### Supplementary Table 1. The composition of SOX protein secondary structures in humans.

| Group | Type  | Alpha helix (%) | Beta sheets (%) | Random coil (%) |
|-------|-------|-----------------|-----------------|-----------------|
| SOXA  | SRY   | 36.27           | 3.92            | 56.37           |
|       | SOX1  | 33.76           | 4.6             | 58.57           |
| SOXB1 | SOX2  | 15.14           | 3.15            | 79.18           |
|       | SOX3  | 31.39           | 3.14            | 62.33           |
|       | SOX14 | 21.25           | 2.92            | 73.33           |
| SOXB2 | SOX21 | 37.68           | 4.35            | 55.8            |
|       | SOX4  | 24.05           | 4.64            | 67.51           |
| SOXC  | SOX11 | 28.12           | 5.22            | 62.59           |
|       | SOX12 | 28.25           | 1.9             | 66.67           |
|       | SOX5  | 35.02           | 5.46            | 56.86           |
| SOXD  | SOX6  | 38.12           | 4.45            | 54.89           |
|       | SOX13 | 30.87           | 4.18            | 63.34           |
|       | SOX8  | 15.7            | 3.81            | 79.37           |
| SOXE  | SOX9  | 14.93           | 1.77            | 81.73           |
|       | SOX10 | 19.74           | 6.01            | 71.03           |
|       | SOX7  | 22.94           | 0.77            | 74.23           |
| SOXF  | SOX17 | 21.26           | 2.17            | 74.4            |
|       | SOX18 | 28.91           | 2.34            | 67.97           |
| SOXH  | SOX30 | 11.83           | 7.81            | 77.68           |
| SOXG  | SOX15 | 19.31           | 1.72            | 78.54           |
Supplementary Table 2. Predictions for protein properties for SOX from four species.

| pI  | GRAVY | Length | Mol.Wt. | Species          |
|-----|-------|--------|---------|------------------|
| 9.7 | -0.375| 391    | 39.02   | Homo_sapiens    |
| 6.19| -0.825| 466    | 49.91   | Homo_sapiens    |
| 4.91| -0.702| 441    | 46.68   | Homo_sapiens    |
| 5.08| -0.96 | 315    | 34.12   | Homo_sapiens    |
| 6.25| -0.766| 622    | 69.23   | Homo_sapiens    |
| 6.68| -0.585| 240    | 26.49   | Homo_sapiens    |
| 9.78| -0.843| 233    | 25.25   | Homo_sapiens    |
| 6   | -0.633| 414    | 44.12   | Homo_sapiens    |
| 8.16| -0.589| 384    | 40.89   | Homo_sapiens    |
| 9.74| -0.742| 317    | 34.31   | Homo_sapiens    |
| 9.74| -0.206| 276    | 28.58   | Homo_sapiens    |
| 9.78| -0.29 | 446    | 45.21   | Homo_sapiens    |
| 6.81| -0.701| 448    | 49.88   | Homo_sapiens    |
| 6.87| -0.483| 474    | 47.26   | Homo_sapiens    |
| 6.38| -0.745| 751    | 82.58   | Homo_sapiens    |
| 6.95| -0.809| 787    | 87.24   | Homo_sapiens    |
| 6   | -0.687| 388    | 42.20   | Homo_sapiens    |
| 6.49| -0.77 | 446    | 47.31   | Homo_sapiens    |
| 6.31| -1.007| 509    | 56.14   | Homo_sapiens    |
| 9.55| -0.968| 204    | 23.88   | Homo_sapiens    |
| 9.7 | -0.379| 391    | 39.05   | Mus_musculus    |
| 9.74| -0.724| 319    | 34.41   | Mus_musculus    |
| 9.78| -0.332| 450    | 45.44   | Mus_musculus    |
| 7.15| -0.539| 440    | 45.04   | Mus_musculus    |
