A. Phosphoproteome

Speg-CKO vs Control

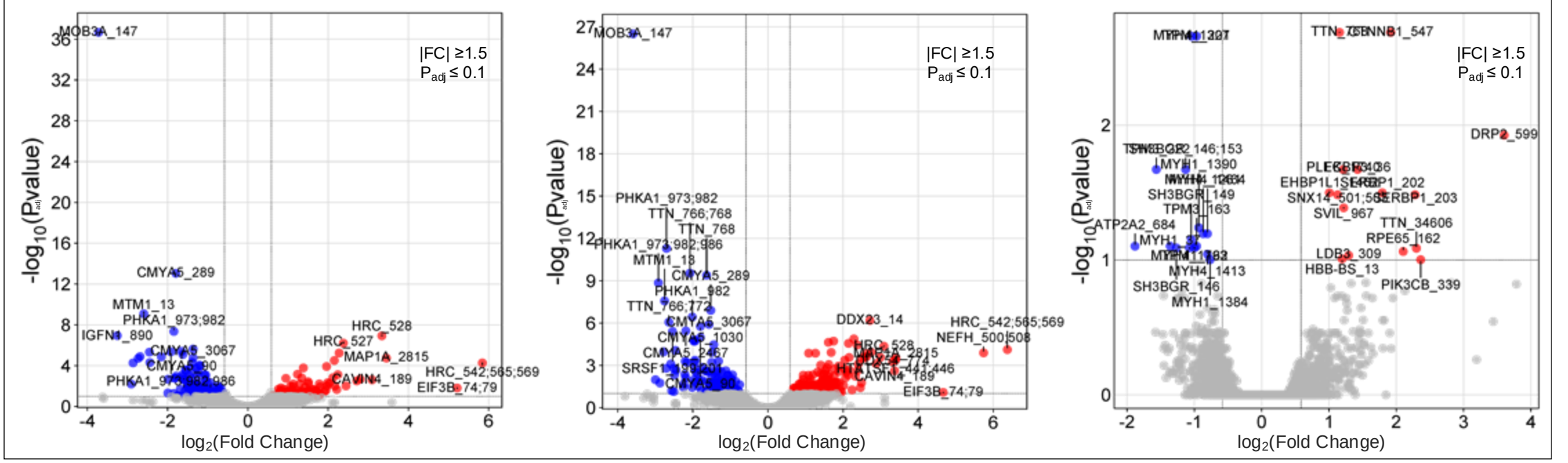
Down regulated (134) Not sig (7694) Up regulated (113)

Speg-CKO/*Dnm2*$^{+/-}$ vs Control

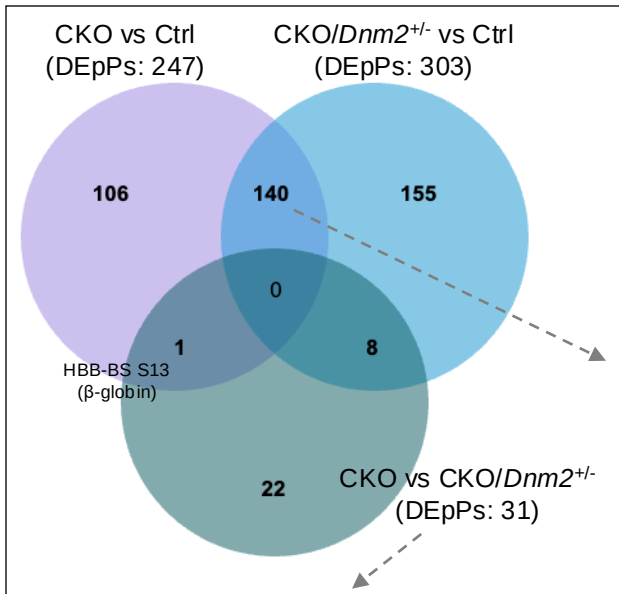
Down regulated (139) Not sig (8490) Up regulated (164)

