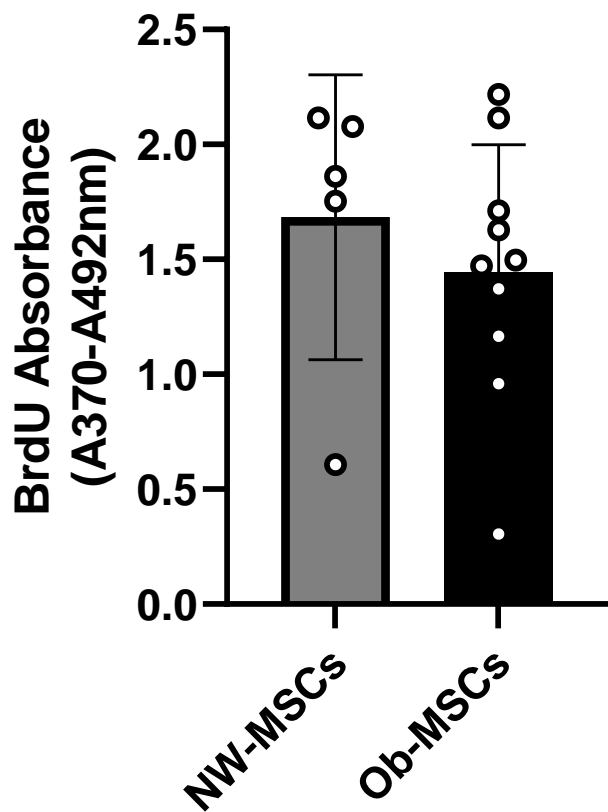


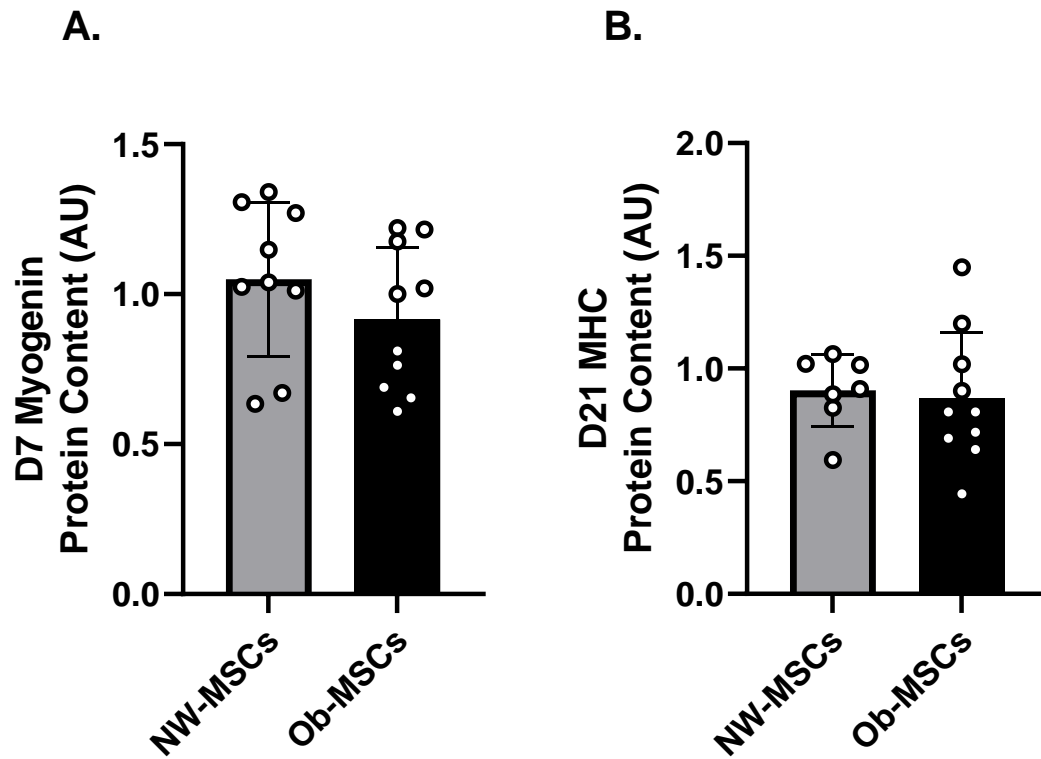
Supplemental Table 1. WB and WES Antibody and Assay Conditions

Antibody	Manufacturer	Cat. No.	Platform	Ab Dilution
β -Actin	Cell Signaling Technology	4970	WES	1:50
Akt	Cell Signaling Technology	9272	WES	1:50
Akt ^{S473}	Cell Signaling Technology	9271	WES	1:50
mTOR	Cell Signaling Technology	2972	WES	1:50
mTOR ^{S2448}	Cell Signaling Technology	2971	WES	1:50
p70S6k ^{T421/S242} / p85S6k ^{T444/S447}	Cell Signaling Technology	9204	WES	1:50
DGAT1	Novus Biologicals	NB100-57086	WES	1:50
SREBP1	Novus Biologicals	NB100-2215	WES	1:25
FAS	Cell Signaling Technology	3180	WES	1:500
LXR α	Novus Biologicals	NB400-157	WES	1:25
ACC ^{Ser79}	Cell Signaling Technology	3662	WES	1:200
ACC	Cell Signaling Technology	3661	WES	1:200
SCD-1	R&D Systems	AF7550	WES	10 μ g/mL

