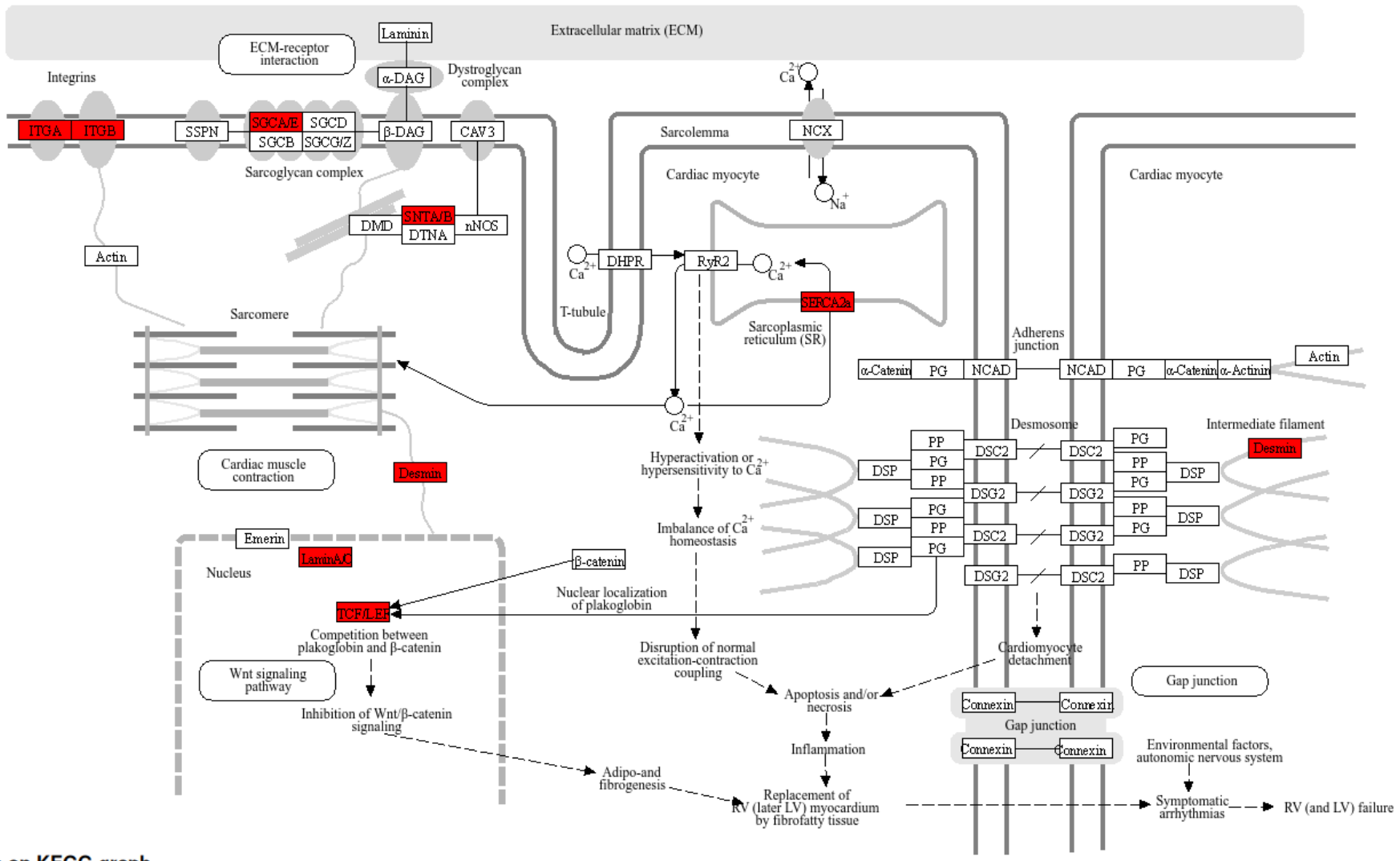
Additional File 8: Pathway analysis in detail

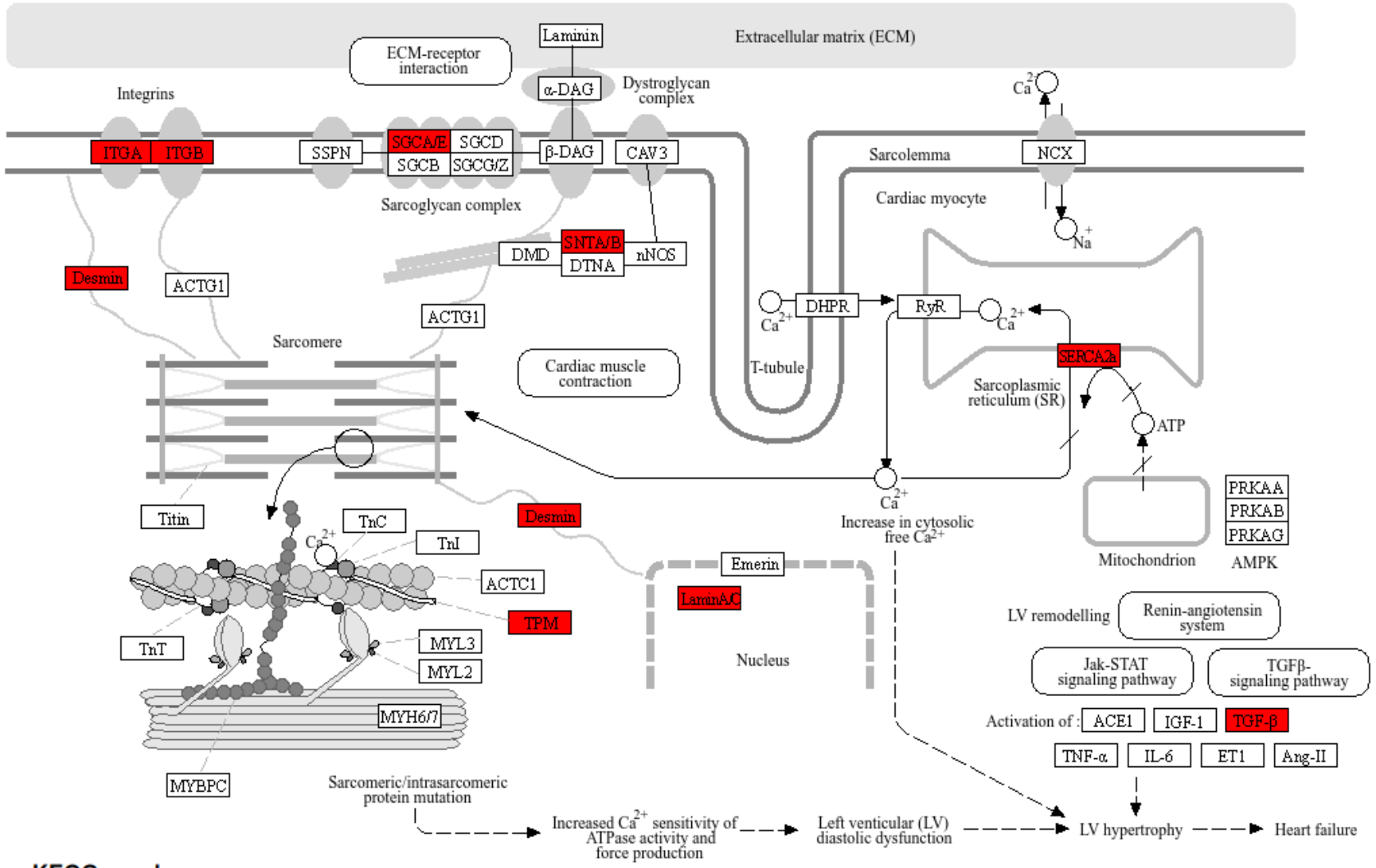


ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY

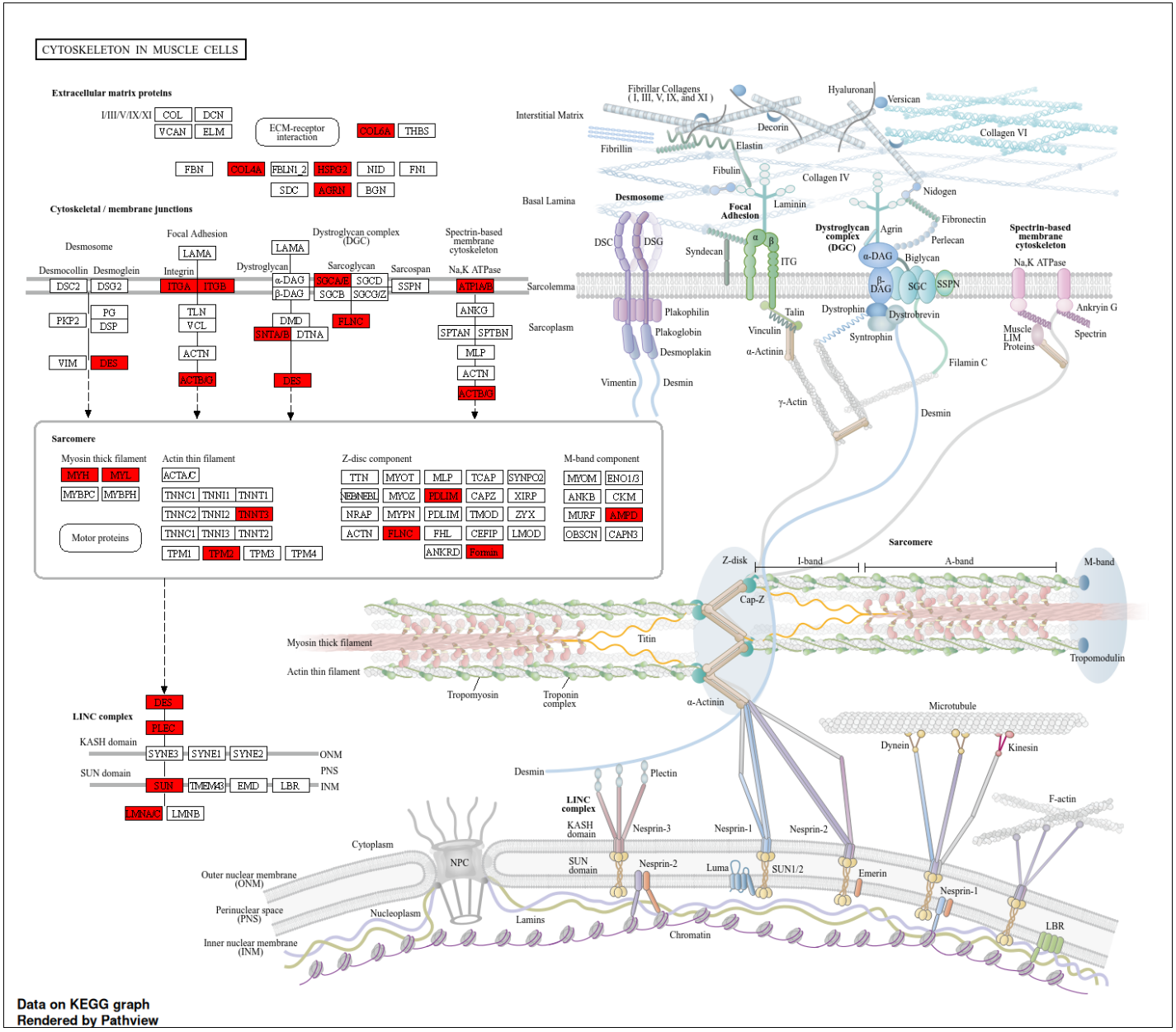


Data on KEGG graph
Rendered by Pathview

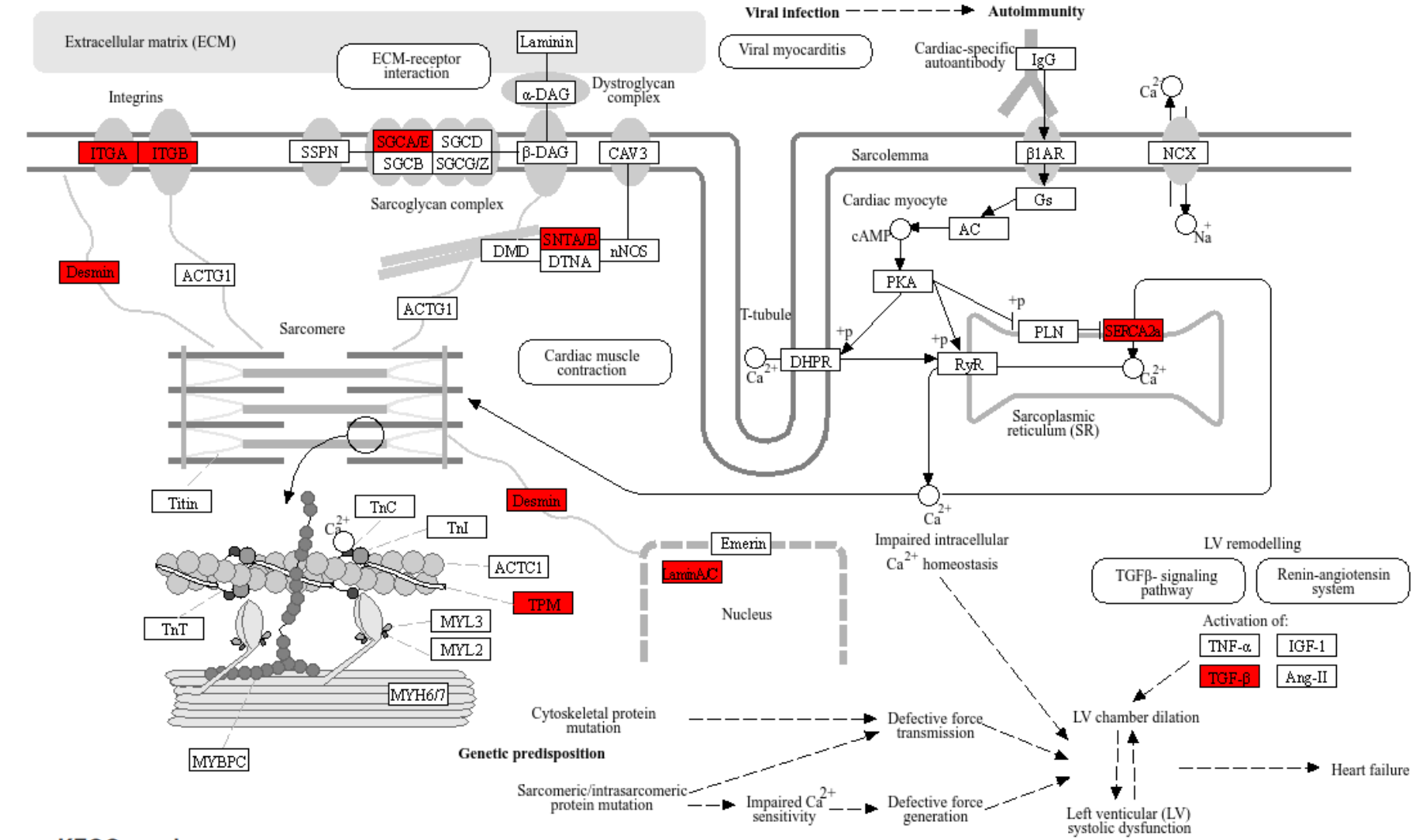
HYPERTROPHIC CARDIOMYOPATHY



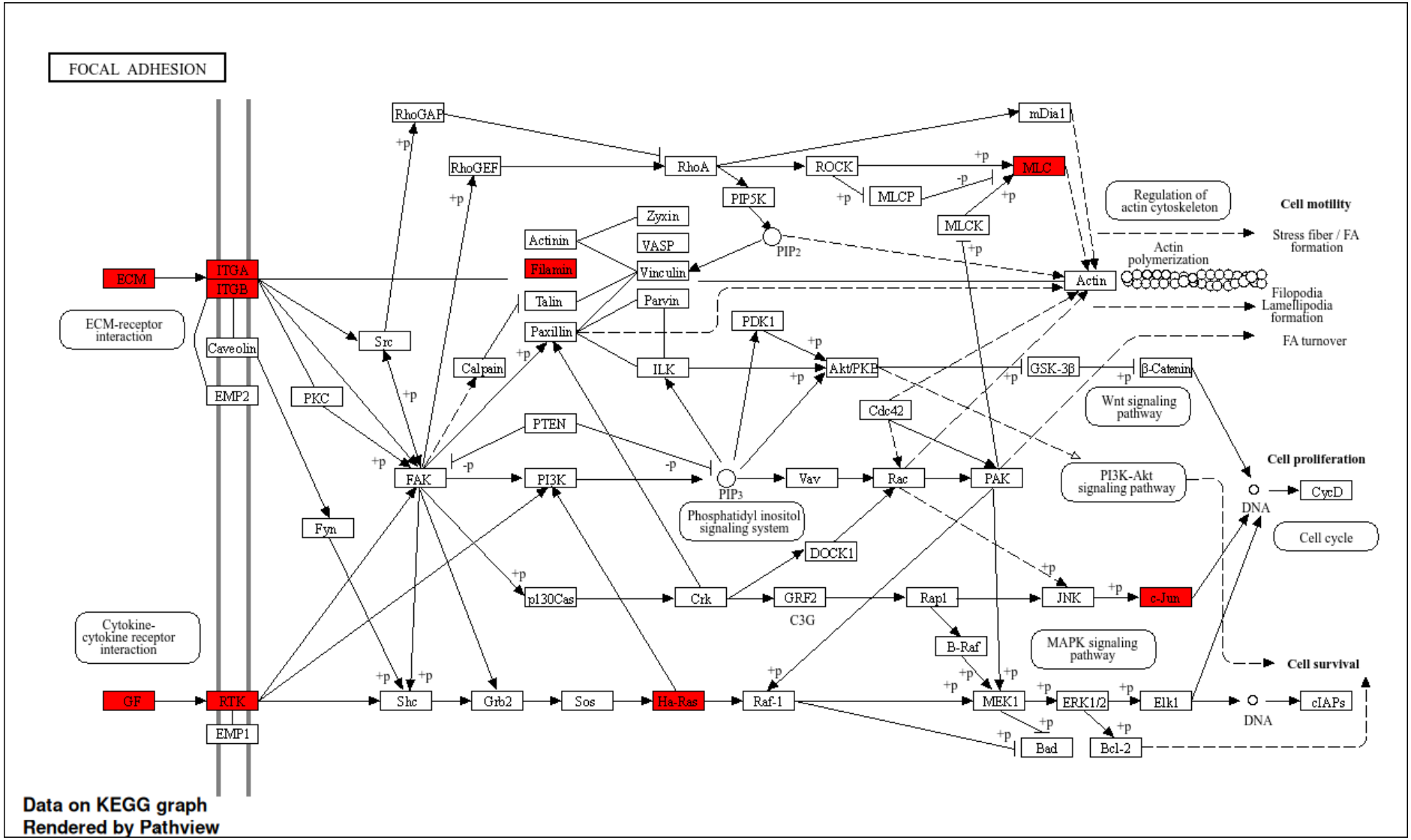
Data on KEGG graph
Rendered by Pathview

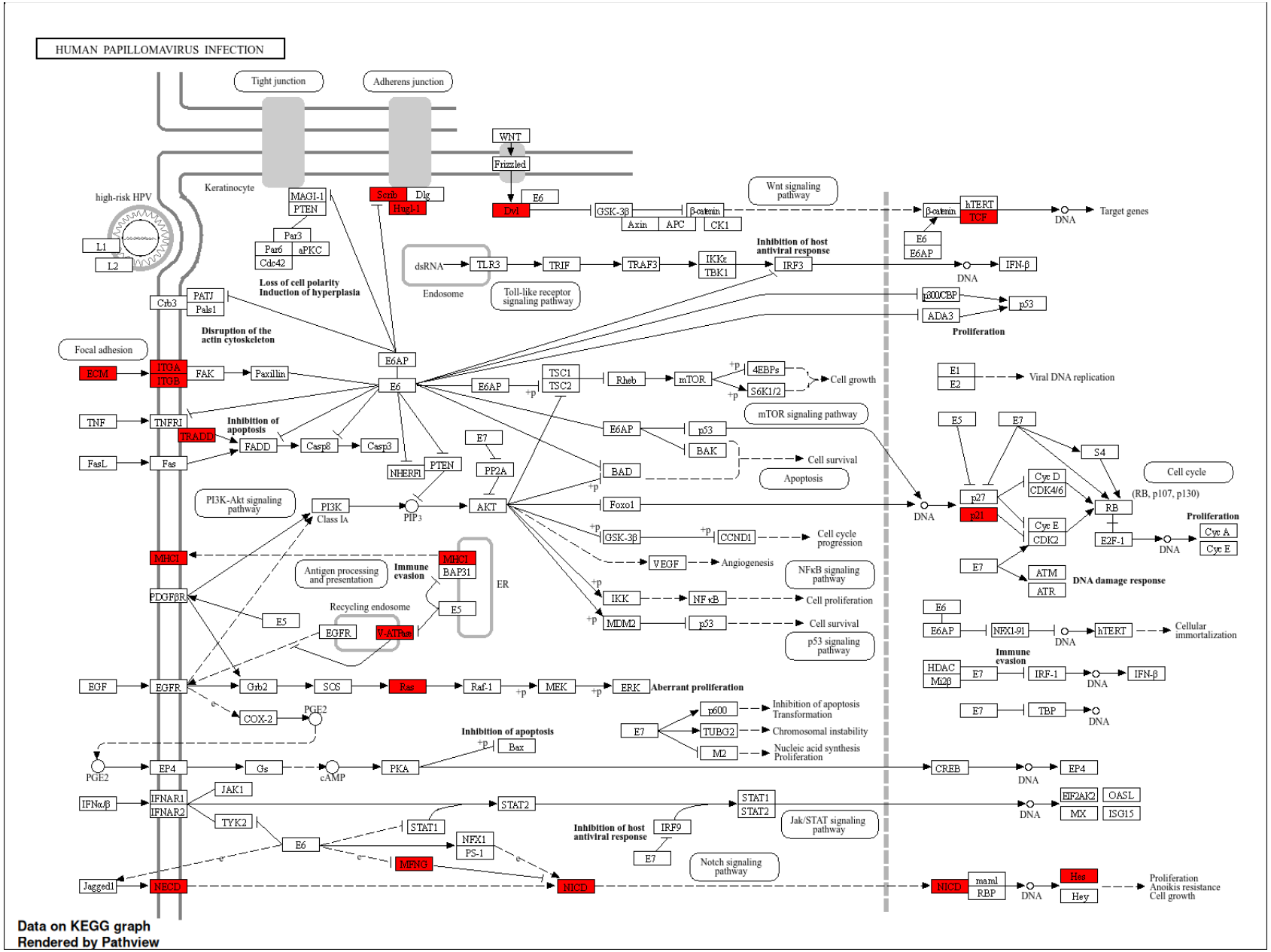

CYTOSKELETON IN MUSCLE CELLS
Extracellular matrix proteins
I/III/V/IX/XI
COL
DCN
VCAN
ELM
ECM-receptor interaction
COL6A
THBS
FBN
COL4A
FBLN1_2
HSPG2
NID
FN1
SDC
AGRN
BGN
Cytoskeletal / membrane junctions
Desmosome
Focal Adhesion
Dystroglycan complex (DGC)
Spectrin-based membrane cytoskeleton
Desmocollin
Desmoglein
Integrin
Dystroglycan
Sarcoglycan
Sarcospan
