

Supplement A. Code used for Table 1

***Collect the data from REEFGENOMICS (<http://reefgenomics.org>) webpage.**

```
curl -O http://comparative.reefgenomics.org/datasets.html
```

***Collect five *Acropora* sp. data**

```
curl -O http://comparative.reefgenomics.org/faa/Coral/  
Acropora_digitifera_peptides_100.final.clstr.faa
```

```
curl -O http://comparative.reefgenomics.org/faa/Coral/  
Acropora_hyacinthus_peptides_100.final.clstr.faa
```

```
curl -O http://comparative.reefgenomics.org/faa/Coral/  
Acropora_millepora_peptides_100.final.clstr.faa
```

```
curl -O http://comparative.reefgenomics.org/faa/Coral/  
Acropora_palmata_peptides_100.final.clstr.faa
```

```
curl -O http://comparative.reefgenomics.org/faa/Coral/  
Acropora_tenuis_peptides_100.final.clstr.faa
```

***Download BLAST at home directory**

```
curl -O ftp://ftp.ncbi.nlm.nih.gov/blast/executables/blast+/LATEST/ncbi-blast-2.9.0+-x64-  
macosx.tar.gz
```

```
tar -zxvfncbi-blast-2.9.0+-x64-macosx.tar.gz
```

***Create BLAST database for five *Acropora* sp.**

```
makeblastdb -in Acropora_digitifera_peptides_100.final.clstr.faa -dbtype prot -hash_index
```

```
makeblastdb -in Acropora_hyacinthus_peptides_100.final.clstr.faa -dbtype prot -hash_index
```

```
makeblastdb -in Acropora_millepora_peptides_100.final.clstr.faa -dbtype prot -hash_index
```

```
makeblastdb -in Acropora_palmata_peptides_100.final.clstr.faa -dbtype prot -hash_index
```

```
makeblastdb -in Acropora_tenuis_peptides_100.final.clstr.faa -dbtype prot -hash_index
```

***Conduct BLAST with three different queries (*Acropora digitifera*, *Oryzias latipes*, and *Home sapiens* Mg transporter)**

```
blastp -db ~/db1/Acropora_digitifera_peptides_100.final.clstr.faa -query ~/query1/Seq1.txt  
-num_alignments 1 -evalue 1e-10 -out ~/out1/Result1.txt
```

```
blastp -db ~/db1/Acropora_hyacinthus_peptides_100.final.clstr.faa -query ~/query1/Seq1.txt  
-num_alignments 1 -evalue 1e-10 -out ~/out1/Result1.txt
```

```
blastp -db ~/db1/Acropora_millepora_peptides_100.final.clstr.faa -query ~/query1/Seq1.txt  
-num_alignments 1 -evalue 1e-10 -out ~/out1/Result1.txt
```

```
blastp -db ~/db1/Acropora_palmata_peptides_100.final.clstr.faa -query ~/query1/Seq1.txt  
-num_alignments 1 -evaluate 1e-10 -out ~/out1/Result1.txt
```

```
blastp -db ~/db1/Acropora_tenuis_peptides_100.final.clstr.faa -query ~/query1/Seq1.txt  
-num_alignments 1 -evaluate 1e-10 -out ~/out1/Result1.txt
```

Supplement B. Protein Sequences used for Figure 1 and 2

>Acropora_digitifera_2046

DRHSTSDLRISNMAPSTQTTNSTRTLSSSATSAFSVVAEVSMKPDNSGFYTGLALAISSS
VFIGTSFIVKKKGLLKVASSSGMRAGQGGYAYLREWLWWLGLFTMAVGEIANFTAYAFAP
AILVTPLGALSVLVSAVLASRFLNEKQNLHGKIGCILSIIGSTVLVIHAPQEEEVKDMDE
LKIKLGSFGFVAYGVIVIVITFGLIFFYGRRYGKTNILVYISICSLIGSLVMGCKGLGL
VIRETAHGHNLLTDPIAWLLLFAVLACVTTQMNYLNKALDIFNTSLVTPIYYVMFTTLTI
IASAILFREWEVMGSKDTIGAICGFLTIIICGVFLLHAFKDVHFSKDVVKISTQANGTTI
MRKPGPTINEESQAFLMQPLGEKDQEDEEEAVYTNNANHL

>Acropora_digitifera_13221

MVVGEDSSRQTVSSKNIFIGAALAIIGNLLISISMNIQKYSHLRQAEEKSETHYLKSKIW
WLGLILMVLGEIGNFSAYGFSPASLVAPLGTTTVIANAIIVVFLRERVRYQDVFGVTLA
IVGAFLLVTFSTKETSELTGRELAGYLRQWPFLIYVILEVIFCTLLFVQWRYDLENNVI
FLLLVALLGSLTVISAKAVSSMINITLSGYSQLGHPLFYVMLIVMIATAIAQVKFLNRAM
QSFDATVVVPTNPFVLFTISAIISGIVLYKEYFYGLTFLEIFMFLFGCVLSFVGVIYITSER
KQEESEDEQLLLTNADLFPGLSLSSSKLIAVQPNNVASASHVEYPMLPSKPSYESTAEKE
PVVGET