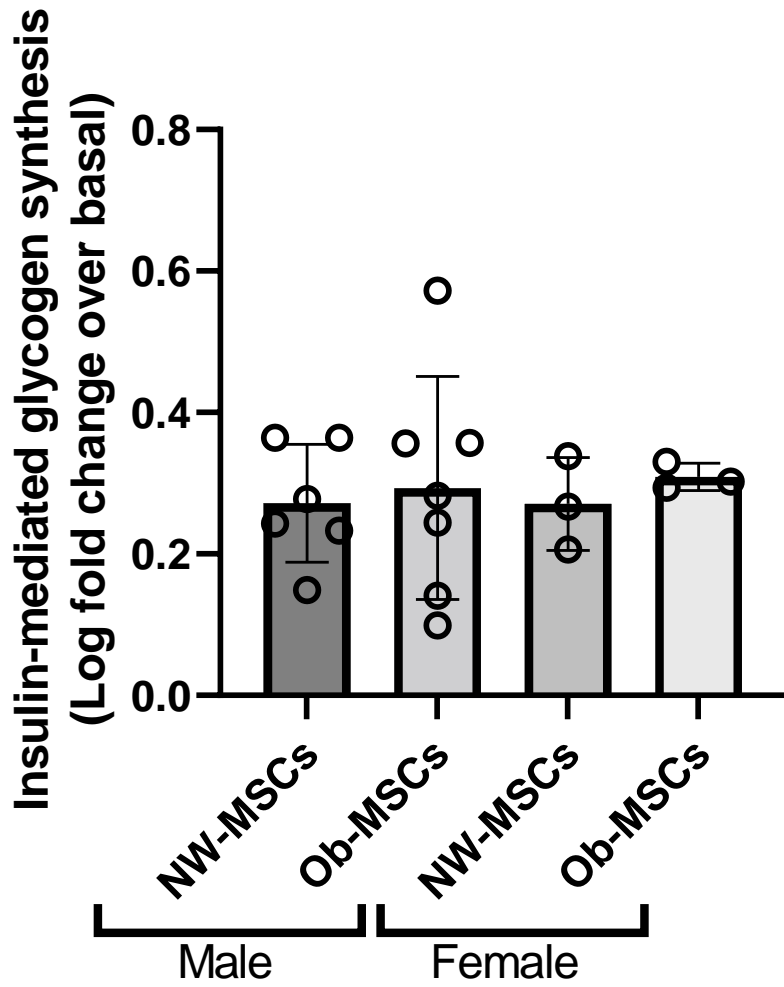
Supplementary Table 2. Maternal and Infant Characteristics			
Maternal Characteristics			
	Low FFA (n=9)	High FFA (n=10)	p-value
Age (y)	25.4 ± 5.6	31.9 ± 6.7	<0.05*
Pre-Pregnancy BMI (kg/m ²)	26.2 ± 6.3	28.3 ± 6.4	0.47
Glucose (mg/dL)	73.7 ± 7.2	80.3 ± 8.8	0.09
Insulin (uU/mL)	11.6 ± 8.0	14.3 ± 6.3	0.41
HOMA-IR	2.1 ± 1.6	2.9 ± 1.8	0.32
Triglycerides (mg/dL)	152.3 ± 51.3	170.0 ± 53.8	0.48
Free fatty acids (uEq/L)	289.7 ± 74.6	506.4 ± 104.4	<0.0001***
Gestational weight gain (kg)	12.1 ± 6.0	12.9 ± 6.1	0.763
Gestational age at delivery (wks)	40.1 ± 1.1	39.2 ± 0.8	<0.05*
Neonate Characteristics			
Sex, n (f/m)	9 (3/6)	10 (3/7)	0.88
Birth weight (g)	3334.8 ± 444.9	3281.6 ± 292.6	0.76
Neonatal Adiposity (%)	9.5 ± 4.7	8.5 ± 3.3	0.64
Cord blood glucose (mg/dL)	74.1 ± 11.7	74.1 ± 27.5	1.00
Cord blood insulin (uIU/mL)	7.9 ± 5.2	8.6 ± 4.0	0.78
Cord blood leptin (ng/mL)	10.0 ± 7.4	17.4 ± 13.1	0.21
Data are mean ± SD. *Significant independent t-test, p<0.05			



Supplemental Figure 1. Undifferentiated MSCs were incubated with 5-bromo-2'-deoxyuridine (BrdU) for 24h before measurement of BrdU incorporation into newly synthesized DNA as a readout of proliferation rate. BrdU incorporation was similar between NW-MSCs and Ob-MSCs.

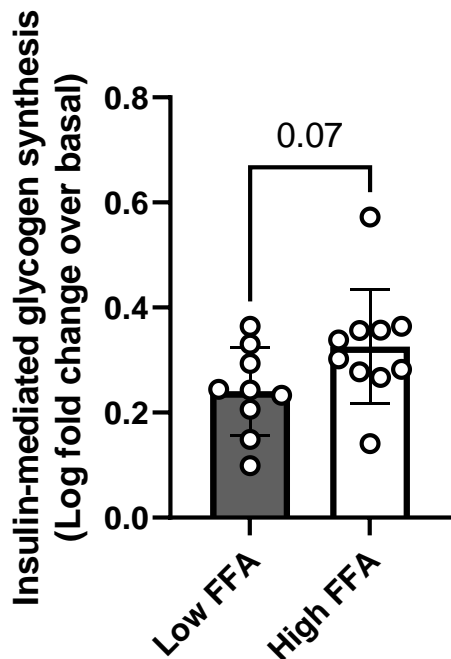


Supplemental Figure 2. Immunoblot analysis revealed expression of myogenic markers, Myogenin (A) and myosin heavy chain (MHC) at day 7 and day 21 of differentiation, respectively, were similar in NW-MSCs and Ob-MSCs.

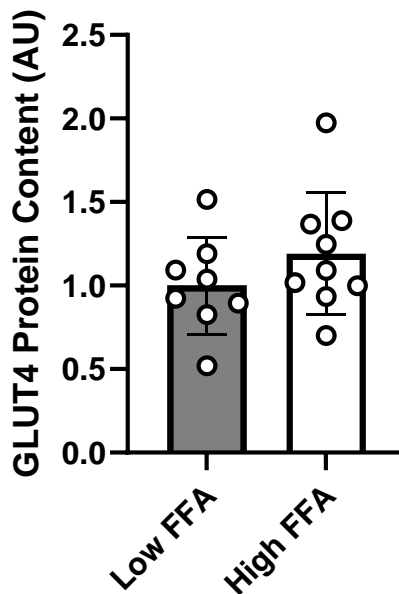


Supplementary Figure 3. Insulin-mediated rates of glycogen synthesis (log fold change over basal) were similar in MSCs from male and female offspring, regardless of the parent's BMI classification.

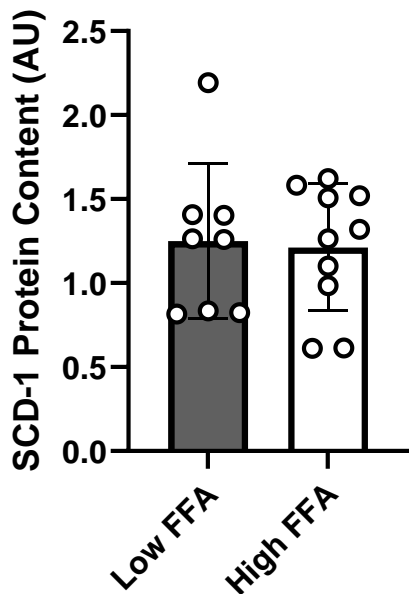
A.



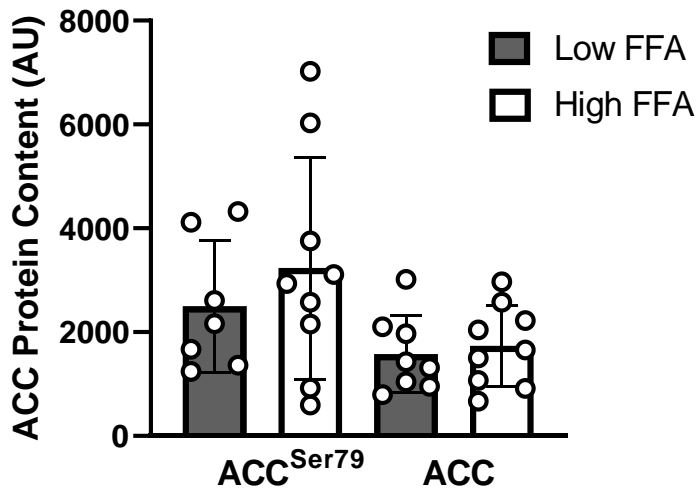
B.



C.



