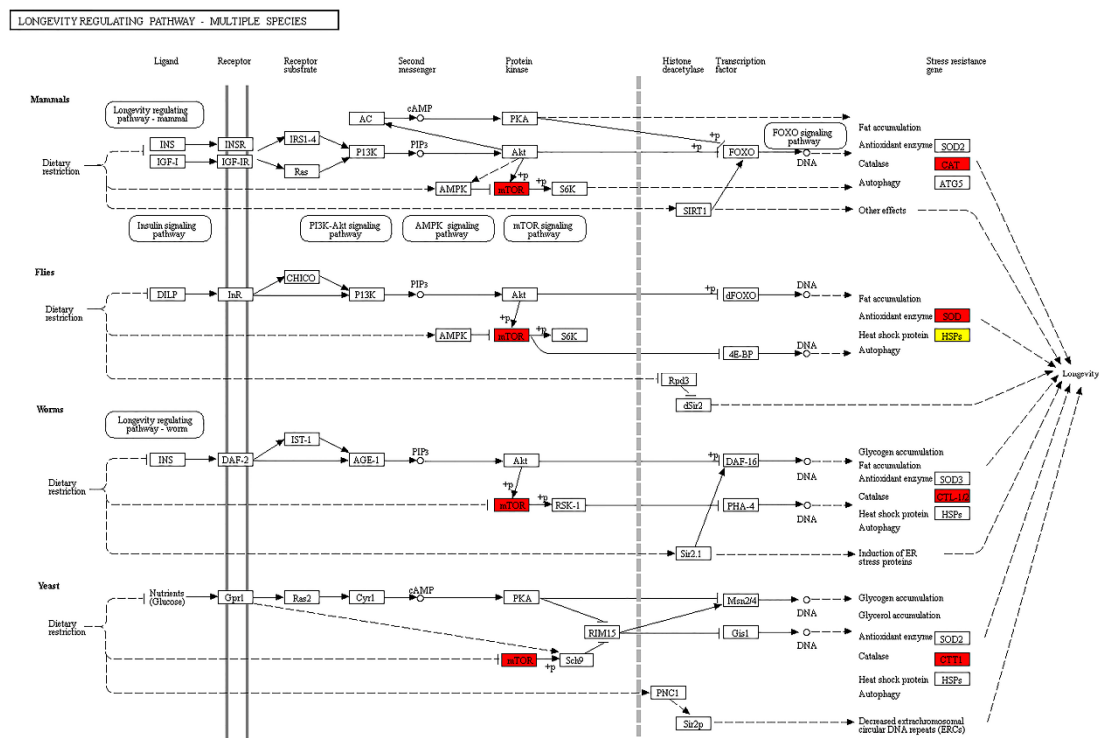


Supplementary Figure S1. Pathway of insect hormone biosynthesis affected by improved artificial diet feeding in adults of *Arma chinensis*. The red part indicates up-regulated proteins and the green part indicates down-regulated proteins.



Supplementary Figure S2. Pathway of longevity regulating affected by improved artificial diet feeding in nymphs of *Arma chinensis*. The red part indicates up-regulated proteins and the yellow part indicates HSPs (Protein accession: Unigene17363_All, IADN/COSMN ratio = 2.707, $p = 0.031$; Protein accession: CL1793.Contig1_All, IADN/COSMN ratio = 0.621, $p = 0.005$).

PROTEIN EXPORT

Sec dependent pathway

Prokaryotic type

Translocation channel and related proteins

| | | |
|--------|------|------|
| SecY | SecE | SecG |
| SecD/F | YajC | |
| YidC | | |
| SecA | SecB | SecM |

