

| | | <-LSC | | | | | | | | | | | | | | | IRA | | | SSC | IRB | | | | | | |
|-------------------|-----------------|-------|------|------|------|------|------|------|-------|-------|------|------|-------|-------|------|-------|---|---|-------|-------|------|-------|-------|-------|-------|------|-------|
| | | psbB | psbT | psbN | psbH | petB | petD | rpoA | rps11 | rpl36 | infA | rps8 | rpl14 | rpl16 | rps3 | rpl22 | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| charophytes | Chlorokybales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Charales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Coleochaetales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| liverworts | Desmidiaceae | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td>rps7</td><td>ndhB</td><td></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td>rps7</td> <td>ndhB</td> <td></td> | rpl23 | | | | | | rps7 | ndhB | |
| | Marchantiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Pelliales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Ptilidiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Metzgeriales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| mosses | Sphagnales | + | + | + | + | + | + | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Tetraphidiales | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Funariales | + | + | + | + | + | + | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| hornworts | Pottiaceae | + | + | + | + | + | + | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Hypnaceae | + | + | + | + | + | + | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Orthotrichales | + | + | + | + | + | + | 0 | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Dendrocerotales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td>rps7</td><td>ndhB</td><td>rps12</td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td>rps7</td> <td>ndhB</td> <td>rps12</td> | rpl23 | | | | | | rps7 | ndhB | rps12 |
| Lycophytes | Anthocerotales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Lycopodiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Isoetes | + | + | + | + | + | + | + | + | + | 0 | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td></td> <td colspan="3"></td> | rpl23 | ndhB | rps7 | | | | | | |
| Fern | Selaginellales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Equisetales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Psilotales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Ophioglossales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Marattiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Osmundales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td colspan="3"></td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td colspan="3"></td> | rpl23 | | | | | | | | |
| | Schizaeales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ndhB</td> <td>rps7</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | ndhB | rps7 | | |
| | Salviniales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ndhB</td> <td>rps7</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | ndhB | rps7 | | |
| | Cyatheales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ndhB</td> <td>rps7</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | ndhB | rps7 | | |
| | Polypodiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ndhB</td> <td>rps7</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | ndhB | rps7 | | |
| Gymnosperm | Ginkgoales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Cycadales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Pinaceae | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | | | | | | rps12 | rps7 | ndhB |
| | Ephedrales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td colspan="5"></td><td>rps12</td><td>rps7</td><td>ndhB</td></td> | rpl2 <td>rpl23</td> <td colspan="5"></td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | | | | | | rps12 | rps7 | ndhB |
| | Welwitschiales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ψndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ψndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ψndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ψndhB</td> <td>rps7</td> | rpl23 | ψndhB | rps7 | rps12 | rps12 | ψndhB | rps7 | | |
| | Gnetales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 <td>rpl2<td>rpl23</td><td>ψndhB</td><td>rps7</td><td>rps12</td><td>rps12</td><td>ψndhB</td><td>rps7</td></td> | rpl2 <td>rpl23</td> <td>ψndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>ψndhB</td> <td>rps7</td> | rpl23 | ψndhB | rps7 | rps12 | rps12 | ψndhB | rps7 | | |
| Basal angiosperms | Amborellales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Nymphaeales | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 | rpl2 <td>rpl23</td> <td>ndhB</td> <td>rps7</td> <td>rps12</td> <td>rps12</td> <td>rps7</td> <td>ndhB</td> | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Austrobaileales | psbB | psbT | psbN | psbH | petB | petD | rpoA | rps11 | rpl36 | infA | rps8 | rpl14 | rpl16 | rps3 | rpl22 | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| Core angiosperm | Magnolia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Endicots | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | Monocots | + | + | + | + | + | + | rpoA | rps11 | rpl36 | infA | rps8 | rpl14 | rpl16 | rps3 | rpl22 | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | | |
| | | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | rps19 | rpl2 | rpl23 | ndhB | rps7 | rps12 | rps12 | rps7 | ndhB | |