Na,K ATPase
DSC2
DSG2
ITGA
ITGB
α-DAG
β-DAG
SGCA/E
SGCB
SGCD
SGCG/Z
SSPN
ATP1A/E
Sarcolemma
PKP2
PG
DSP
TLN
VCL
DMD
SNTA/B
DTNA
FLNC
ANKG
SPTAN
SPTBN
Sarcoplasm
VIM
DES
ACTN
ACTB/G
MLP
Sarcomere
Myosin thick filament
Actin thin filament
Z-disc component
M-band component
MYH
MYL
MYBPC
MYBPH
ACTA/C
TNNC1
TNNI1
TNNT1
TNNC2
TNNI2
TNNT3
TNNC1
TNNI3
TNNT2
TPM1
TPM2
TPM3
TPM4
Motor proteins
TTN
MYOT
MLP
TCAP
SYNPO2
NEBNEBL
MYOZ
PDLIM
CAPZ
XIRP
NRAP
MYPN
PDLIM
TMOD
ZYX
ACTN
FLNC
FHL
CEFIP
LMOD
ANKRD
Fomun
MYOM
ENO1/3
ANKB
CKM
MURF
AMPD
OBSCN
CAPN3
LINC complex
PLEC
KASH domain
SYNE3
SYNE1
SYNE2
ONM
SUN domain
SUN
TMEM43
EMD
LBR
PNS
INM
LMNA/C
LMNB
Interstitial Matrix
Fibrillar Collagens (I, III, V, IX, and XI)
Hyaluronan
Versican
Decorin
Collagen VI
Fibrillin
Elastin
Fibulin
Collagen IV
Nidogen
Basal Lamina
Desmosome
