

Figure S1. Fitting of rat ENPL gene Q66HD0 and mouse P08113

sp Q66HD0 ENPL_RAT	MRVLWVLGLCCVLLTFGFVRADDEVVDGTVEEDLGKSREGSRTDDEVVQREEEAIQLDG	60
sp P08113 ENPL_MOUSE	MRVLWVLGLCCVLLTFGFVRADDEVVDGTVEEDLGKSREGSRTDDEVVQREEEAIQLDG	60

sp Q66HD0 ENPL_RAT	LNASQIRELREKSEKFAFQAEVNRMMKLIINSLYKNKEIFLRELISNASDALDKIRLISL	120
sp P08113 ENPL_MOUSE	LNASQIRELREKSEKFAFQAEVNRMMKLIINSLYKNKEIFLRELISNASDALDKIRLISL	120

sp Q66HD0 ENPL_RAT	TDENALAGNEELTVKIKCDREKNLLHVTDGTGVMTREELVKNLGTIAKSGTSEFLNKMTE	180
sp P08113 ENPL_MOUSE	TDENALAGNEELTVKIKCDREKNLLHVTDGTGVMTREELVKNLGTIAKSGTSEFLNKMTE	180

sp Q66HD0 ENPL_RAT	AQEDGQSTSELIGQFGVGFYSAFLVADKVIVTSKHNNDTQHIWESDSNEFSVIADPRGNT	240
sp P08113 ENPL_MOUSE	AQEDGQSTSELIGQFGVGFYSAFLVADKVIVTSKHNNDTQHIWESDSNEFSVIADPRGNT	240

sp Q66HD0 ENPL_RAT	LGRGTTITLVLKEEASDYLELDTIKNLVRKYSQFINFPIYVWSSKTETVEEPLLEETAQ	300
sp P08113 ENPL_MOUSE	LGRGTTITLVLKEEASDYLELDTIKNLVRKYSQFINFPIYVWSSKTETVEEPLLEETAQ	300

sp Q66HD0 ENPL_RAT	EEKEEADDEAAVEEEEEKKPKTKKVEKTVWDWELMNDIKPIWQRPSEVEEDEYKAFYK	360
sp P08113 ENPL_MOUSE	EEKEESDDEAAVEEEEEKKPKTKKVEKTVWDWELMNDIKPIWQRPSEVEEDEYKAFYK	360

sp Q66HD0 ENPL_RAT	SFSKESDDPMAYIHFTAEGEVTFKSIILFVPTSAPRGLFDEYGSKKSDYIKLYVRRVFITD	420
sp P08113 ENPL_MOUSE	SFSKESDDPMAYIHFTAEGEVTFKSIILFVPTSAPRGLFDEYGSKKSDYIKLYVRRVFITD	420

sp Q66HD0 ENPL_RAT	DFHDMMPKYLNFVKGVDSDDLPLNVSRETQQHKLKLVIRKKLVKKTLDMIKKIADKEY	480
sp P08113 ENPL_MOUSE	DFHDMMPKYLNFVKGVDSDDLPLNVSRETQQHKLKLVIRKKLVKKTLDMIKKIADKEY	480

sp Q66HD0 ENPL_RAT	NDTFWKEFGTNIKLGVIEDHSNRTRLAKLLRFQSSHSTDITSLDQYVERMKEKQDKIYF	540
sp P08113 ENPL_MOUSE	NDTFWKEFGTNIKLGVIEDHSNRTRLAKLLRFQSSHSTDITSLDQYVERMKEKQDKIYF	540

sp Q66HD0 ENPL_RAT	MAGSSRKEAESSPFVERLLKKGYEVIYLTPEVDEYCIQALPEFDGKRFQNVAKEGVKFDE	600
sp P08113 ENPL_MOUSE	MAGSSRKEAESSPFVERLLKKGYEVIYLTPEVDEYCIQALPEFDGKRFQNVAKEGVKFDE	600