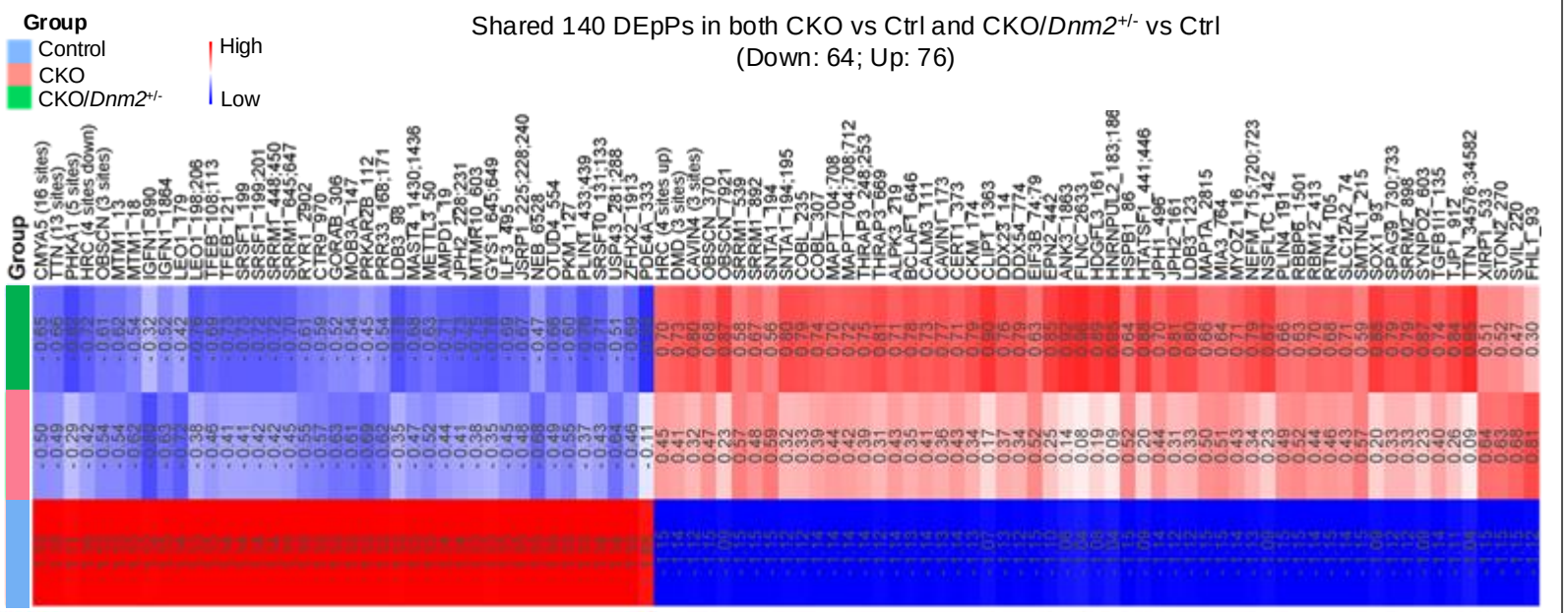
Speg-CKO vs *Speg*-CKO/*Dnm2*$^{+/-}$

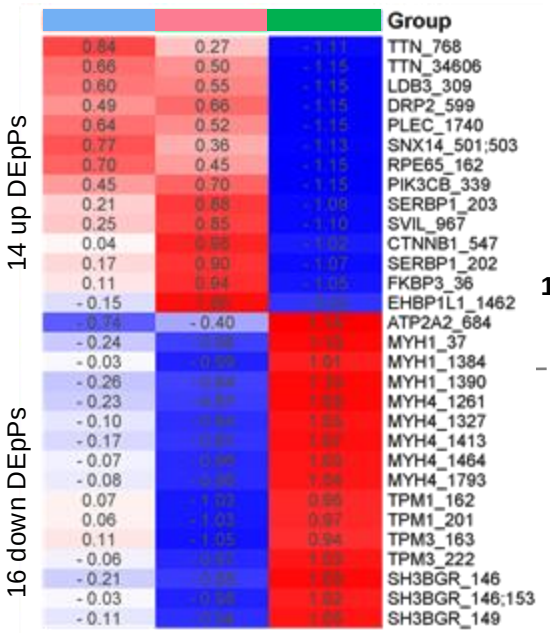
Down regulated (16) Not sig (6933) Up regulated (15)



B. Comparison analyses of Phosphoproteome







18 unique proteins

	CC	MF	BP
TTN	Thin filament	Actin filament binding	Muscle contraction
LDB3	Z disc	Protein kinase C binding	Sarcomere organization
DRP2	Plasma membrane	Zinc ion binding	Synaptic signaling
PLEC	Extracellular exosome	Actin filament binding	Muscle development
SNX14	Late endosome	Phosphatidylinositol binding	Protein transport
RPE65	SR	Vitamin A metabolic process	Phosphatidylserine binding
PIK3CB	Plasma membrane	Protein serine kinase activity	Endocytosis
SERBP1	Extracellular exosome	Ribosome binding	Negative regulation of translation
SVIL	Costamere	Actin filament binding	Actin filament severing
CTNNB1	Z disc	Protein kinase activity	Protein polyubiquitination
FKBP3	Nucleus	Microtubule binding	Muscle development
EHBP1L1	Endosome	NA	NA
ATP2A2	SR	Calcium ion binding	Ca^{2+} transport to SR
MYH1	A band	Calmodulin binding	Muscle contraction
MYH4	sarcomere	Calmodulin binding	Muscle contraction
TPM1	Thin filament tropomyosin	Actin filament binding	Muscle contraction
TPM3	Thin filament tropomyosin	Actin filament binding	Muscle contraction
SH3BGR	Z-lines	Sarcomere formation	Muscle development