

TABLE S1 Data from IRMS analysis showing $\delta^{18}\text{O}$ values for non-fractionated DNA and RNA samples incubated with natural abundance ^{18}O -water or with H_2^{18}O .

| Sample Identifier | Nucleic acid type | Incubation time | Treatment | $\delta^{18}\text{O}$ (VSMOW) |
|--------------------|-------------------|-----------------|---|-------------------------------|
| 7-16O-a-DNA | DNA | 1 day | natural abundance ^{18}O water | 22.4 |
| 8-16O-b-DNA | DNA | 1 day | natural abundance ^{18}O water | 22.6 |
| 9-16O-c-DNA | DNA | 1 day | natural abundance ^{18}O water | 22.0 |
| 31-16O-a-DNA | DNA | 4 days | natural abundance ^{18}O water | 22.6 |
| 32-16O-b-DNA | DNA | 4 days | natural abundance ^{18}O water | 22.7 |
| 33-16O-c-DNA | DNA | 4 days | natural abundance ^{18}O water | 23.1 |
| 43-16O-a-DNA | DNA | 8 days | natural abundance ^{18}O water | 22.5 |
| 44-16O-b-DNA | DNA | 8 days | natural abundance ^{18}O water | 23.3 |
| 45-16O-c-DNA | DNA | 8 days | natural abundance ^{18}O water | 23.5 |
| 4-18O-a-DNA | DNA | 1 day | 95 atom % H_2^{18}O | 68.6 |
| 5-18O-b-DNA | DNA | 1 day | 95 atom % H_2^{18}O | 62.7 |
| 6-18O-c-DNA | DNA | 1 day | 95 atom % H_2^{18}O | 57.0 |
| 28-18O-a-DNA | DNA | 4 days | 95 atom % H_2^{18}O | 143.0 |
| 29-18O-b-DNA | DNA | 4 days | 95 atom % H_2^{18}O | 106.8 |
| 30-18O-c-DNA | DNA | 4 days | 95 atom % H_2^{18}O | 103.9 |
| 40-18O-a-DNA | DNA | 8 days | 95 atom % H_2^{18}O | 244.4 |
| 41-18O-b-DNA | DNA | 8 days | 95 atom % H_2^{18}O | 117.9 |
| 42-18O-c-DNA | DNA | 8 days | 95 atom % H_2^{18}O | 118.3 |
| Salmon sperm DNA-1 | DNA | NA | NA | 24.1 |
| Salmon sperm DNA-2 | DNA | NA | NA | 22.7 |
| Salmon sperm DNA-3 | DNA | NA | NA | 23.5 |
| 7-16O-a-RNA | RNA | 1 day | natural abundance ^{18}O water | 23.7 |
| 8-16O-b-RNA | RNA | 1 day | natural abundance ^{18}O water | 24.8 |
| 9-16O-c-RNA | RNA | 1 day | natural abundance ^{18}O water | 24.3 |
| 31-16O-a-RNA | RNA | 4 days | natural abundance ^{18}O water | 23.1 |
| 32-16O-b-RNA | RNA | 4 days | natural abundance ^{18}O water | 22.9 |
| 33-16O-c-RNA | RNA | 4 days | natural abundance ^{18}O water | 23.2 |
| 43-16O-a-RNA | RNA | 8 days | natural abundance ^{18}O water | 22.9 |
| 44-16O-b-RNA | RNA | 8 days | natural abundance ^{18}O water | 23.8 |
| 45-16O-c-RNA | RNA | 8 days | natural abundance ^{18}O water | 23.3 |
| 4-18O-a-RNA | RNA | 1 day | 95 atom % H_2^{18}O | 98.4 |
| 5-18O-b-RNA | RNA | 1 day | 95 atom % H_2^{18}O | 50.0 |
| 6-18O-c-RNA | RNA | 1 day | 95 atom % H_2^{18}O | 63.0 |
| 28-18O-a-RNA | RNA | 4 days | 95 atom % H_2^{18}O | 99.6 |
| 29-18O-b-RNA | RNA | 4 days | 95 atom % H_2^{18}O | 100.8 |
| 30-18O-c-RNA | RNA | 4 days | 95 atom % H_2^{18}O | 68.5 |
| 40-18O-a-RNA | RNA | 8 days | 95 atom % H_2^{18}O | 243.8 |
| 41-18O-b-RNA | RNA | 8 days | 95 atom % H_2^{18}O | 118.3 |
| 42-18O-c-RNA | RNA | 8 days | 95 atom % H_2^{18}O | 78.3 |