sp Q66HD0 ENPL_RAT	SEKSKESREATEKEFEPLLNWMKDKALKDKIEKAVVSQRLTESPCALVASQYGWSGNMER	660
sp P08113 ENPL_MOUSE	SEKTKESREATEKEFEPLLNWMKDKALKDKIEKAVVSQRLTESPCALVASQYGWSGNMER	660

sp Q66HD0 ENPL_RAT	IMKAQAYQTGKDISTNYYASQKKTFEINPRHPLIRDMLRRVKEDEDDKTVMDLAVVLFET	720
sp P08113 ENPL_MOUSE	IMKAQAYQTGKDISTNYYASQKKTFEINPRHPLIRDMLRRVKEDEDDKTVMDLAVVLFET	720

sp Q66HD0 ENPL_RAT	ATLRSGYLLPDTKAYGDRIERMLRLSLNIDPEAQVEEPEEPEPDTTDDTDDSEQDEEE	780
sp P08113 ENPL_MOUSE	ATLRSGYLLPDTKAYGDRIERMLRLSLNIDPEAQVEEPEEPEPDTSEDAEDSEQDEGEE	780

sp Q66HD0 ENPL_RAT	TDAGAEETEEETETEKEPTEKDEL 804	
sp P08113 ENPL_MOUSE	MDAGTEETEEETETEKESTEKDEL 802	

Figure S2. DNA sequence of pMAXGFP-ENPL

pMAXGFP-ENPL	5954 bp	DNA	circular			
1	TCAATATTGG	CCATTAGCCA	TATTATTCAT	TGGTTATATA	GCATAAAATCA	ATATTGGCTA
61	TTGGCCATTG	CATACGTTGT	ATCTATATCA	TAATATGTAC	ATTTATATTG	GCTCATGTCC
121	AATATGACCG	CCATGTTGGC	ATTGATTATT	GACTIONTAT	TAATAGTAAT	CAATTACGGG
181	GTCATTAGTT	CATAGCCCAT	ATATGGAGTT	CCGCGTTACA	TAACCTACGG	TAAATGGCCC
241	GCCTGGCTGA	CCGCCAACG	ACCCCCGCC	ATTGACGTCA	ATAATGACGT	ATGTTCCCAT
301	AGTAACGCCA	ATAGGGACTT	TCCATTGACG	TCAATGGGTG	GAGTATTTAC	GGTAAACTGC
361	CCCTAACGCA	GTACATCAAG	TGTATCATAT	GCCAAAGTCCG	CCCCATTATG	ACGTCAATGA
421	CGGTAAATGG	CCCGCTGGC	ATTATGCCCA	GTACATGACC	TTACGGGACT	TTCTACTTTG
481	GCAGTACATC	TACGTATTAG	TCATCGCTAT	TACCATGGTG	ATGCGGTTTT	GGCAGTACAC
541	CAATGGGCGT	GGATAGCGGT	TTGACTCACG	GGGATTTCCA	AGTCTCCACC	CCATTGACGT
601	CAATGGGAGT	TTGTTTTGGC	ACCAAATCA	ACGGGACTTT	CCAAATGTC	GTAATAACCC
661	CGCCCCGTTG	ACGCAAATGG	GCGGTAGGCG	TGTACGGTGG	GAGGTCTATA	TAAGCAGAGG
721	TCGTTTAGTG	AACCGTCAGA	TCACTAGTAG	CTTTATTGCG	GTAGTTTATC	ACAGTTAAAT
781	TCCTAACGCA	GTACGTGCTC	GACTGATCAC	AGGTAAGTAT	CAAGGTTACA	AGACAGGTTT
841	AAGGAGGCCA	ATAGAAACTG	GGCTTGTCGA	GACAGAGAAG	ATTCTTGCGT	TTCTGATAGG
