Gene name: Lass5, LAG1 homolog ceramide synthase (AB122065)

Steven’s blastx result: glucose-regulated protein (Q16956)

e-value: 0

Gene name: Insulin Receptor, (AJ535669)

Steven’s blastx result: putative molluscan insulin-related peptide(s) receptor (Q25410)

e-value: 3.12e-152

Gene name: MHC (CU686207)

Steven’s blastx: myosin heavy chain, striated muscle

e-value: 1.28e-114

Gene name: IL1B (AM859968)

Steven’s blastx: serine/threonine-protein phosphatase 2A regulatory subunit B’

e-value: 5.7e-47

Function:

* IL1B: Agonist that stimulates hydrolysis of sphingomyelin and accumulation of intracellular ceramide (ballou et al. 1996)
* PP2A: is involved in apoptosis (Q28717)

Gene name: Sptlc1 (AM857503)

Steven’s blastx: Serine palmitoyltransferase 1

e-value: 5.51e-45

Function:

* Catalyzes serine + palmitoyl CoA 🡪 3-Ketosphinganine, which through 2 more steps becomes ceramide (hannun & luberto 2000)

Gene name: Sphingomyelinase (CU995168)

Steven’s blastx: acid sphingomyelinase-like phosphodiesterase 3b

e-value: 1.03e-39

Function:

* Catabolic generation of ceramide (ballou et al. 1996)
* Catalyzes sphingomyelin 🡪 ceramide (hannun & luberto 2000)
* Hydrolyze phosphodiester bonds of sphingomyelin (kolesnick 1998)
* Different isoforms of SMAse depending on pH optima (kolesnick 1998)
* Acid-SMase operates in lysosome or endosome and is stimulated by external stimuli (kolesnick 1998)
* A-SMase involved in TNF-mediated apoptosis (kolesnick 1998)

Gene name: nerve growth factor beta (AJ565599)

Steven’s blastx: cation transport regulator-like protein

e-value: 1.8e-37

Function:

* NGF: Agonist that stimulates hydrolysis of sphingomyelin and accumulation of intracellular ceramide (ballou et al. 1996)
* Chac1: pro-apoptotic component of the unfolded protein response pathway; may mediate the pro-apoptotic effects of the ATF4-ATF3-DDIT3/CHOP cascade (Q5SPB6)

Gene name: Leptin receptor (FP000698)

Steven’s blastx: leptin receptor overlapping transcript-like 1

e-value: 6.68e-33

Gene name: FAS death receptor (CU996148)

Steven’s blastx: tumor necrosis factor receptor superfamily member 16

e-value: 2.32e-25

Function:

* Stimulates SMase which catalyzes SM 🡪 ceramide (cuvillier et al. 1996)
* Cytokine receptor linked to ICE/caspase-3 effector mechanism via receptor-associated death domain adaptor protein system (kolesnick 1998)
* Overexpression initiates apoptosis (kolesnick 1998)
* Triggers activation of stress-activated protein kinases (Kolesnick 1998)