SRP

| | |
|-----|-----|
| Ffh | Ffs |
|-----|-----|

SRP receptor

| |
|------|
| FtsY |
|------|

Eukaryotic type

| | | |
|--------|--------|--------|
| SEC61a | SEC61b | SEC61y |
|--------|--------|--------|

| | |
|-------|-------|
| SEC62 | SEC63 |
|-------|-------|

| |
|-----|
| BiP |
|-----|

| | | | |
|-------|-------|-------|-------|
| SRP9 | SRP72 | SRP19 | RN7SL |
| SRP14 | SRP68 | SRP54 | |

| |
|------|
| SRPR |
|------|

Tat (twin-arginine translocation) system

Prokaryotic type

| | | |
|------|------|------|
| TatA | TatB | TatC |
| TatE | | |

Signal peptidase

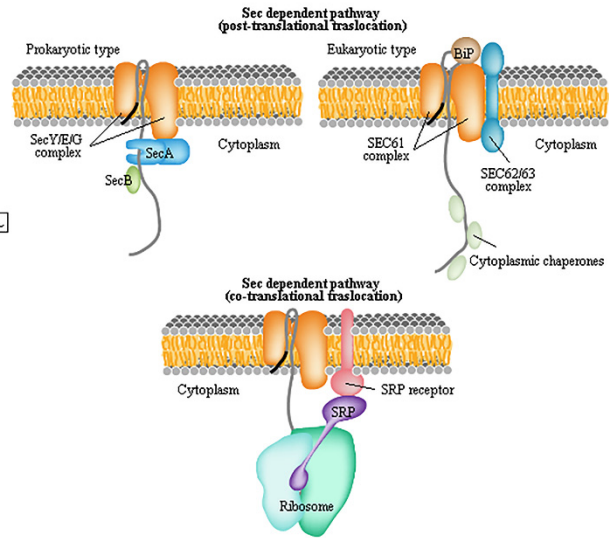
Prokaryotic type

| | |
|---------|----------|
| SPase I | SPase II |
|---------|----------|

Eukaryotic type

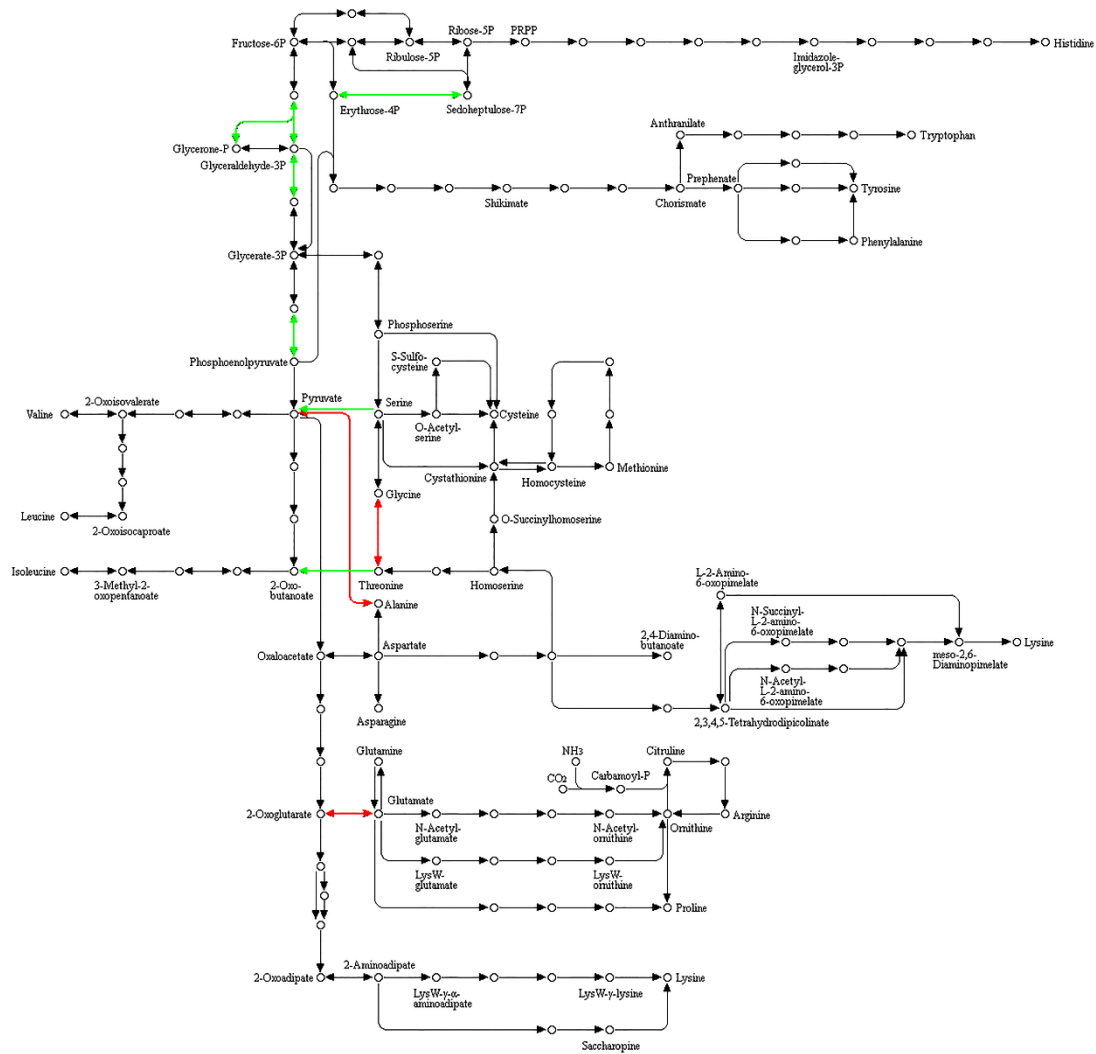
| | | | |
|-------|-------|-------|-------|
| SPCS1 | SPCS2 | SPCS3 | SEC11 |
|-------|-------|-------|-------|

