

## Appendix 2.1 Top 100 Membrane protein genes

Reference	Human Refseq (Oct. 2017) best blast result	logFC
TRINITY_DN35701_c3_g1	NP_001116867.1_claudin-19_isoform_b_[Homo_sapiens]	11.56166134
TRINITY_DN12780_c0_g1	NP_004297.2_annexin_A13_isoform_a_[Homo_sapiens]	10.98014542
TRINITY_DN33530_c0_g5	NP_060087.3_neurogenic_locus_notch_homolog_protein_1_prepro	9.196017729
TRINITY_DN33191_c0_g1	NP_004607.1_tetraspanin-8_[Homo_sapiens]	8.753957948
TRINITY_DN34654_c0_g2	NP_001276.2_calcium-activated_chloride_channel_regulator_1_pre	8.612284598
TRINITY_DN37387_c1_g1	NP_005258.2_gap_junction_alpha-8_protein_[Homo_sapiens]	8.369690407
TRINITY_DN33380_c0_g1	NP_005064.1_solute_carrier_family_15_member_1_[Homo_sapiens]	7.757295808
TRINITY_DN37731_c5_g1	NP_001073926.1_leucine-rich_repeat-containing_protein_4B_precu	7.459273477
TRINITY_DN37799_c0_g1	NP_001275879.1_protein_asteroid_homolog_1_isoform_1_[Homo_s	7.153101774
TRINITY_DN33004_c0_g1	NP_001116867.1_claudin-19_isoform_b_[Homo_sapiens]	7.009778441
TRINITY_DN37574_c2_g2	NP_078869.1_EF-hand_calcium-binding_domain-containing_protein	6.932397735
TRINITY_DN36207_c0_g1	NP_061953.2_NEDD4_family-interacting_protein_2_isoform_1_[Hor	6.850630218
TRINITY_DN35111_c0_g1	NP_055708.3_neurologin-4,_Y-linked_isoform_1_precursor_[Homo_	6.671723751
TRINITY_DN34477_c1_g1	NP_002913.3_regulator_of_G-protein_signaling_1_[Homo_sapiens]	6.360251609
TRINITY_DN33801_c0_g1	NP_003036.1_high_affinity_cationic_amino_acid_transporter_1_[Ho	6.353329063
TRINITY_DN34654_c0_g1	NP_001276.2_calcium-activated_chloride_channel_regulator_1_pre	6.353329063
TRINITY_DN37452_c0_g2	NP_001307460.1_sodium/hydrogen_exchanger_10_isoform_2_[Hor	6.093819431
TRINITY_DN27056_c0_g1	NP_001003665.1_protein_stum_homolog_[Homo_sapiens]	6.093819431
TRINITY_DN36112_c0_g1	NP_001243084.2_armadillo_repeat-containing_X-linked_protein_4_	6.093819431
TRINITY_DN33801_c0_g1	NP_003036.1_high_affinity_cationic_amino_acid_transporter_1_[Ho	5.588270616
TRINITY_DN37319_c0_g2	NP_001004416.2_uromodulin-like_1_isoform_1_precursor_[Homo_s	5.370867442
TRINITY_DN28772_c0_g1	NP_001185.3_potassium/sodium_hyperpolarization-activated_cyclic	5.370867442
TRINITY_DN37059_c0_g1	NP_004451.2_prolyl_endopeptidase_FAP_isoform_1_[Homo_sapie	5.370867442
TRINITY_DN35021_c2_g1	NP_008870.2_son_of_sevenless_homolog_2_[Homo_sapiens]	5.370867442
TRINITY_DN29051_c0_g1	NP_001243277.1_semaphorin-5B_isoform_3_precursor_[Homo_sap	5.217653043
TRINITY_DN38356_c3_g1	NP_002429.1_macrophage_mannose_receptor_1_precursor_[Homo	4.894996867
TRINITY_DN35873_c1_g1	NP_059121.1_sperm_surface_protein_Sp17_[Homo_sapiens]	4.80323267
TRINITY_DN32812_c0_g1	NP_005916.2_meprin_A_subunit_beta_isoform_1_precursor_[Homo	4.80323267
TRINITY_DN1977_c0_g1::	NP_008915.1_claudin-10_isoform_b_precursor_[Homo_sapiens]	4.80323267
TRINITY_DN33950_c5_g1	NP_036260.2_calcium-activated_chloride_channel_regulator_4_pre	4.80323267
TRINITY_DN37616_c1_g1	NP_001309331.1_adhesion_G_protein-coupled_receptor_L3_isofo	4.738073083
TRINITY_DN31135_c0_g1	NP_003803.1_disintegrin_and_metalloproteinase_domain-containin	4.586396069
TRINITY_DN33531_c0_g1	NP_001135918.1_ankyrin-1_isoform_9_[Homo_sapiens]	4.458814928