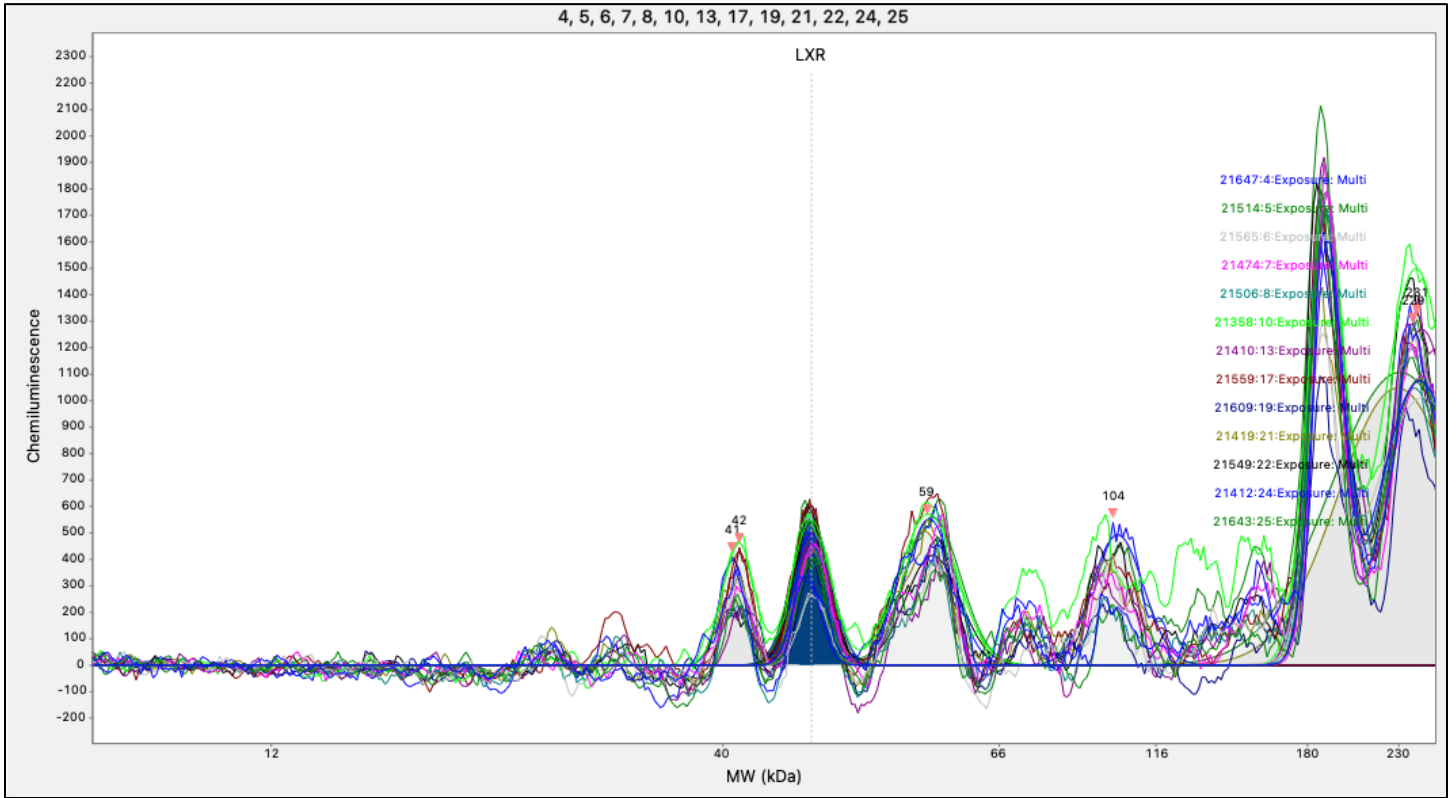
D.



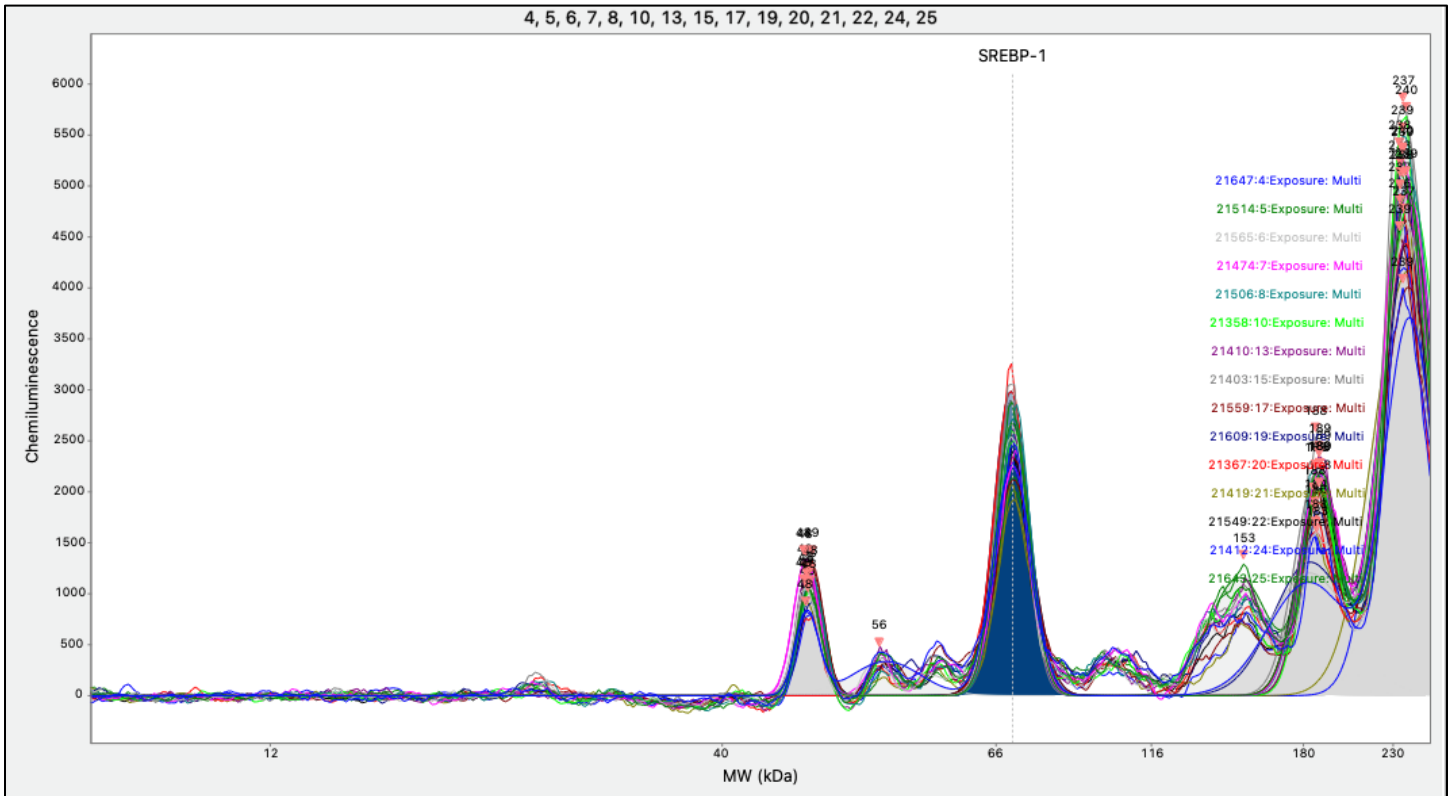
Supplementary Figure 4. Insulin-mediated rates of glycogen synthesis (log fold change over basal) were trending toward an increase ($p=0.07$) in the MSCs from offspring born to mothers with elevated FFA during pregnancy (A). Immunoblot analysis targeting proteins involved in lipid synthesis and storage revealed similar protein content of GLUT4 (B), SCD-1(C) and ACC (D) when stratified by maternal FFA. $n=7-10$.