>Acropora_millepora_23156 cds.Cluster021155lm.28837

MKPDNSGFYTGLALAISSSVFIGTSFIVKKKGLLKVASSSGMRAGQGGYAYLREWLWWLG
LITMAVGEIANFTAYAFAPAILVTPLGALSVLVSAVLASRFLNEKQNLHGKIGCILSIIG
STVLVIHAPQEEEVKDMDELKIKLGSFGFVAYGVIVIVITFGLIFFYGRRYGKTNILVYI
SICSLIGSLVMGCKGLGLVIRETAHGHNLLTDPIAWLLLFAVLACVTTQMNYLNKALDI
FNTSLVTPIYYVMFTTLTIASAILFREWEVMGSKDTIGAICGFLTIIIFGVFLLHAFKDV
HFSKDVVKISTHANGTTIIRKPGSTINEESQAFLMQPLGEKDQEDEEEAVYTNNANHL*

>Acropora_millepora_12886 cds.Cluster009809lm.15545

MNIQKYSHLRQAEEKSETHYLKSKIWWLGLILMVLGEIGNFSAYGFSPASLVAPLGTTTV
IANAIIVVFLRERVRYQDVFGVTIAIVGAFLLVTFSTKETSELTGRELAGYLRQWPFLI
YVILEVIFCTLLFVQWRYDLENNVIFLLLVALLGSLTVISAKAVSSMINITLSGYSQLG
HPLFYVMLIVMIATAIAQVKFLNRAMQSFDATVVVPTNPFVLFTISAIISGIVLYKEYFYGL
TFLEIFMFLFGCVLSFVGVIYITSERKQEESEDEQLLLTNADLFPGLSLSSSKLIAVQPN
NVASASHVEYPMLPSKPSYESTAEKEPVVGET*

>Acropora_hyacinthus_6007

MGCKGLGLVIRETAHGHNLLTDPIAWLLLFAVLACVTTQMNYLNKALDIFNTSLVTPIYY
VMFTTLTIASAILFREWEVMGSKDTIGAICGFLTIIIFGVFLLHAFKDVHFSKDKILKIS
THANGTTIIRKPGSTINEESQAF

>Acropora_hyacinthus_3879

TVIADAIHAVVFLRERVRYQDVFGVTLAIVGAFLLVTFSTKETSELTGRELAGYLRQWPF
LIYLILEVIIFCTLLFVQWRYDLENVVIFLLLVALLGSLTVISAKAVSSMINITLSGYSQ
LGHPLFYVMLIVMITTAIAQVKFLNRAMQSFDATVVVPTNFVLFTISAIISGIVLYKEY
GLTFLEIFMFLFGCVLSFVG VYYITSERKQEESEQLLLTNADLFPGFSLSSSKLIAVQ
PNNVASASHVEYPMLPSKPSYESTAEKEPVVGET

>Acropora_tenuis_8750

SETHYLKSKIWWLGLILMVLGEIGNFSAYGFSPASLVAPLGTTTVIANAIHAVVFLRERV
RYQDVFGVTLAIVGAFLLVTFSTKETSELTGRELAGYLRQWPFLLIYLILEVIIFCTLLFV
QWRYDLENVVIFLLLVALLGSLTVISAKAVSQ

>XP_004068355.1 magnesium transporter NIPA2 isoform X2 [Oryzias latipes]

MGQDRGKYDFYIGLGLAISSSIFIGGSFILKKKGLLRLAKKGSTRAGQGGHAYLKEWLWWAGLL
SMGAGEAANFAAYAFAPATLVTPLGALSVLVSAVLSSYFLTERLNLHGKLGCMLSILGSTTMVIHA
PKEEEISSLEHMSKKLVDPGFVVFATLVVIVALIFVVGPRHGQTNILVYITICSVIGALSVSCVKGL
GIAIKEAIAGTNVVKNPLAWVLLFSLVGCVSTQINYLNKALDIFNTSLVTPIYYVFFTTSVLTCSAILF
KEWEHMGADDVIGTLSGFITIIVGIFLLHAFKDLNVSLAALAVSMRKDDRPFPVNGVTSHSTYELV
HEESTEDMEEREMGPPFDTISRRNGSMAS

>NP_001171818.1 magnesium transporter NIPA2 isoform a [Homo sapiens]

MSQGRGKYDFYIGLGLAMSSSIFIGGSFILKKKGLLRLARKGSMRAGQGGHAYLKEWLWWAGL
LSMGAGEVANFAAYAFAPATLVTPLGALSVLVSAVLSSYFLNERLNLHGKIGCLLSILGSTVMVIHA
PKEEEIETLNEMSHKLGDPGFVVFATLVVIVALILIFVVGPRHGQTNILVYITICSVIGAFSVSCVKG
LGIAIKELFAGKPVLRHPLAWILLLSLIVCVSTQINYLNALDIFNTSIVTPIYYVFFTTSVLTCSAILF
KEWQDMPVDDVIGTLSGFFTIIVGIFLLHAFKDVSLASLPVSFRKDEKAMNGNLSNMYEVLN
NNEESLTCGIEQHTGENVSRRNGNLTA