Focal Adhesion
Laminin
Fibronectin
Dystroglycan complex (DGC)
Agrin
Perlecan
Spectrin-based membrane cytoskeleton
DSC
DSG
Syndecan
α
β
ITG
α-DAG
Biglycan
Na,K ATPase
β-DAG
SGC
SSPN
Ankryin G
Plakophilin
Talin
Dystrophin
Dystrobrevin
Plakoglobin
Vinculin
Syntrophin
Muscle LIM Proteins
Spectrin
Desmoplakin
α-Actinin
Filamin C
Vimentin
Desmin
γ-Actin
Desmin
Sarcomere
Z-disk
I-band
A-band
M-band
Cap-Z
Titin
Tropomodulin
Myosin thick filament
Actin thin filament
Tropomyosin
Troponin complex
α-Actinin
Microtubule
Dynein
Kinesin
Desmin
Plectin
F-actin
LINC complex
KASH domain
Nesprin-3
Nesprin-1
Nesprin-2
Cytoplasm
NPC
SUN domain
Nesprin-2
Luma
SUN1/2
Emerin
Nesprin-1
Outer nuclear membrane (ONM)
Perinuclear space (PNS)
Nucleoplasm
Lamins
Chromatin
LBR
Inner nuclear membrane (INM)
Data on KEGG graph
Rendered by Pathview