Supplementary Figure 5: ProteinSimple WES chemiluminescent protein measures

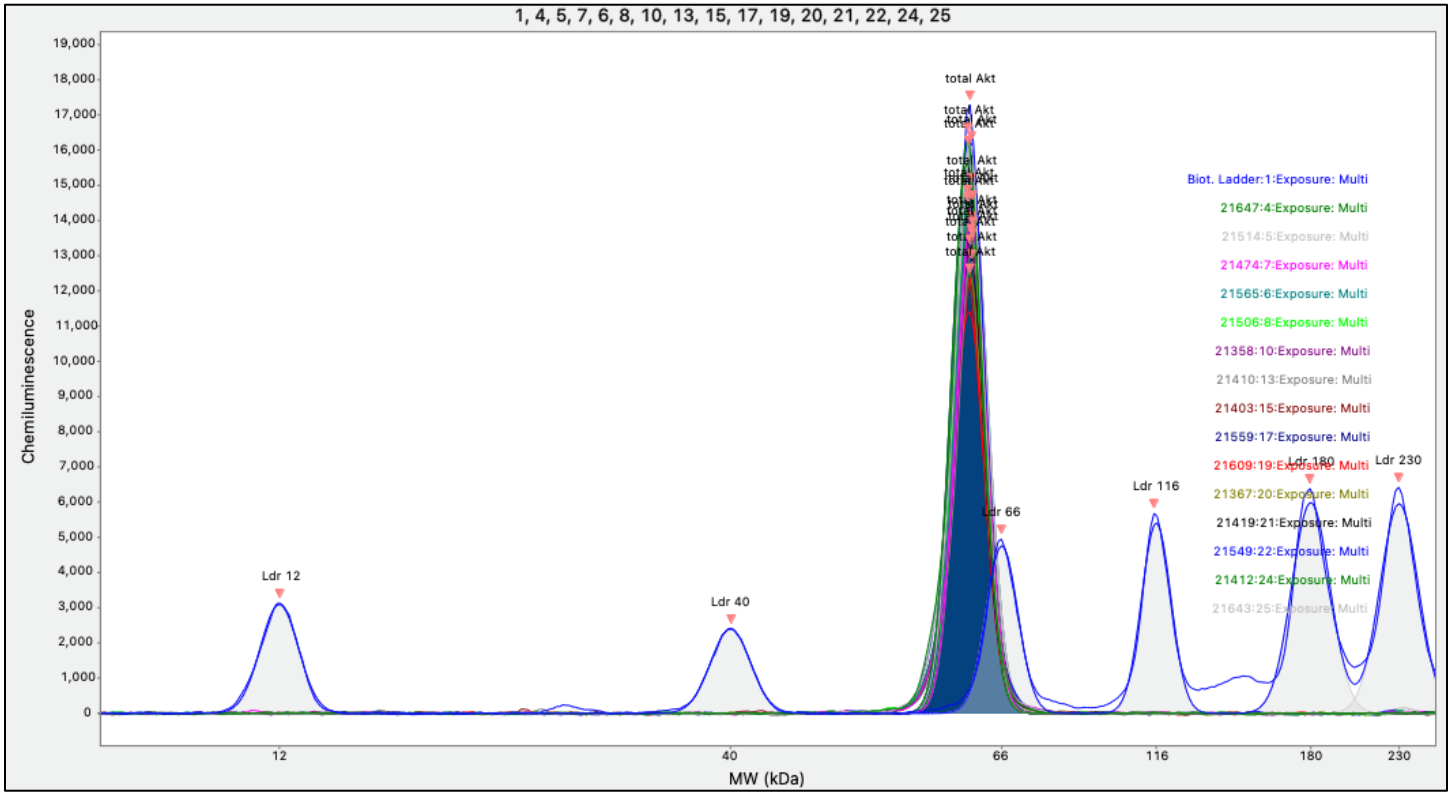
A. LXR α