TRINITY_DN25087_c0_g1	NP_775796.2_uncharacterized_protein_C11orf42_[Homo_sapiens]	4.40531725
TRINITY_DN34866_c6_g1	NP_006375.2_calcium_and_integrin-binding_protein_1_isoform_b_	4.40531725
TRINITY_DN32517_c0_g1	NP_112178.2_nectin-4_precursor_[Homo_sapiens]	4.40531725
TRINITY_DN35345_c0_g1	NP_059131.1_solute_carrier_organic_anion_transporter_family_me	4.397839798
TRINITY_DN34271_c2_g1	NP_068703.1_gamma-aminobutyric_acid_type_B_receptor_subunit	4.168332198
TRINITY_DN35193_c4_g1	NP_001193889.1_phospholipase_A1_member_A_isoform_2_precu	4.11690963
TRINITY_DN36423_c0_g2	NP_061908.1_protocadherin-18_isoform_1_precursor_[Homo_sapie	4.038952527
TRINITY_DN38281_c2_g4	NP_003050.2_solute_carrier_family_22_member_4_[Homo_sapiens]	4.001127096
TRINITY_DN36165_c0_g1	NP_065866.1_protocadherin-10_isoform_2_precursor_[Homo_sapie	3.915728361
TRINITY_DN37618_c0_g1	NP_976072.1_solute_carrier_family_23_member_2_[Homo_sapiens]	3.912919822
TRINITY_DN28418_c0_g1	NP_002764.1_prostasin_preproprotein_[Homo_sapiens]	3.854001086
TRINITY_DN36094_c0_g1	NP_003048.1_solute_carrier_family_22_member_1_isoform_a_[Hor	3.808127531
TRINITY_DN35193_c4_g1	NP_000825.2_glutamate_receptor_ionotropic,_NMDA_2B_precurso	3.805800946
TRINITY_DN35831_c1_g2	NP_001177926.1_sodium-_and_chloride-dependent_GABA_transpd	3.773451307
TRINITY_DN35831_c1_g2	NP_057699.2_sodium-_and_chloride-dependent_GABA_transporter	3.762758781
TRINITY_DN34456_c0_g2	NP_001295100.1_meprin_A_subunit_beta_isoform_2_precursor_[H	3.688072639
TRINITY_DN37638_c2_g1	NP_001160132.1_neurologin-3_isoform_3_precursor_[Homo_sapien	3.66909446
TRINITY_DN28976_c0_g1	NP_001695.1_adhesion_G_protein-coupled_receptor_B3_[Homo_s	3.626316397
TRINITY_DN34061_c2_g7	NP_666018.3_sodium-coupled_monocarboxylate_transporter_1_[Ho	3.57652797
TRINITY_DN33523_c1_g1	NP_001073897.2_teneurin-2_isoform_2_[Homo_sapiens]	3.444867851
TRINITY_DN34713_c1_g2	NP_004247.2_solute_carrier_family_22_member_13_[Homo_sapie	3.211243699
TRINITY_DN31242_c0_g1	NP_001020015.1_CD82_antigen_isoform_2_[Homo_sapiens]	3.18316083
TRINITY_DN35346_c0_g1	NP_001177926.1_sodium-_and_chloride-dependent_GABA_transpd	3.137607396
TRINITY_DN36900_c1_g2	NP_001193885.1_contactin-4_isoform_d_[Homo_sapiens]	3.130545113
TRINITY_DN38354_c0_g1	NP_000642.3_complement_receptor_type_1_isoform_S_precursor_	3.129816784
TRINITY_DN35781_c1_g1	NP_001171745.1_carcinoembryonic_antigen-related_cell_adhesion	3.061879744
TRINITY_DN38382_c1_g1	NP_005236.2_protocadherin_Fat_1_precursor_[Homo_sapiens]	3.043983358
TRINITY_DN35031_c0_g2	NP_976072.1_solute_carrier_family_23_member_2_[Homo_sapiens]	3.014020579

TRINITY_DN36259_c0_g3	NP_004202.3_sodium-_and_chloride-dependent_glycine_transporter	3.01266958
TRINITY_DN36548_c1_g1	NP_000206.2_tyrosine-protein_kinase_JAK3_[Homo_sapiens]	2.964005143
TRINITY_DN34854_c1_g7	NP_002011.2_vascular_endothelial_growth_factor_receptor_3_isoform	2.950473501
TRINITY_DN29390_c0_g3	NP_004987.2_multidrug_resistance-associated_protein_1_[Homo_sapiens]	2.913641699
TRINITY_DN36740_c3_g1	NP_055068.2_teneurin-1_isoform_3_[Homo_sapiens]	2.807821833
TRINITY_DN34559_c0_g1	NP_001276.2_calcium-activated_chloride_channel_regulator_1_precursor	2.807312188