901	CACCTATTGG	TCTTACTGAC	ATCCACTTTG	CCTTTCTCTC	CACAGGGGTA	CCGAAGCCGC
961	TAGCGTACC	GGTCGCCACC	ATGCCGCCCA	TGAAGATCGA	GTGCCGCATC	ACCGGCACCC
1021	TGAACGGCGT	GGAGTTCGAG	CTGGTGGGCG	GCGGAGAGGG	CACCCCCGAG	CAGGGCCGCA
1081	TGACCAACAA	GATGAAGAGC	ACCAAAGGCG	CCCTGACCTT	CAGCCCCCTAC	CTGCTGAGCC
1141	ACGTGATGGG	CTACGGCTTC	TACCACTTCG	GCACCTACCC	CAGCGGCTAC	GAGAACCCCT
1201	TCCTGCACGC	CATCAACAAC	GGCGGTACAC	CCAACACCCG	CATCGAGAAG	TACGAGGACG
1261	GCGGCGTGCT	GCACGTGAGC	TTACAGTACC	GCTACGAGGC	CGGCCGCGTG	ATCGGCGACT
1321	TCAAGTGGT	GGGCACCGGC	TTCCCCGAGG	ACAGCGTGAT	CTTACCGGAC	AAGATCATCC
1381	GCAGCAACGC	CACCGTGGAG	CACCTGCACC	CCATGGGCGA	TAACGTGCTG	GTGGGCAGCT
1441	TCGCCCCGAC	CTTCAGCCTG	CGCGACGGCG	GCTACTACAG	CTTCGTGGTG	GACAGCCACA
1501	TGCACCTCAA	GAGCGCCATC	CACCCACAGC	TCCTGCAGAA	CGGGGGCCCC	ATGTTCCGCT
1561	TCCGCGCGCT	GGAGGAGCTG	CACAGCAACA	CCGAGCTGGG	CATCGTGGAG	TACCAGCACG
1621	CCTTCAAGAC	CCCCATCGCC	TTCCGCCGAG	GGAGTGGGGG	GGGGTCCGGG	CTCGAGATGC
1681	GCGTCTCTGT	GGTCTTGGGA	CTGTGTTGCG	TGCTTCTCAC	ATTCCGGGTTT	GTGCGAGCAG
1741	ACGACGAAGT	AGATGTCGAT	GGAACGGTCG	AGGAAGACCT	GGGTAAAGTCC	AGGGAGGGGT
1801	CACGGACTGA	CGATGAGGTT	GTGCAGCGCG	AGGAAGAGGC	CATACAACCTC	GACGGTCTGA
1861	ATGCATCCCA	GATTCGGGAG	CTGAGAGAGA	AGTCAGAAAA	GTTTGCATTT	CAAGCTGAAG
1921	TTAATAGGAT	GATGAAGTTG	ATTATTAAC	CTCTGTACAA	GAATAAAGAG	ATCTTCTGTC
1981	TCGAATTGAT	CTCCAACGCT	AGCGACGCAC	TGGATAAAAT	CCGGCTGATA	TCACGTACCG
2041	ATGAGAATGC	CTTGCCCGGT	AATGAGGAAC	TTACAGTAAA	GATAAAGTGT	GACCGAGAGA
2101	AAAATCTGTT	GCACGTAACA	GATACTGGTG	TGGGCATGAC	TAGAGAAGAA	TTGGTCAAAA
2161	ACTTGGGTAC	CATCGCTAAA	TCTGGGACAA	GCGAATTTCT	TAACAAGATG	ACCGAAGCAC
2221	AAGAGGACGG	ACAAAGTACA	AGCGAACTGA	TCGGACAATT	CGGGGTGGGG	TTCTACAGTG
2281	CATTCTCTGT	CGCAGACAAG	GTGATTGTGA	CGAGTAAACA	CAACAACGAT	ACTCAGCACA
2341	TCTGGGAATC	TGACAGTAAC	GAATTCAGCG	TCATAGCAGA	CCCCCGCGGG	AATACTTTGG