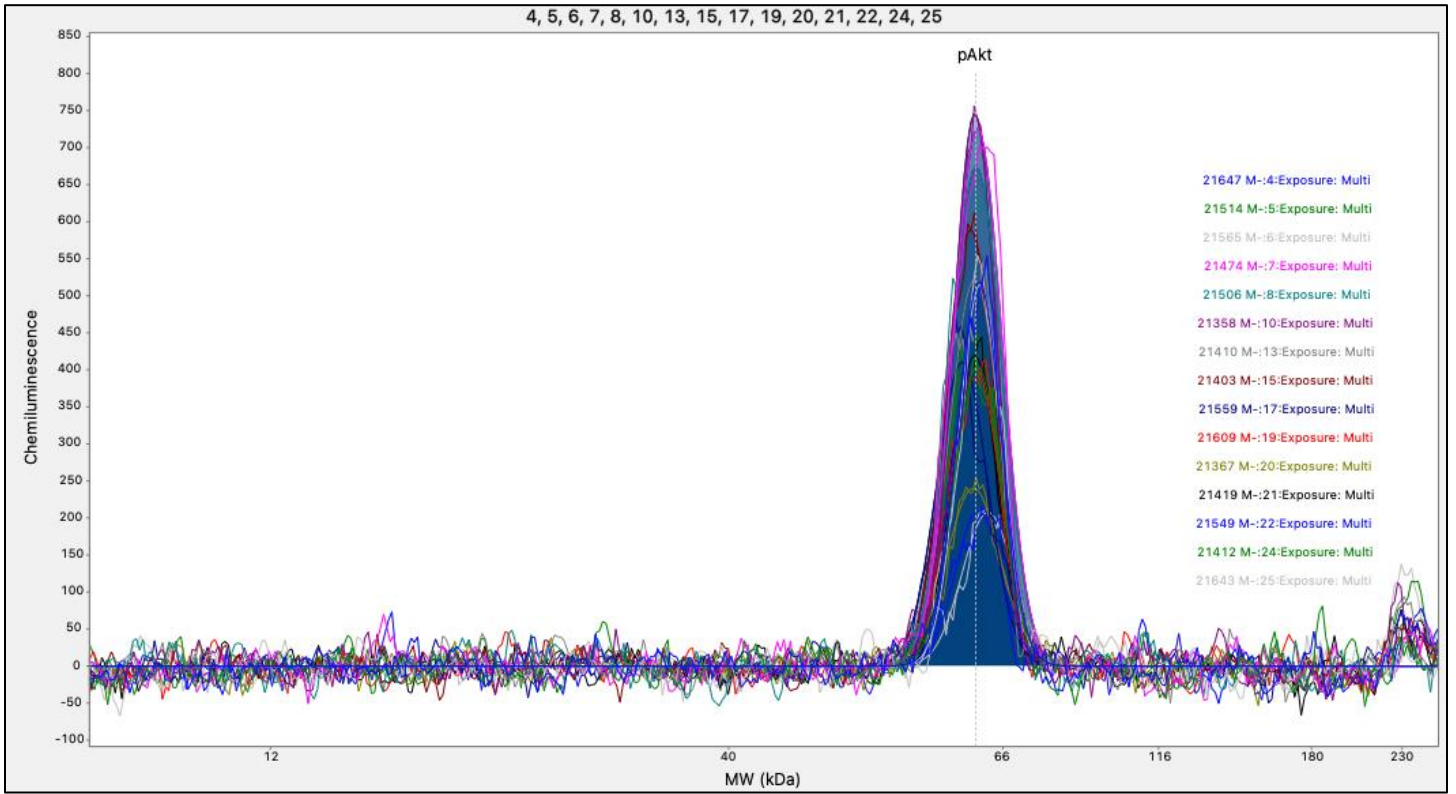
B. SREBP1c



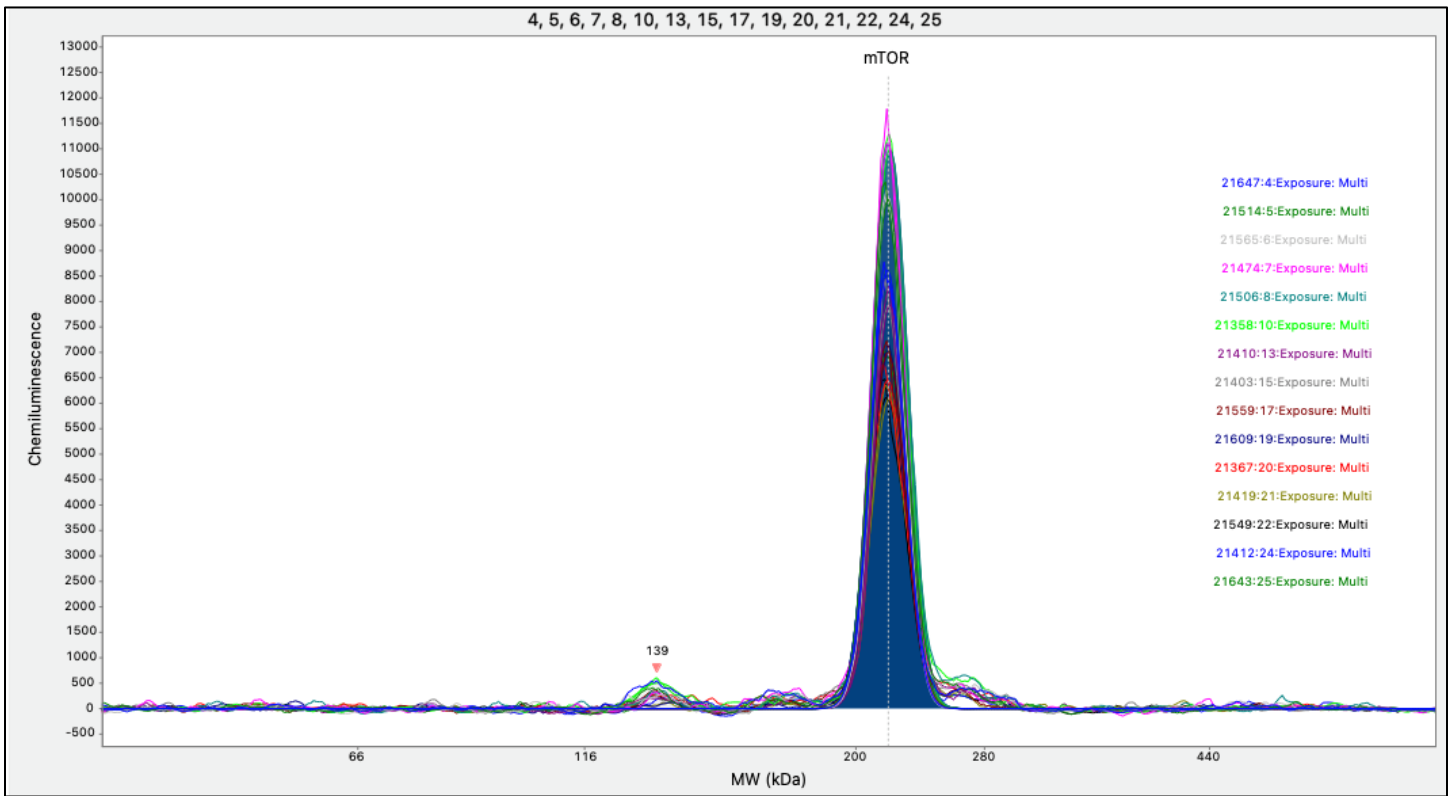
E. Akt