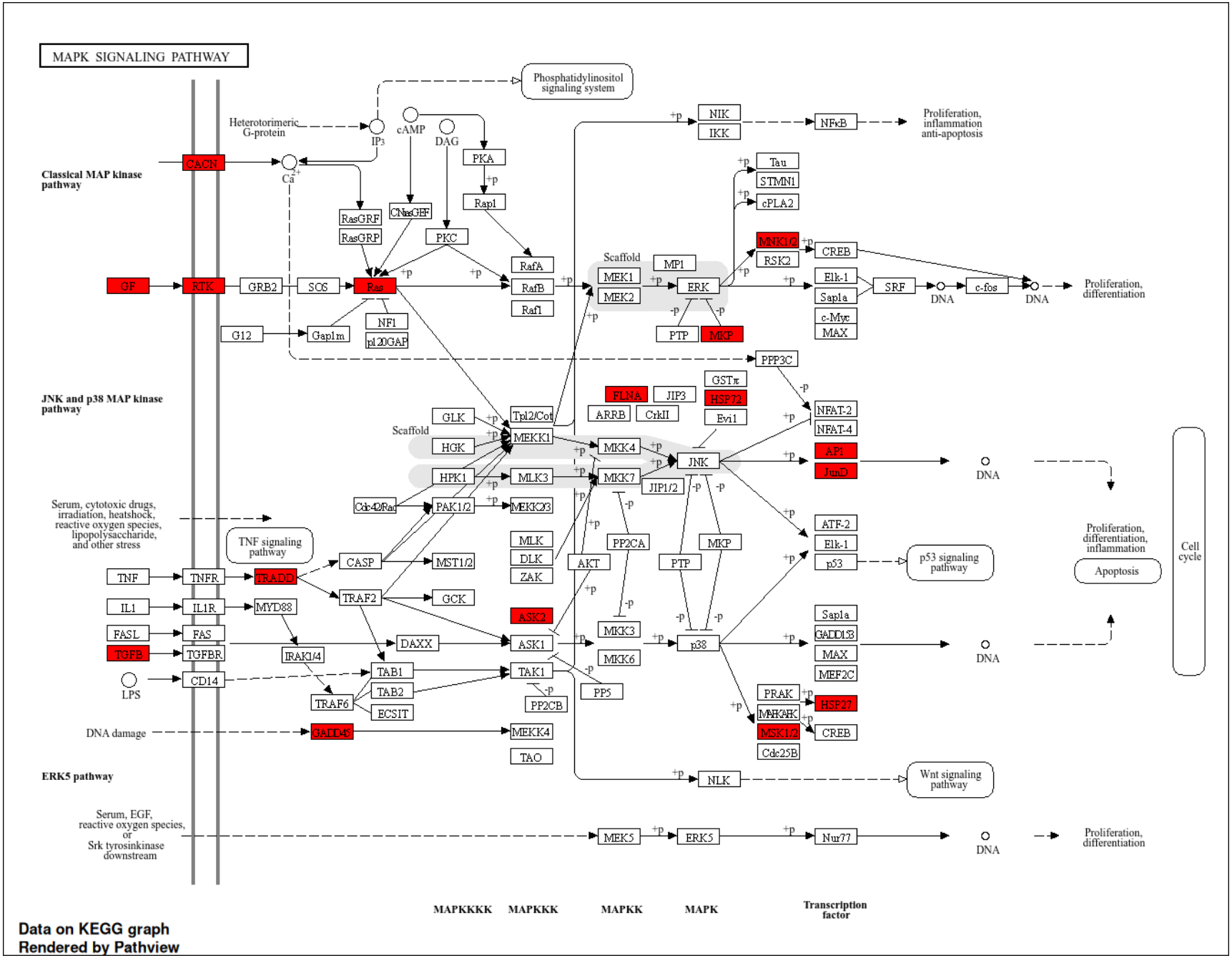
DILATED CARDIOMYOPATHY



Data on KEGG graph
Rendered by Pathview


FOCAL ADHESION
RhoGAP
RhoGEF
RhoA
ROCK
mDia1
MLC
MLCP
MLCK
PIP5K
PIP2
Regulation of actin cytoskeleton
Cell motility
Stress fiber / FA formation
Actin polymerization
Actin
Filopodia Lamellipodia formation
FA turnover
Zyxin
VASP
Vinculin
Parvin
Actinin
Filamin
Talin
Paxillin
ILK
PDK1
Akt/PKB
GSK-3β
β-Catenin
Wnt signaling pathway
Cdc42
PI3K-Akt signaling pathway
Cell proliferation
CycD
DNA
Cell cycle
ECM
ITGA
ITGB
ECM-receptor interaction
Caveolin
EMP2
Src
PKC
Calpain
FAK
PTEN
PI3K
PIP3
Phosphatidyl inositol signaling system
Vav
Rac
PAK
Fyn
DOCK1
p130Cas
Crk
GRF2
C3G
Rap1
JNK
c-Jun
B-Raf
MAPK signaling pathway
Cytokine-cytokine receptor interaction
GF
RTK
EMP1
Shc
Grb2
Sos
Ha-Ras
Raf-1
MEK1
ERK1/2
Elk1