| | |
|------|------|
| IMP1 | IMP2 |
|------|------|

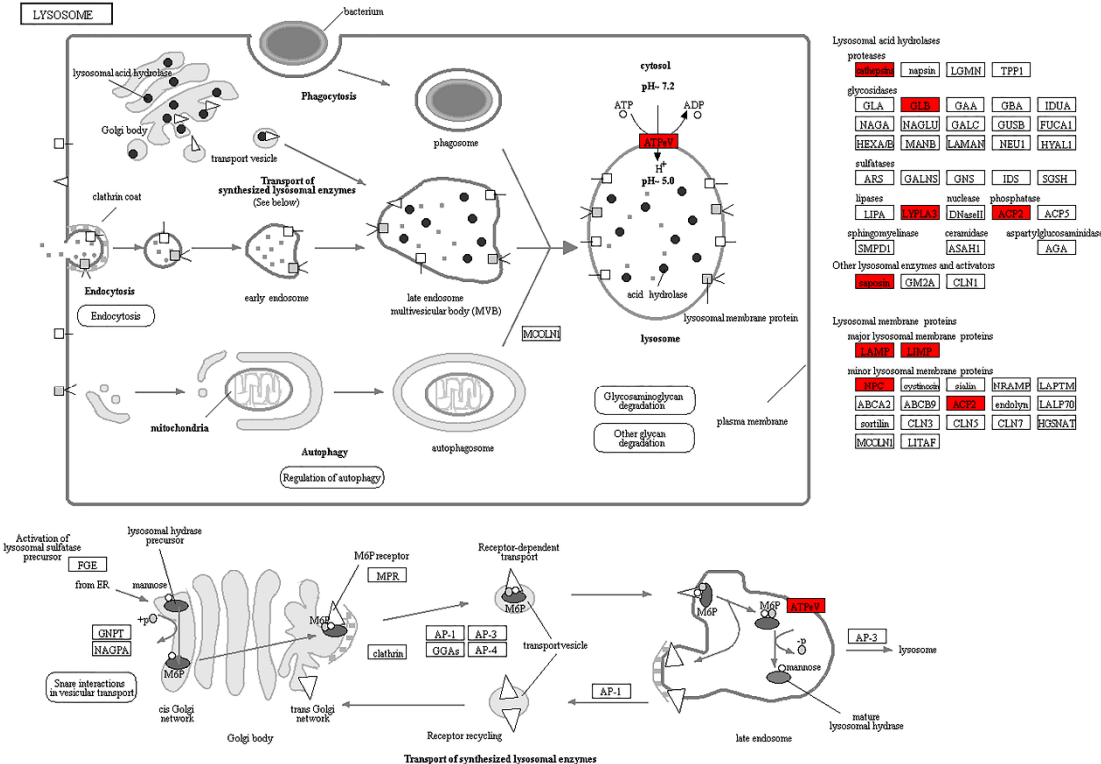


Supplementary Figure S3. Pathway of protein export affected by improved artificial diet feeding in nymphs of *Arma chinensis*. The green part indicates down-regulated proteins.