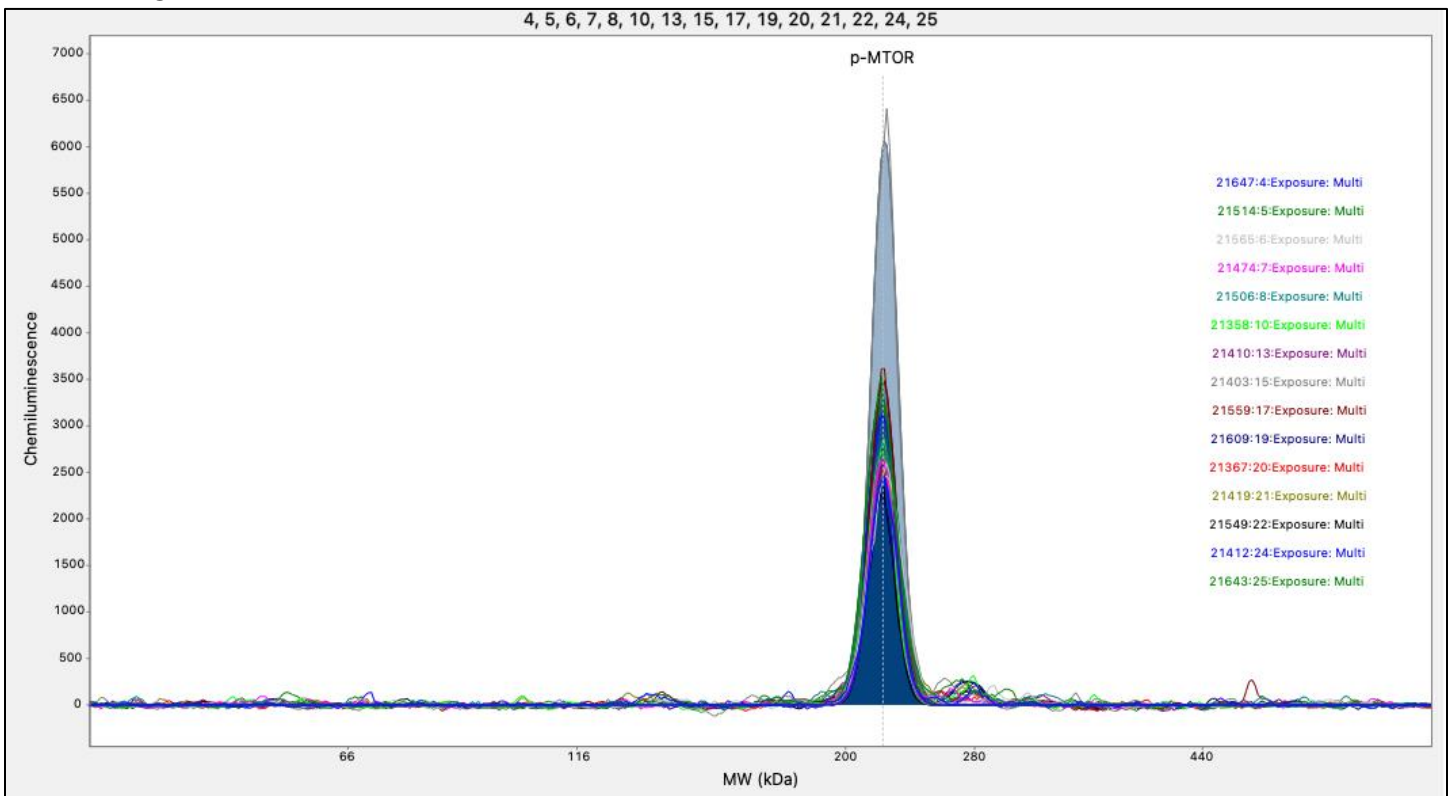
F. Akt^{ser473}



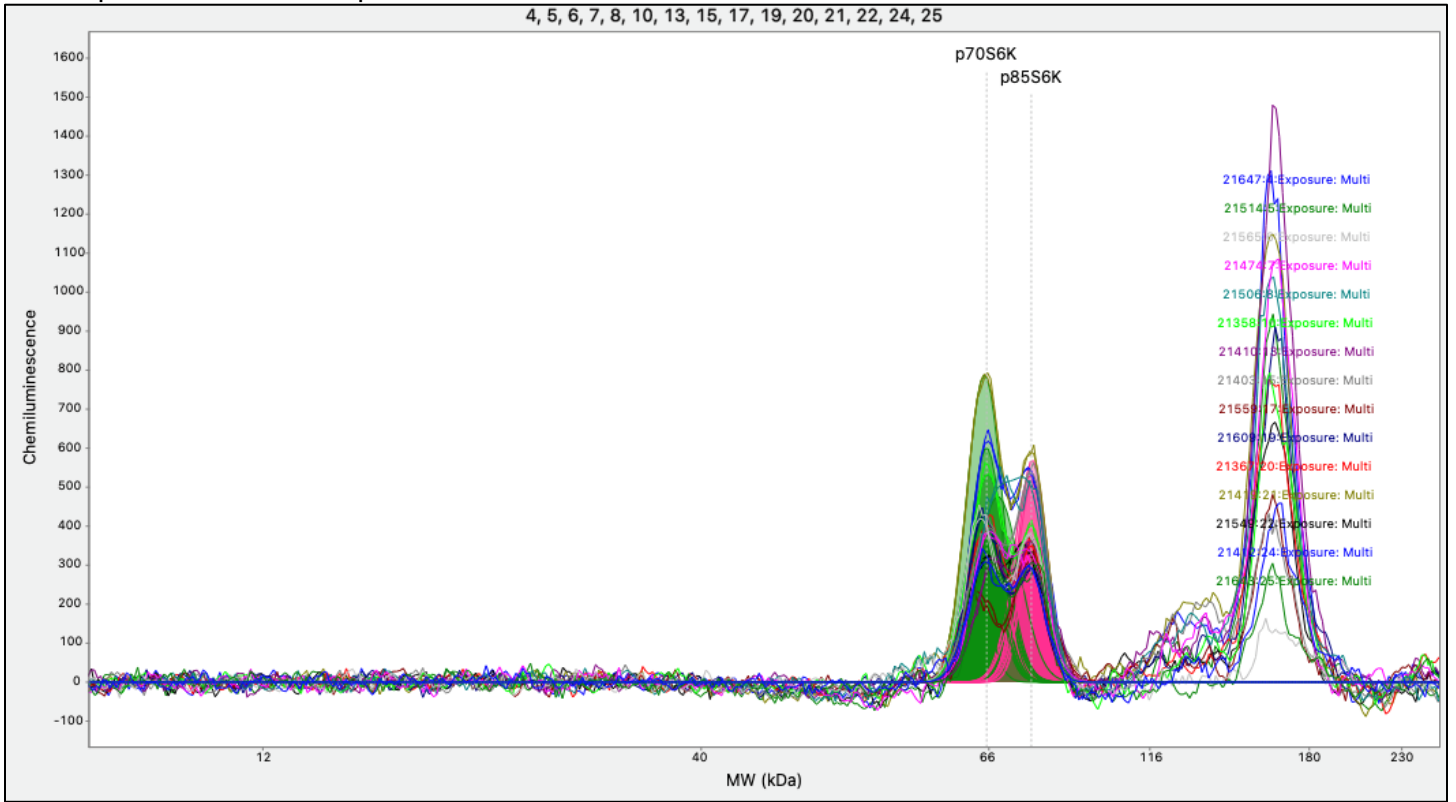
G. mTOR



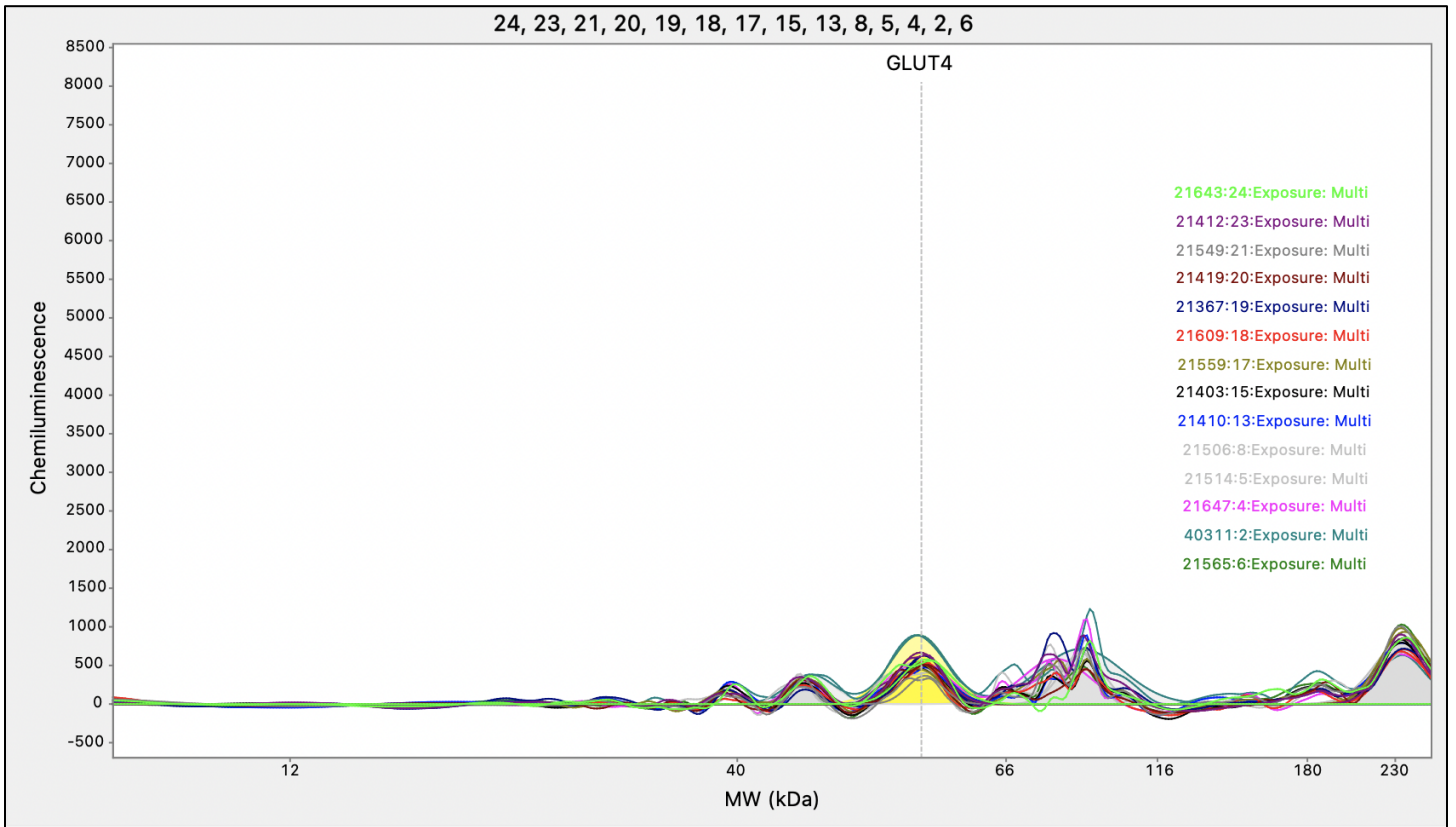
