Collagen stable isotope data from East and Northeast Asia, c. 7000 BC–1000 AD

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Abstract
Stable isotope analysis is routinely used in archaeology to answer questions related to past diets. As the technique matures, data from archaeological sites have been generated at an exponential rate over the past several decades, thus provided an invaluable opportunity to examine past dietary practices and subsistence economies in much larger geographical and temporal settings. In Asia, a significant proportion of isotopic data is published in non-English journals or in grey literature, therefore remains largely inaccessible to general researchers. In order to provide easier access to these data, and to encourage future large-scale meta-data analyses in Asia, this collection presents the most comprehensive set of collagen stable isotope data of carbon, nitrogen, and sulfur from East and Northeast Asia (29–51°N, 96–136°E) to date, including sites located within the modern territories of the People’s Republic of China, Mongolia, the Russian Federation, and the Republic of Korea. Using academic search engines such as Google Scholar, the Chinese National Knowledge Infrastructure (CNKI), and ScienceON, a total of 3,304 previously published archaeological human and faunal stable isotope data from 136 archaeological sites in East and Northeast Asia, spanning over a period of 8,000 years (c. 7000 BC to AD 1000) are collected. The collated data are deposited

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on the open-access platform IsoArch (https://isoarch.eu/) for any interested parties to use.

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| Specifications Table |
|-----------------------|
| Subject | Social Sciences – Archaeology |
| Specific subject area | Stable isotope analysis |
| Carbon | Palaeodiet |
| Nitrogen | Subsistence economy |
| Sulfur | Anthropology |
| Type of data | Table |
| How data were acquired | Collated from published articles, dissertations/theses, and book chapters. |
| Data format | Raw |
| Parameters for data collection | This compilation only includes data that are reported alongside atomic C/N ratios. For those that are published along with any additional collagen quality control (QC) criteria, only those that has passed the conventional criteria are included: %C between 15.3% and 47%; %N between 5.5% and 17.3%; and atomic C/N ratio between 2.9 and 3.6 [1–4]. Sulfur isotope data are not screened, and are included with %S, C/S, and N/S ratios as reported (please refer to the main text for more discussion on the QC for sulfur isotope measurements). |
| Description of data collection | A systematic literature review was conducted using Google Scholar, the China National Knowledge Infrastructure, and ScienceON, focusing on reports published before December 2019. |
| Data source location | This collection of data is consisted of a total of 3,304 previously published human and faunal collagen (bone and dentine) stable carbon and nitrogen isotope data (δ¹³C and δ¹⁵N) from archaeological sites (n = 136) located between 29°51’ N, 96°–136° E. The area covers parts of the modern territories of the People's Republic of China (PRC), Mongolia, the Russian Federation, and the Republic of Korea. Coordinates of the sites are reported in Table 1, reported in the geodetic reference system WGS 84. In addition, 249 corroborating stable sulfur isotope data (δ³⁴S) from 15 sites are also included. All sites are dated between 7000 BC to AD 1000. For details of primary data sources please refer to Table 1 below. |
| Data accessibility | The dataset is deposited in IsoArch (www.isoarch.eu) [5] with the following digital object identifier (DOI): https://doi.org/10.48530/isoarch.2021.001 |

Value of the Data

- Numerous studies have shown that meta-analyses of stable isotopic data can help connect between past human subsistence patterns and larger social issues such as long-distance trading networks, socio-political transitions, and climatic/environmental changes [6–10]. These patterns are usually hidden in smaller scale studies, and are only revealed when sample sizes are large enough.
- Stable isotope analysis has been increasingly applied in archaeological research in Asia, however, many data are being published in non-English journals or grey literature. In order to help make these data more accessible, this collection brings together stable isotopic data from 136 archaeological sites across East and Northeast Asia.
- The area in concern is chosen specifically to help better understand the spread and effect of agriculture in Northeast Asia. All sites concerned are dated from the early Neolithic to later
historical periods (c. 7000 BC–1000 AD), covering key dates concerning major changes in subsistence economies in the region, including the origin of agriculture, and the subsequent spread of millet (westward), rice (northward), and wheat (eastward) across the continent.

- Sometimes, subsets of stable isotope data from the same site are published in separate reports. This is especially common in larger sites, such as Yinxu. However, smaller data subsets can be overlooked in larger studies of the site/region. Here, effort has been made to ensure data from the same sites are organized together so that all associated data can be located easily.
- This collection is consisting of data coming from sites located within the modern territories of four countries, none of which’s official language is English. Therefore, site names and bibliographic information are provided in both the local language as well as English, whenever possible/necessary. This shall allow users to locate these sites/original references easier, should the need arise.
- The data are curated carefully. All δ¹³C and δ¹⁵N values that are not published with conventional quality control (QC) criteria, or have failed these criteria, are excluded. This is to ensure that the data are reliable and directly comparable. As the QC for δ³⁴S is less well established, all S isotope measurements are included as reported.