| 5.92| -0.767| 714    | 79.13   | Mus_musculus    |
| 6.95| -0.824| 787    | 87.32   | Mus_musculus    |
| 6.01| -0.671| 380    | 41.49   | Mus_musculus    |
| 6.64| -0.796| 464    | 49.88   | Mus_musculus    |
| 6.31| -1.021| 507    | 56.08   | Mus_musculus    |
| 6.12| -0.827| 466    | 49.95   | Mus_musculus    |
| 4.96| -0.727| 395    | 42.63   | Mus_musculus    |
| 5.14| -0.929| 314    | 34.08   | Mus_musculus    |
| 6.03| -0.745| 613    | 68.17   | Mus_musculus    |
| 9.68| -0.587| 240    | 26.52   | Mus_musculus    |
| 9.68| -0.842| 231    | 25.31   | Mus_musculus    |
| 5.85| -0.569| 419    | 44.65   | Mus_musculus    |
| 7.6 | -0.565| 377    | 40.90   | Mus_musculus    |
| 9.74| -0.207| 276    | 28.61   | Mus_musculus    |
| 8.83| -0.575| 782    | 83.94   | Mus_musculus    |
| 7.34| -1.984| 395    | 49.49   | Mus_musculus    |
| 9.7 | -0.495| 373    | 37.93   | Gallus_gallus   |
| 9.77| -0.78 | 312    | 34.10   | Gallus_gallus   |
| 9.66| -0.712| 316    | 34.01   | Gallus_gallus   |
| 9.68| -0.63 | 240    | 26.67   | Gallus_gallus   |
| 9.74| -0.22 | 280    | 28.80   | Gallus_gallus   |
| 7.71| -0.65 | 428    | 43.11   | Gallus_gallus   |
| Value 1 | Value 2   | Value 3 | Value 4 | Value 5   |
|--------|-----------|---------|---------|-----------|
| 5.72   | -0.818    | 396     | 43.50   | Gallus_gallus |
| 8.44   | -0.72     | 285     | 31.26   | Gallus_gallus |
| 6.13   | -0.733    | 737     | 80.99   | Gallus_gallus |
| 6.66   | -0.825    | 817     | 90.72   | Gallus_gallus |
| 6.13   | -0.801    | 612     | 68.18   | Gallus_gallus |
| 6.46   | -0.788    | 470     | 50.83   | Gallus_gallus |
| 6.23   | -1.078    | 494     | 54.85   | Gallus_gallus |
| 6.2    | -0.851    | 461     | 49.86   | Gallus_gallus |
| 6.21   | -0.524    | 410     | 42.60   | Gallus_gallus |
| 6.49   | -0.766    | 418     | 46.23   | Gallus_gallus |
| 6.79   | -0.769    | 377     | 41.22   | Gallus_gallus |
| 6.09   | -0.536    | 642     | 69.47   | Gallus_gallus |
| 9.7    | -0.505    | 373     | 37.92   | Coturnix_japornica |
| 9.96   | -0.641    | 404     | 44.22   | Coturnix_japornica |
| 9.68   | -0.715    | 316     | 34.03   | Coturnix_japornica |
| 9.68   | -0.63     | 240     | 26.67   | Coturnix_japornica |
| 9.74   | -0.218    | 280     | 28.77   | Coturnix_japornica |
| 7.1    | -0.658    | 427     | 43.11   | Coturnix_japornica |
| 4.92   | -0.77     | 396     | 43.18   | Coturnix_japornica |
| 7.65   | -0.805    | 285     | 31.27   | Coturnix_japornica |
| 6.15   | -0.746    | 773     | 85.08   | Coturnix_japornica |
| 6.66   | -0.817    | 816     | 90.57   | Coturnix_japornica |
| 6.13   | -0.81     | 612     | 68.32   | Coturnix_japornica |
| 6.37   | -0.82     | 470     | 50.90   | Coturnix_japornica |
| 6.16   | -1.08     | 495     | 55.04   | Coturnix_japornica |
| 7.47   | -0.788    | 565     | 60.97   | Coturnix_japornica |
| 6.68   | -0.58     | 387     | 40.39   | Coturnix_japornica |
| 6.4    | -0.791    | 418     | 46.22   | Coturnix_japornica |
| 6.62   | -0.759    | 377     | 41.16   | Coturnix_japornica |
| 6.07   | -0.49     | 638     | 68.85   | Coturnix_japornica |