H. mTOR^{Ser2448}



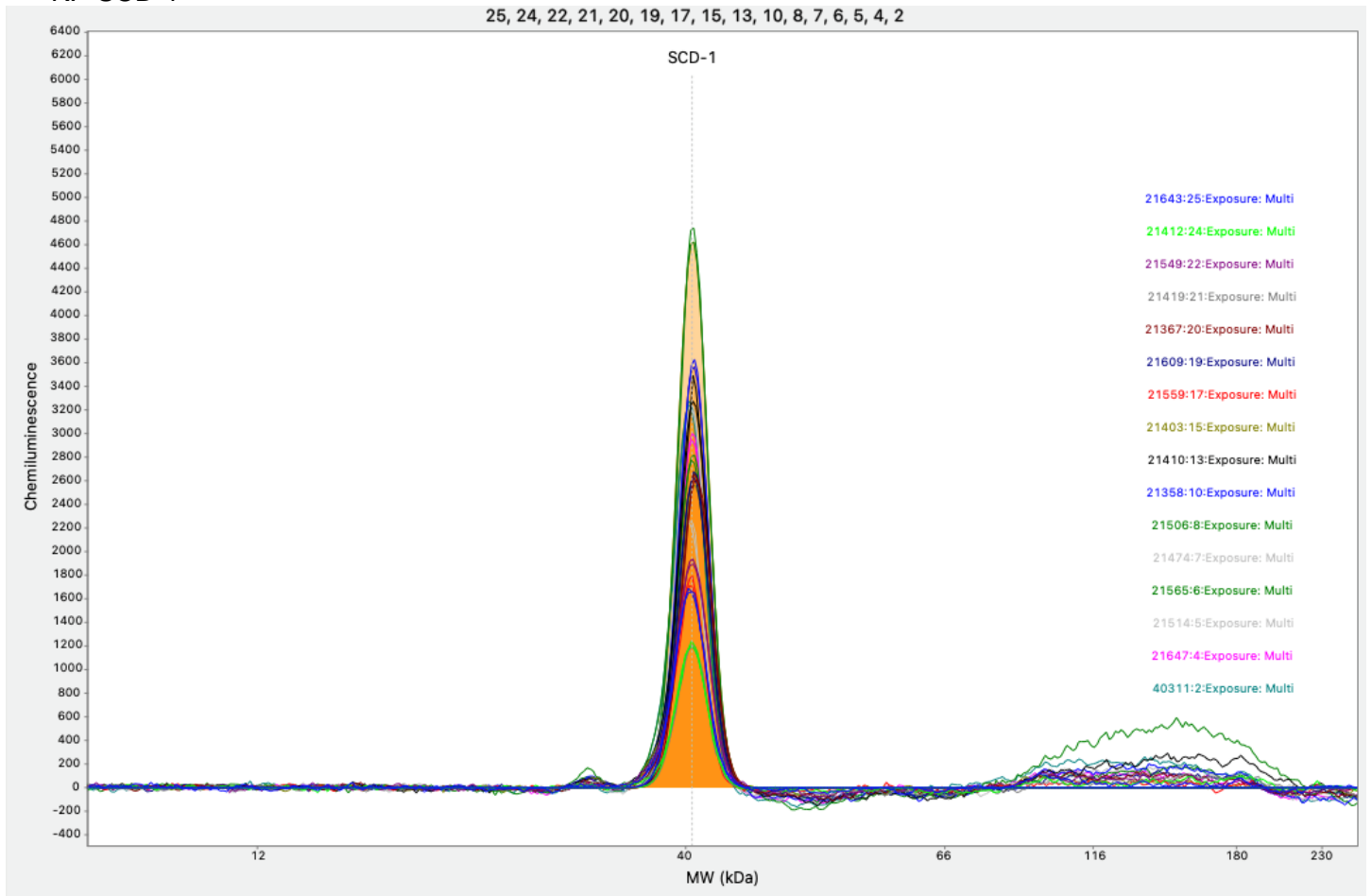
I. p70S6K^{T421/T424} and p85S6K^{T424/T447}



