| Subject or Strain ID | Species          | Subject or Strain ID | Species          |
|---------------------|------------------|----------------------|------------------|
| 297857              | Gorilla gorilla  | 599167               | Gorilla gorilla  |
| 176209              | Gorilla gorilla  | 599166               | Gorilla gorilla  |
| 599165              | Gorilla gorilla  | 220324               | Gorilla gorilla  |
| 582726              | Gorilla gorilla  | 252577               | Gorilla gorilla  |
| 174722              | Gorilla gorilla  | 252575               | Gorilla gorilla  |
| 252578              | Gorilla gorilla  | 252580               | Gorilla gorilla  |
| 174715              | Gorilla gorilla  | 220060               | Gorilla gorilla  |
| 590951              | Gorilla gorilla  | 176211               | Gorilla gorilla  |
| 590947              | Gorilla gorilla  | 599053               | Gorilla gorilla  |
| 590942              | Gorilla gorilla  | 176217               | Gorilla gorilla  |
| 590954              | Gorilla gorilla  | 176216               | Gorilla gorilla  |
| 174701              | Pan troglodytes  | 174703               | Pan troglodytes  |
| 174704              | Pan troglodytes  | 174707               | Pan troglodytes  |
| 174710              | Pan troglodytes  | 176228               | Pan troglodytes  |
| 176236              | Pan troglodytes  | 220062               | Pan troglodytes  |
| 220063              | Pan troglodytes  | 220065               | Pan troglodytes  |
| 84655               | Pan troglodytes  |                      |                  |
| 142185              | Pongo pygmaeus   | 142188               | Pongo pygmaeus   |
| 142189              | Pongo pygmaeus   | 142194               | Pongo pygmaeus   |
| 145300              | Pongo pygmaeus   | 145302               | Pongo pygmaeus   |
| 145303              | Pongo pygmaeus   | 145307               | Pongo pygmaeus   |
| 145308              | Pongo pygmaeus   | 145309               | Pongo pygmaeus   |
| 153805              | Pongo pygmaeus   | 153806               | Pongo pygmaeus   |
| 153822              | Pongo pygmaeus   | 153824               | Pongo pygmaeus   |
| 153830              | Pongo pygmaeus   | 197664               | Pongo pygmaeus   |
| 399047              | Pongo pygmaeus   | 588109               | Pongo pygmaeus   |
| 129S1 SVIMJ         | Mus musculus     | 129X1 SVJ            | Mus musculus     |
| A J                 | Mus musculus     | AKR                  | Mus musculus     |
| B6129PF1 .J        | Mus musculus     | B6129SF1.J           | Mus musculus     |
| B6AF1 J            | Mus musculus     | B6C3F1.J             | Mus musculus     |
| B6CBAF1.J          | Mus musculus     | B6D2F1 J             | Mus musculus     |
| B6JLF1 .J          | Mus musculus     | BALB CBYJ            | Mus musculus     |
| BALB CJ            | Mus musculus     | A J                  | Mus musculus     |
| C3H HEJ            | Mus musculus     | C3H HEOUJ            | Mus musculus     |
| C3HeB.FeJ          | Mus musculus     | C57BL 10J            | Mus musculus     |
| C57BL 6NJ          | Mus musculus     | C57BL6 J             | Mus musculus     |
| C57BLKS.SJ         | Mus musculus     | C57L J               | Mus musculus     |
| CAF1 J             | Mus musculus     | CAST EIJ             | Mus musculus     |
| CB6F1 J            | Mus musculus     | CBA CAJ              | Mus musculus     |
| CBA J              | Mus musculus     | DBA 1J               | Mus musculus     |
| DBA 2J             | Mus musculus     | FVB NJ               | Mus musculus     |
| KK.HIJ             | Mus musculus     | LG.J                 | Mus musculus     |
| LP .J              | Mus musculus     | MOLG.Dn J            | Mus musculus     |
| MRL MPJ            | Mus musculus     | NOD SHILTJ           | Mus musculus     |
| NOR.LtJ            | Mus musculus     | NU J                 | Mus musculus     |
| NZB.BIN J          | Mus musculus     | NZBWFW1 J            | Mus musculus     |
| NZO.HIItJ          | Mus musculus     | NZW LACJ             | Mus musculus     |
| PERC               | Mus musculus     | PL.J                 | Mus musculus     |
| PWK.PhJ            | Mus musculus     | SF.CamElJ            | Mus musculus     |
| SJL J              | Mus musculus     | SPRET.Ei J           | Mus musculus     |
| SWR.J              | Mus musculus     | TALLYHO JNGJ         | Mus musculus     |
| X129P3.J           | Mus musculus     |                      |                  |
Table S2. Procrustes ANOVA testing for differences in mean landmark configurations across methods (manual vs automated).

| Taxa      | Df | SS     | MS     | Rsq   | F       | Z       | Pr(>F) |
|-----------|----|--------|--------|-------|---------|---------|--------|
| **Mus**   |    |        |        |       |         |         |        |
| groups    | 1  | 0.0246 | 0.0246 | 0.1507| 17.7410 | 4.8028  | 0.0010 *** |
| Residuals | 100| 0.1387 | 0.0014 | 0.8493|         |         |        |
| Total     | 101| 0.1633 |        |       |         |         |        |
| **Mus bias-corrected** |    |        |        |       |         |         |        |
| groups    | 1  | 0.0015 | 0.0015 | 0.0092| 0.9242  | 0.0010  | 0.4915 |
| Residuals | 100| 0.1603 | 0.0016 | 0.9908|         |         |        |
| Total     | 101| 0.1617 |        |       |         |         |        |
| **Pan**   |    |        |        |       |         |         |        |
| groups    | 1  | 0.0087 | 0.0087 | 0.1442| 3.3697  | 3.4749  | 0.0010 *** |
| Residuals | 20 | 0.0515 | 0.0026 | 0.8558|         |         |        |
| Total     | 21 | 0.0602 |        |       |         |         |        |
| **Gorilla** |   |        |        |       |         |         |        |
| groups    | 1  | 0.0146 | 0.0146 | 0.0821| 3.7585  | 2.9436  | 0.0020 ** |
| Residuals | 42 | 0.1633 | 0.0039 | 0.9179|         |         |        |
| Total     | 43 | 0.1779 |        |       |         |         |        |
| **Pongo** |    |        |        |       |         |         |        |
| groups    | 1  | 0.0176 | 0.0176 | 0.1235| 4.7916  | 3.6683  | 0.0010 *** |
| Residuals | 34 | 0.1249 | 0.0037 | 0.8765|         |         |        |
| Total     | 35 | 0.1426 |        |       |         |         |        |

Df = degrees of freedom; SS= sum of squares; MS = mean square; Rsq = coefficient of determination; F = F-statistic; Z = standard score; Pr = probability