2401	GGCGGGGGAC	TACCATTACT	CTCGTACTCA	AGGAGGAAGC	CTCCGATTAC	CTTGAGCTTG
2461	ACACCATAAA	GAATCTGGTA	CGGAAGTACA	GTCAATTTAT	TAATTTCCCT	ATCTACGTAT
2521	GGTCAAGCAA	AACTGAGACG	GTTGAAGAGC	CTCTGAAGA	AGATGAGACA	GCCCAAGAAG
2581	AAAAGGAAGA	GGCAGATGAC	GAGGCTGCTG	TTGAGGAGGA	GGAAGAGGAG	AAGAAACCAA
2641	AGACCAAGAA	GGTGAAAAAG	ACCGTGTGGG	ATTGGGAGTT	GATGAATGAT	ATAAAGCCCA
2701	TATGGCAGCG	CCCAAGCAAA	GAGGTGTAGG	AGGACGAATA	CAAAGCCTTT	TATAAGTCAT
2761	TTAGCAAGGA	GAGTGATGAC	CCGATGGCTT	ACATCCATTT	TACTGCTGAG	GGTGAGGTGA
2821	CCTTTAAAAAG	TATATTGTTC	GTACCCACGA	GTGCCCCTAG	GGGACTTTTT	GATGAATACG
2881	GTAGTAAGAA	GTCAGACTAC	ATCAAACTTT	ACGTGAGACG	GGTTTTTATT	ACAGATGACT
2941	TCCACGATAT	GATGCCTAAA	TATCTGAATT	TCGTGAAAGG	CGTGGTTCGAC	TCCGATGATC
3001	TCCCCCTCAA	CGTTTCTAGA	GAGACACTCC	AGCAGCACAA	ACTTCTTAAG	GTGATTCGCA
3061	AGAAGCTTGT	ACGAAAAGACA	CTCGACATGA	TTAAGAAAAAT	AGCAGACGAA	AAATATAACG
3121	ATACTTTCTG	GAAAGAGTTT	GGCACAACGA	TTAAGTTGGG	CGTCATAGAG	GACCACTCTA
3181	ACCGGACGCG	GCTTGCAAAG	CTCCTGCGAT	TTCAGTCTTC	TCACCATAGC	ACCGACATAA
3241	CATCCCTTGA	CCAATACGTT	GAACGCATGA	AAGAGAAGCA	AGATAAGATT	TACTTTATGG
3301	CTGGATCATC	CCGGAAGGAA	GCCGAGTCTT	CACCCCTTCGT	TGAGCGACTC	CTTAAGAAAG
3361	GCTATGAAGT	CATCTATCTG	ACAGAACCAG	TGGATGAGTA	CTGCATCCAG	GCACTTCCGG
3421	AGTTTGACGG	CAAACGCTTC	CAAAATGTAG	CAAAAGAAGG	CGTAAAATTC	GATGAGAGTG
3481	AAAAGAGTAA	GGAGAGCCGA	GAGGCTACCG	AAAAAGAGTT	TGAACCACTC	TTGAACTGGA
3541	TGAAAGATAA	AGCATTTGAAG	GACAAGATTG	AAAAAGCTGT	GGTAAGTCAA	AGGCTGACGG
3601	AATCACCTTG	TGCTCTCGTT	GCATCTCAGT	ACGGTTGGAG	TGGAACATG	GAGAGAATTA
3661	TGAAAGCACA	AGCTTATCAG	ACCGGGAAGG	ATATCAGTAC	TAATTATTAC	GCCAGCCAGA
3721	AGAAGACTTT	TGAGATAAAT	CCACGACATC	CGCTTATTAG	AGATATGCTT	AGACGGGTCA
3781	AGGAGGACGA	GGATGACAAG	ACAGTGATGG	ATCTTGCACT	GGTCTCTTTC	GAAACTGCTA