cIAPs
Cell survival
Bad
Bcl-2
Data on KEGG graph
Rendered by Pathview


HUMAN PAPILLOMAVIRUS INFECTION
Tight junction
Adherens junction
WNT
Frizzled
Keratinocyte
high-risk HPV
L1
L2
MAGI-1
PTEN
Par3
Par6
aPKC
Cdc42
Scrib
Dlg
Hugl-1
Dvl
E6
GSK-3β
β-catenin
Axin
APC
CK1
Wnt signaling pathway
hTERT
TCF
DNA
Target genes
E6
E6AP
IFN-β
dsRNA
TLR3
TRIF
TRAF3
IKKε
TBK1
IRF3
Inhibition of host antiviral response
Endosome
Toll-like receptor signaling pathway
Loss of cell polarity
Induction of hyperplasia
Crb3
PATJ
Pals1
p300/CBP
ADA3
p53
Proliferation
Disruption of the actin cytoskeleton
Focal adhesion
ECM
ITGA
ITGB
FAK
Paxillin
E6AP
E6
TSC1
TSC2
Rheb
mTOR
4EBPs
S6K1/2
Cell growth
E1
E2
Viral DNA replication
TNF
TNFRI
TRADD
FADD
Casp8
Casp3
Inhibition of apoptosis
mTOR signaling pathway
E5
E7
S4
FasL
Fas
NHERF1
PTEN
PP2A
