**Table S3.** Results from Likelihood ratio test between models of evolution. Body length (BL, maximum mantle length for coleoids and maximum shell diameter for nautiloids, mm), egg length (EL, mm), and potential fecundity (PF, number of mature oocytes in the ovary prior to spawning).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **BL** |  |  |  |  |  |
|  | BM | OU | EB | Trend | Drift |
| BM |  | 18.80964 | -0.000004 | 5.840398 | 35.93507 |
| OU | **0.000** |  | -18.809648 | -12.969246 | 17.12543 |
| EB | 1.000 | 1.000 |  | 5.840402 | 35.93508 |
| Trend | **0.0157** | 1.000 | **0.0157** |  | 30.09468 |
| Drift | **0.000** | **0.000** | **0.000** | **0.000** |  |
|  |  |  |  |  |  |
| **EL** |  |  |  |  |  |
|  | BM | OU | EB | Trend | Drift |
| BM |  | 18.96388 | -0.000004 | 5.806408 | 36.26162 |
| OU | **0.000** |  | -18.963886 | -13.157473 | 17.29774 |
| EB | 1.000 | 1.000 |  | 5.806413 | 36.26163 |
| Trend | **0.016** | 1.000 | **0.016** |  | 30.45521 |
| Drift | **0.000** | **0.000** | **0.000** | **0.000** |  |
|  |  |  |  |  |  |
| **PF** |  |  |  |  |  |
|  | BM | OU | EB | Trend | Drift |
| BM |  | 17.83208 | -0.000004 | 5.661191 | 38.60343 |
| OU | **0.000** |  | -17.832082 | -12.170887 | 20.77135 |
| EB | 1.000 | 1.000 |  | 5.661195 | 38.60343 |
| Trend | **0.0173** | 1.000 | **0.0173** |  | 32.94224 |
| Drift | **0.000** | **0.000** | **0.000** | **0.000** |  |