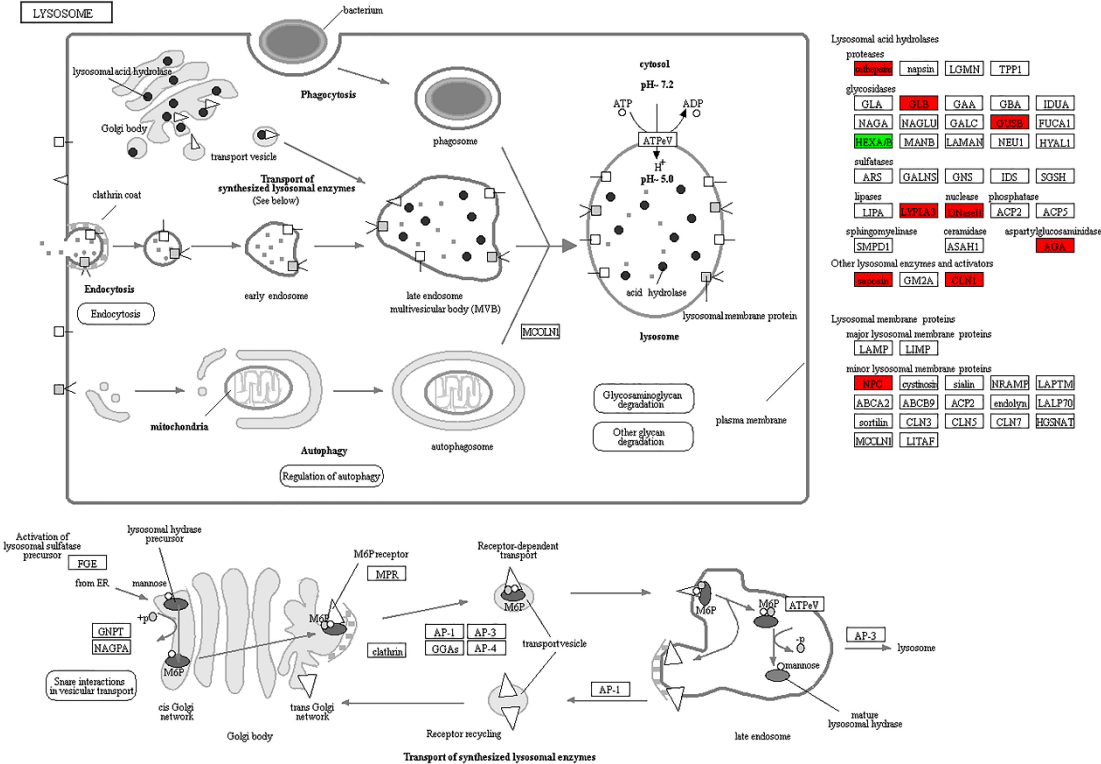
BIOSYNTHESIS OF AMINO ACIDS



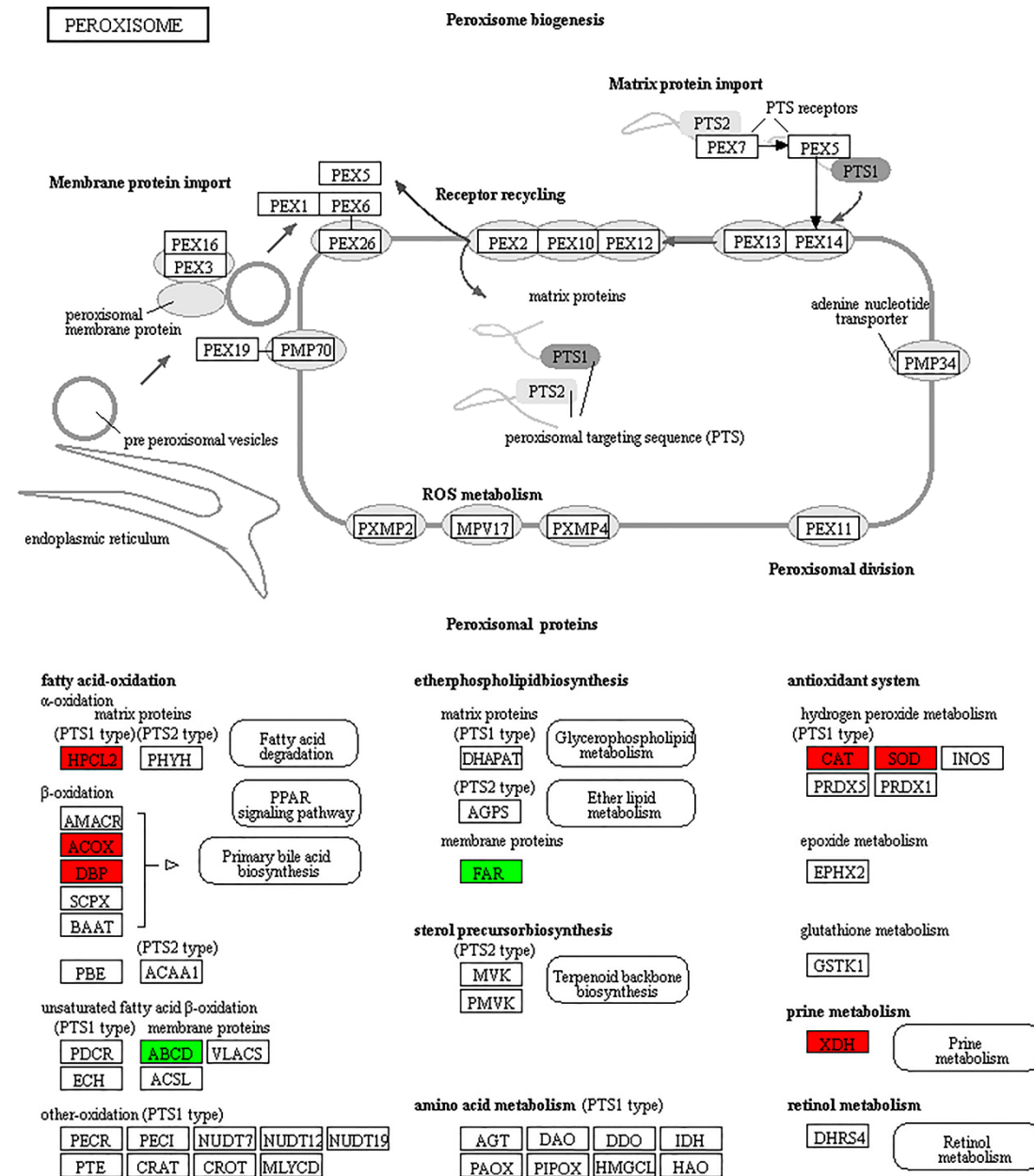
Supplementary Figure S7. Pathway of pentose and glucuronate interconversions affected by improved artificial diet feeding in nymphs of *Arma chinensis*. The red part indicates up-regulated proteins.



Supplementary Figure S8. Pathway of lysosome affected by improved artificial diet feeding in adults of *Arma chinensis*. The red part indicates up-regulated proteins.



Supplementary Figure S9. Pathway of lysosome affected by improved artificial diet feeding in nymphs of *Arma chinensis*. The red part indicates up-regulated proteins and the green part indicates down-regulated proteins.



Supplementary Figure S10. Pathway of peroxisome affected by improved artificial diet feeding in nymphs of *Arma chinensis*. The red part indicates up-regulated proteins and the green part indicates down-regulated proteins.