BAD
BAK
Cell survival
Apoptosis
Cell cycle
PI3K-Akt signaling pathway
PI3K
Class IA
PIP3
AKT
Foxo1
p27
p21
Cyc D
CDK4/6
Cyc E
CDK2
RB
(RB, p107, p130)
E2F-1
Proliferation
Cyc A
Cyc E
GSK-3β
CCND1
Cell cycle progression
VEGF
Angiogenesis
NFκB signaling pathway
ATM
ATR
DNA damage response
MHCI
PDGFβR
Antigen processing and presentation
Immune evasion
MHCI
BAP31
ER
Recycling endosome
E5
EGFR
V-ATPase
IKK
NFκB
Cell proliferation
MDM2
p53
Cell survival
p53 signaling pathway
E6
E6AP
NFX1-91
hTERT
Cellular immortalization
Immune evasion
HDAC
Mi2β
IRF-1
IFN-β
EGF
EGFR
Grb2
SOS
Ras
Raf-1
MEK
ERK
Aberrant proliferation
TBP
COX-2
PGE2
E7
p600
TUBG2
M2
Inhibition of apoptosis
Transformation
Chromosomal instability
Nucleic acid synthesis
Proliferation
Inhibition of apoptosis
Bax
EP4
Gs
cAMP
PKA
CREB
IFNα/β
IFNAR1
IFNAR2
JAK1