3841 CACTCCGGTC AGGATATTTG CTGCCGGATA CGAAAGCATA TGGAGATAGG ATCGAGCGGA
3901 TGCTGCGCCT GTCACTGAAT ATTGATCCTG AGGCACAAGT TGAGGAAGAG CCCGAGGAAG
3961 AGCCGGAAGA CACGACCGAA GACACTACGG ACGACAGTGA GCAAGACGAA GAGGAGACCG
4021 ATGCCGGAGC CGAAGAAGAG GAGGAAGAAC AGGAAACCGA GAAAGAACCT ACTGAGAAAG
4081 ACGAACTTGG TGGGAGTGGG GGGGGGTCCG GGCTCGAGTG AGAGCTCGAT GAGTTTGGAC
4141 AAACCACAAC TAGAATGCAG TGAAAAAAT GCTTTATTTG TGAAATTTGT GATGCTATTG
4201 CTTTATTTGT AACCATTATA AGCTGCAATA AACAAGTTAA CAACAACAAT TGCATTCAAT
4261 TTATGTTTCA GGTTCAGGGG GAGGTGTGGG AGGTTTTTTA AAGCAAGTAA AACCTCTACA
4321 AATGTGGTAC TTAAGAGGGG GAGACCAAAG GGCAGACGTA TAAGGCCTCA CGTGACATGT
4381 GAGCAAAAGG CCAGCAAAAG GCCAGGAACC GTAAAAAGGC CGCGTTGCTG GCGTTTTTCC
4441 ATAGGCTCCG CCCCCCTGAC GAGCATCACA AAAATCGACG CTCAGTCAG AGGTGGCGAA
4501 ACCCGACAGG ACTATAAAGA TACCAGGCGT TTCCCCCTGG AAGCTCCCTC GTGCGCTCTC
4561 CTGTTCCGAC CCTGCCGCTT ACCGGATACC TGTCCGCTT TCTCCCTTCG GGAAGCGTGG
4621 CGCTTTCTCA TAGCTCACGC TGTAGGTATC TCAGTTCGGT GTAGGTCGTT CGCTCCAAGC
4681 TGGGCTGTGT GCACGAACCC CCCGTTGAGC CCGACCGCTG CGCCTTATCC GGTAACTATC
4741 GTCTTGAGTC CAACCCGGTA AGACACGACT TATCGCCACT GGCAGCAGCC ACTGGTAACA
4801 GGATTAGCAG AGCGAGGTAT GTAGGCGGTG CTACAGAGTT CTTGAAGTGG TGGCCTAAT
4861 ACGGTACAC TAGAAGGACA GTATTTGGTA TCTGCGCTCT GCTGAAGCCA GTTACCTTCG
4921 GAAAAAGAGT TGGTAGCTCT TGATCCGGCA AACAAACCAC GCTGGTAGCG GTGGTTTTTT
4981 TGTTTGCAAG CAGCAGATTA CGCGCAGAAA AAAAGGATCT CAAGAAGATC CTTTGATCTT
5041 TTCTACGGGG TCTGACGCTC AGTGAACGA AAATCACGT TAAGGGATTT TGGTCATGCC
5101 GTCTCAGAAG AACTCGTCAA GAAGCGGATA GAAGCGGATG CGCTGCGAAT CGGGAGCGGC
5161 GATACCGTAA AGCACGAGGA AGCGGTCAGC CCATTCGCCG CCAAGCTCTT CAGCAATATC
5221 ACGGGTAGCC AACGCTATGT CCTGATAGCG GTCCGCCACA CCCAGCCGGC CACAGTCGAT
5281 GAATCCAGAA AAGCGGCCAT TTTCCACCAT GATATTCGGC AAGCAGGCAT CGCCATGGGT
5341 CACGACGAGA TCCTCGCCGT CGGGCATGCT CGCCTTGAGC CTGGCGAACA GTTCGGCTGG
5401 CGCGAGCCCC TGATGCTCTT CGTCCAGATC ATCCTGATCG ACAAGACCGG CTTCCATCCG
5461 AGTACGTGCT CGCTCGATGC GATGTTTCGC TTGGTGGTCG AATGGGCAGG TAGCCGGATC
5521 AAGCGTATGC AGCCGCCGCA TTGCATCAGC CATGATGGAT ACTTTCTCGG CAGGAGCAAG
5581 GTGAGATGAC AGGAGATCCT GCCCCGGCAC TTCGCCAAT AGCAGCCAGT CCCTTCCCGC
5641 TTCAGTGACA ACGTCGAGCA CAGCTGCGCA AGGAACGCCC GTCGTGGCCA GCCACGATAG
5701 CCGCGCTGCC TCGTCTTGCA GTTCATTGAG GGCACCGGAC AGGTCGGTCT TGACAAAAAG
5761 AACC GGCGC CCCTGCGCTG ACAGCCGGAA CACGGCGGCA TCAGAGCAGC CGATTGTCTG
5821 TTGTGCCCAG TCATAGCCGA ATAGCCTCTC CACCCAAGCG GCCGAGAAAC CTGCGTGCAA
5881 TCCATCTTGT TCAATCATAA TATTATTGAA GCATTTATCA GGGTTCGTCT CGTCCCGGTC
5941 TCCTCCCATG CATG