TRINITY_DN32137_c0_g1	NP_057941.1_folate_receptor_alpha_precursor_[Homo_sapiens]	2.803206649
TRINITY_DN27404_c0_g1	NP_776175.2_protogenin_precursor_[Homo_sapiens]	2.802555694
TRINITY_DN37221_c3_g3	NP_001077076.1_protein_patched_homolog_1_isoform_S_[Homo_sapiens]	2.781973129
TRINITY_DN37059_c0_g1	NP_004451.2_prolyl_endopeptidase_FAP_isoform_1_[Homo_sapiens]	2.751056543
TRINITY_DN38281_c1_g2	NP_001304335.1_sodium-_and_chloride-dependent_GABA_transporter	2.719114728
TRINITY_DN32986_c3_g1	NP_666018.3_sodium-coupled_monocarboxylate_transporter_1_[Homo_sapiens]	2.679369762
TRINITY_DN36094_c0_g1	NP_003048.1_solute_carrier_family_22_member_1_isoform_a_[Homo_sapiens]	2.661379188
TRINITY_DN38279_c0_g1	NP_060554.3_girdin_isoform_2_[Homo_sapiens]	2.654490704
TRINITY_DN35031_c0_g1	NP_005838.3_solute_carrier_family_23_member_1_isoform_a_[Homo_sapiens]	2.645394526
TRINITY_DN38238_c0_g4	NP_055789.1_disco-interacting_protein_2_homolog_C_[Homo_sapiens]	2.631550785
TRINITY_DN36094_c0_g1	NP_003048.1_solute_carrier_family_22_member_1_isoform_a_[Homo_sapiens]	2.61580299
TRINITY_DN34734_c0_g1	NP_937756.1_CUB_and_sushi_domain-containing_protein_3_isoform	2.615199743
TRINITY_DN37780_c0_g5	NP_056281.1_tyrosine-protein_phosphatase_non-receptor_type_23	2.61115095
TRINITY_DN37864_c0_g1	NP_001177926.1_sodium-_and_chloride-dependent_GABA_transporter	2.600366202
TRINITY_DN29486_c0_g1	NP_001008781.2_protocadherin_Fat_3_precursor_[Homo_sapiens]	2.586970475
TRINITY_DN34417_c0_g2	NP_001277025.1_transmembrane_protease_serine_4_isoform_7_[Homo_sapiens]	2.579875373
TRINITY_DN38355_c0_g1	NP_004516.2_low-density_lipoprotein_receptor-related_protein_2_precursor	2.579057497
TRINITY_DN35948_c0_g1	NP_000426.2_neurogenic_locus_notch_homolog_protein_3_precursor	2.56779387
TRINITY_DN34836_c0_g1	NP_001072.2_cubilin_precursor_[Homo_sapiens]	2.544459632
TRINITY_DN28687_c0_g1	NP_001161147.1_cell_adhesion_molecule_2_isoform_2_precursor	2.537211613
TRINITY_DN38354_c0_g1	NP_002996.2_P-selectin_precursor_[Homo_sapiens]	2.501438225
TRINITY_DN36094_c0_g1	NP_003048.1_solute_carrier_family_22_member_1_isoform_a_[Homo_sapiens]	2.488369184
TRINITY_DN38162_c0_g1	NP_001004439.1_integrin_alpha-11_precursor_[Homo_sapiens]	2.460145749
TRINITY_DN37786_c2_g1	NP_004659.2_maltase-glucoamylase,_intestinal_[Homo_sapiens]	2.451042586
TRINITY_DN31112_c0_g3	NP_001517.2_orexin_receptor_type_2_[Homo_sapiens]	2.450742748
TRINITY_DN38499_c3_g2	NP_006071.1_semaphorin-3A_precursor_[Homo_sapiens]	2.384291095
TRINITY_DN38209_c1_g1	NP_055918.2_plexin-D1_precursor_[Homo_sapiens]	2.378827588
TRINITY_DN33762_c3_g2	NP_620599.1_CD151_antigen_[Homo_sapiens]	2.371587127
TRINITY_DN33616_c1_g7	NP_003051.1_solute_carrier_family_22_member_5_isoform_b_[Homo_sapiens]	2.368731191
TRINITY_DN35292_c0_g1	NP_068742.2_fibroblast_growth_factor_receptor-like_1_precursor_[Homo_sapiens]	2.366365545
TRINITY_DN38209_c1_g1	NP_005384.2_plexin-B3_isoform_1_precursor_[Homo_sapiens]	2.361372662
TRINITY_DN35656_c6_g1	NP_001155201.1_phospholipase_A2,_membrane_associated_precursor	2.36045042
TRINITY_DN37031_c0_g5	NP_001291466.1_ Ephrin_type-A_receptor_4_isoform_b_[Homo_sapiens]	2.347773589