TYK2
STAT2
STAT1
STAT1
STAT2
Jak/STAT signaling pathway
EIF2AK2
OASL
MX
ISG15
Inhibition of host antiviral response
IRF9
Jagged1
NECD
MFNG
NFX1
PS-1
NICD
Notch signaling pathway
NICD
maml
RBP
Hes
Hey
Proliferation
Anoikis resistance
Cell growth
Data on KEGG graph
Rendered by Pathview


MAPK SIGNALING PATHWAY
Phosphatidylinositol signaling system
Heterotorimeric G-protein
IP3
cAMP
DAG
Classical MAP kinase pathway
CACN
Ca2+
PKA
Rap1
RasGRF
RasGRP
CNrasGEF
PKC
GF
RTK
GRB2
SOS
Ras
RafA
RafB
Raf1
G12
Gaplm
NF1
pl20GAP
Scaffold
MP1
MEK1
MEK2
ERK
PTP
MKP
NIK
IKK
NFκB
Proliferation, inflammation anti-apoptosis
Tau
STMN1
cPLA2
MNK1/2
RSK2
CREB
Elk-1
Sap1a
c-Myc
MAX
SRF
DNA
c-fos
Proliferation, differentiation
PPP3C
JNK and p38 MAP kinase pathway
GLK
HGK
HPK1
Cdc42/Rac
PAK1/2
Tpl2/Cot
MEKK1
MLK3
MEKK2/3
Scaffold
FLNA
JIP3