Figure S3. Total lipid content of the sEV and mEV samples were measured by sulfo-phospho vanillin (SPV) lipid assay. Red curve represents 1 μg total lipid content. Samples that contained at least 1 μg lipid were used for further investigation.

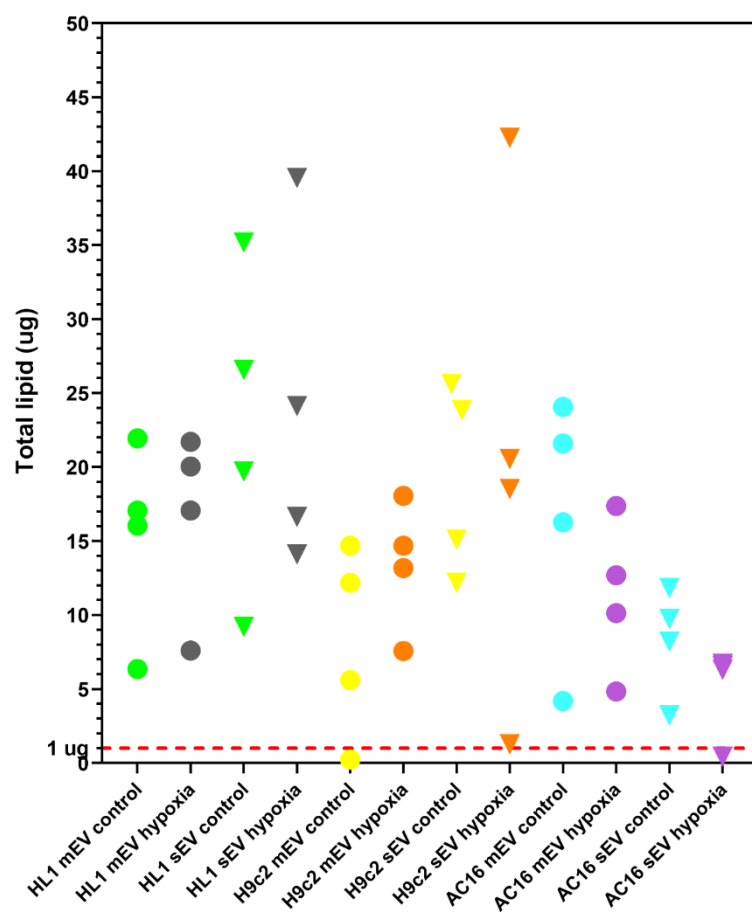


Figure S4. ER resident protein (ENPL, grp78 and calnexin) in different EV resources based on Vesiclepedia database (<http://microvesicles.org/index.html>). The most relevant dataset is the human (a) where at least 49 different EV type contained ER resident proteins while the mouse (b) and rat (c) database contained less available data.