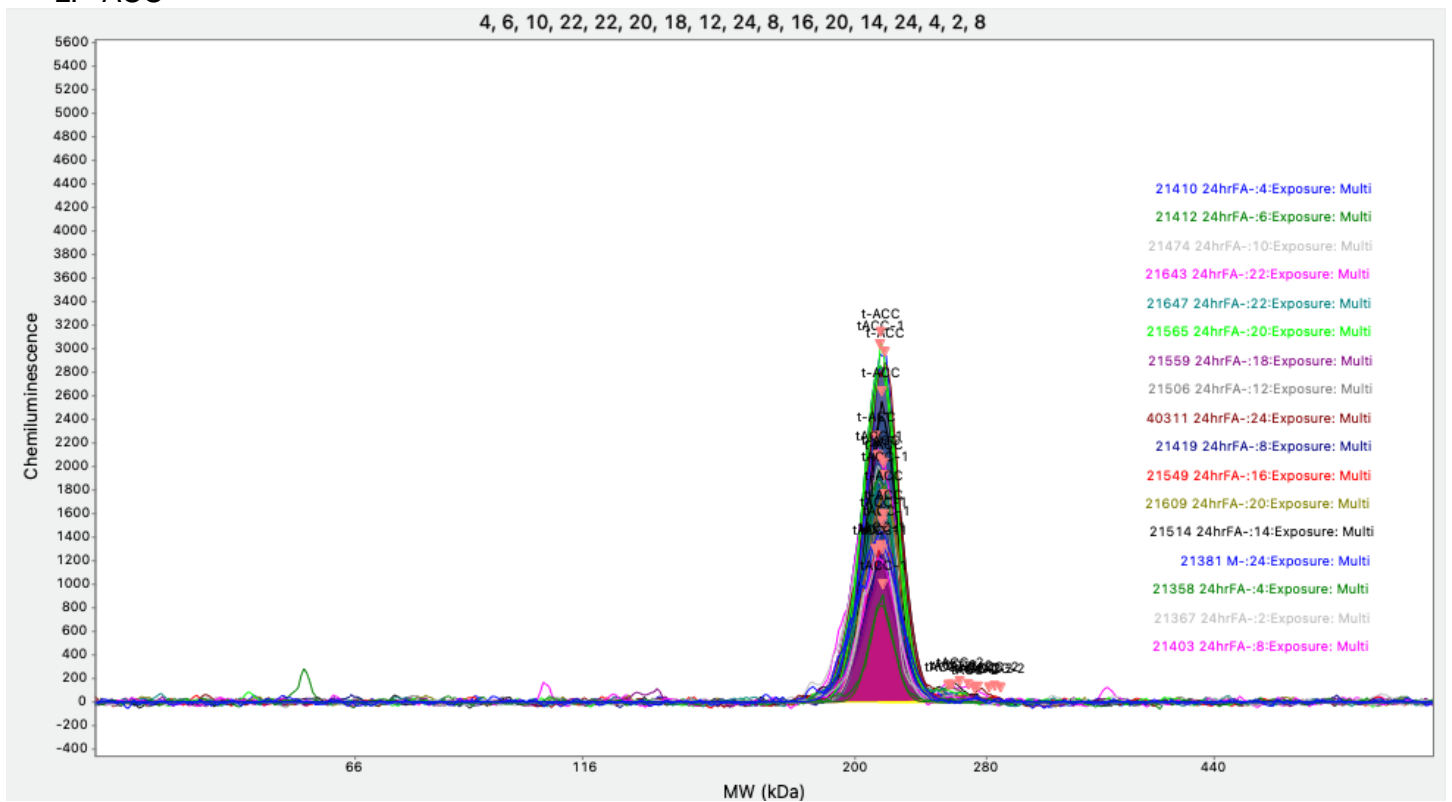
J. GLUT4



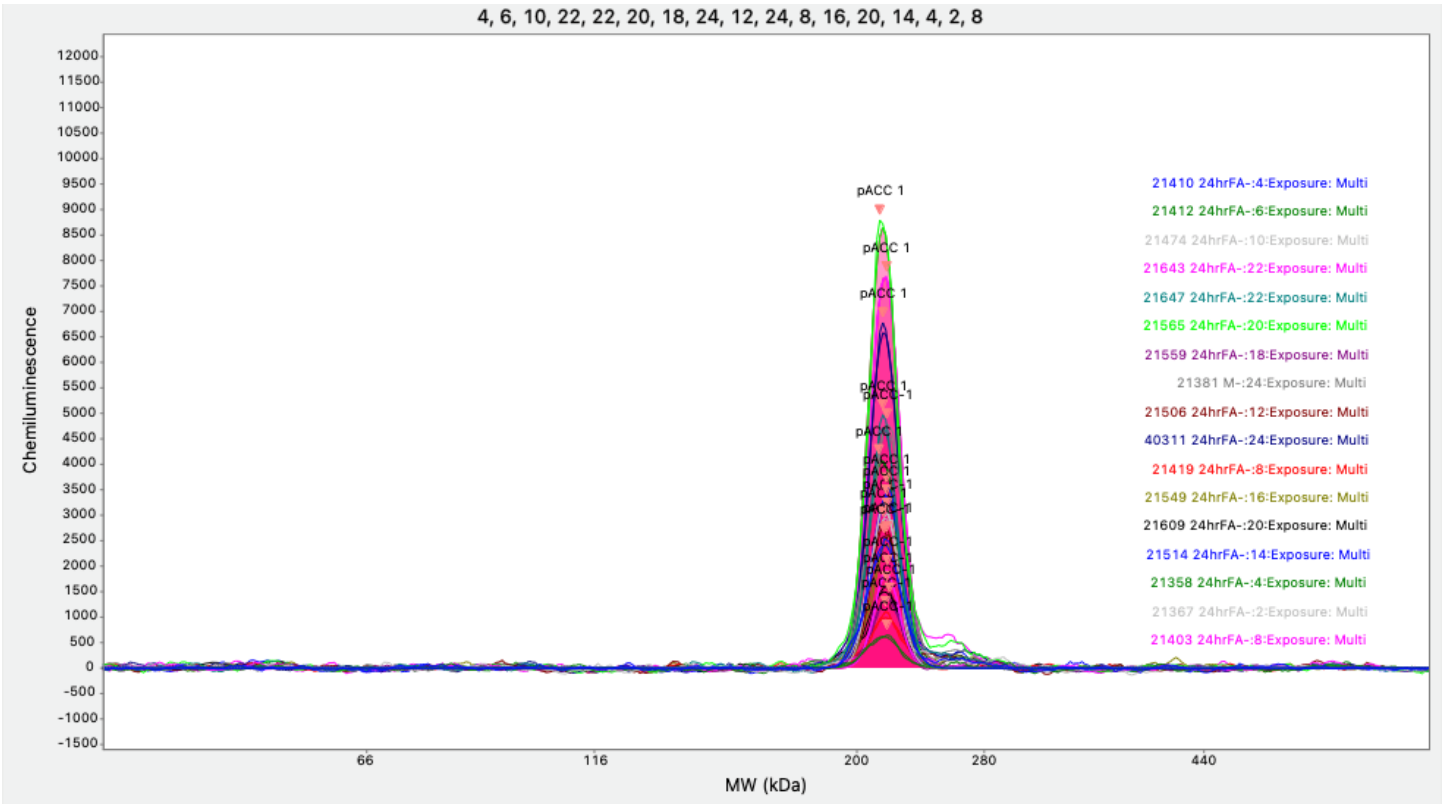
K. SCD-1



L. ACC



M. ACC^{Ser79}



N. β -actin