ARRB
CrkII
GSTπ
HSP72
Evi1
MKK4
MKK7
JIP1/2
JNK
NFAT-2
NFAT-4
AP1
JunD
ATF-2
Elk-1
p53
p53 signaling pathway
Serum, cytotoxic drugs, irradiation, heatshock, reactive oxygen species, lipopolysaccharide, and other stress
TNF signaling pathway
TNF
TNFR
TRADD
IL1
IL1R
MYD88
FASL
FAS
TGFB
TGFBR
LPS
CD14
CASP
TRAF2
MST1/2
GCK
IRAK1/4
TRAF6
TAB1
TAB2
ECSIT
DAXX
ASK1
ASK2
TAK1
PP2CB
MLK
DLK
ZAK
AKT
PP2CA
PTP
MKP
MKK3
MKK6
p38
PP5
Sap1a
GADD153
MAX
MEF2C
PRAK
MAPKAPK
MSK1/2
HSP27
CREB
Cdc25B
DNA damage
GADD45
MEKK4
TAO
NLK
Wnt signaling pathway
ERK5 pathway
Serum, EGF, reactive oxygen species, or Srk tyrosinkinase downstream
MEK5
ERK5
Nur77
Proliferation, differentiation
Proliferation, differentiation, inflammation
Apoptosis
Cell cycle
MAPKKKK
MAPKKK
MAPKK
MAPK
Transcription factor
Data on KEGG graph
Rendered by Pathview