1. Data Description

This collection is consisted of a total of 3,304 entries of stable carbon and nitrogen isotope data, of which 3,224 (2,343 human, 881 fauna) come from unique individuals, with additional 249 entries of stable sulfur isotope data from 241 (190 human, 51 fauna) unique individuals. Multi-tissue measurements are available from 80 individuals. All stable carbon and nitrogen isotope data come from 136 archaeological sites, where 15 sites also have corroborating stable sulfur isotope data (Fig. 1). An interactive map showing the locations of all sites is also available on IsoArch (https://database.isoarch.eu/map.php). The dataset is deposited in IsoArch [5] under the following DOI: https://doi.org/10.48530/isoarch.2021.001. Table 1 provides a summary of all the sites involved, describing the locations, archaeological cultures and time periods, and numbers of human and/or faunal samples from each respective site. All stable carbon and nitrogen isotope data included in this collection have passed all accompanied collagen QC criteria. For most sites, the excluded data only constituted a small portion of the total data reported. However, data from a number of sites are entirely excluded, please see Table 2 for more information. As the QC for δ³⁴S is less well established, all S isotope measurements are included as reported.

2. Experimental Design, Materials and Methods

The area in concern is designed to collect isotopic data that can capture the development and spread of agriculture in Northeast Asia. The earliest evidence of crop domestication in Northeast Asia is found at an early Neolithic site Nanzhuangtou 南莊頭, (c. 9,550–9,050 cal. BC) [124], located about 100km southwest of the modern city of Beijing, PRC (see Fig. 1) – unfortunately, no isotopic data is available from this site. Treating this site as the tentative “ground zero” of the Northeast Asian agricultural revolution, a circle with a radius of roughly 1,500 km is drawn around the site, where isotopic data are collected from within.

In terms of time period, all sites involved are dated between c. 7000 BC to AD 1000. Note that as a majority of the publications describe the chronological periods of archaeological sites using the BC/AD (or BCE/CE) framework, all periods described in BP will be converted to BC/AD. All reported time periods are gathered from the studies reporting the stable isotope data, more refined chronology of the sites may be available in other associated reports.

Geographically, this area is consisted of several distinctive geological features, including plains, mountains, steppes, plateaus, deserts, and islands. A general description of the geographic
Table 1

Site ID, names, references, cultural phases and time periods, coordinates (latitudes and longitudes), elevations, general description of geographic zones, and numbers of δ¹³C and δ¹⁵N data from all sites included in the database. Bracketed numbers are the number of samples with corroborating δ³⁴S values. Site ID corresponds to the numbers shown on Fig. 1. * indicates that the faunal assemblage is not contemporaneous with the human assemblage.

| Site ID | Site | Local name | Location (modern reference) | Time period/culture | Latitude  | Longitude  | Altitude (m.a.s.l.) | Geographic zones | Total number of data | Human | Faunal |
|---------|------|------------|-----------------------------|---------------------|-----------|------------|-------------------|-----------------|---------------------|-------|--------|
| 1       | Zongri [11] | 拉日 | Qinghai, PRC | 2200-1800 BC/Zongri Culture | 33.552134 | 96.380682 | 4242 | Tibetan Plateau | 24 |       |
| 2       | Huoshagou [7] | 火烧沟 | Gansu, PRC | 1900 - 1300 BC/Siba Culture | 39.960279 | 97.655051 | 1761 | Hexi Corridor | 30 |       |
| 3       | Ganguya [7] | 乾骨崖 | Gansu, PRC | 1350-950 BC/Siba Culture | 39.382711 | 98.856553 | 1827 | Hexi Corridor | 30 | 12* |
| 4       | Huoshiliang [12] | 火石梁 | Gansu, PRC | 2135-1682 BC/Siba Culture | 40.26 | 99.305 | 1195 | Hexi Corridor | 2 | 18 |
| 5       | Wuba [7] | 五端 | Gansu, PRC | 2490-1950 BC/Banshan – Machang Cultures | 39.380785 | 99.890372 | 1360 | Hexi Corridor | 55 |       |
| 6       | Xichengyi [13] | 西城驿 | Gansu, PRC | 4100-3600 BC/Machang – Siba Culture | 39.014436 | 100.365415 | 1460 | Hexi Corridor | 4 | 4 |
| 7       | Hupo [14] | 襄坡 | Gansu, PRC | 2234-2094BC/Banshan – Machang Cultures | 36.4 | 102 | 2512 | Hexi Corridor | 6 |       |
| 8       | Sanbeiyi [14] | 三合乙 | Gansu, PRC | 1961-1881 BC/Qijia Culture | 36.4 | 102 | 2512 | Hexi Corridor | 5 |       |
| 9       | Wenhoku [15] | 文卜扣 | Qinghai, PRC | ca. 2000 BC/Majiayao Culture | 36 | 102 | 2000 | Hexi Corridor | 1 |       |
| 10      | Lajigai [14] | 拉吉盖 | Gansu, PRC | 1328-1082 BC/Kayue Culture | 36 | 102.3 | 2382 | Hexi Corridor | 5 |       |
| 11      | Lajia [16] | 楼家 | Qinghai, PRC | 2300-1600 BC/Qijia Culture | 35.8543 | 102.8278 | 1760 | Lixin Basin | 4 |       |
| 12      | Xiahaishi [17,18] | 下海石 | Gansu, PRC | 1920-1800 BC/Machang Culture | 36.344608 | 102.856376 | 1771 | Hexi Corridor | 14 | 9 |
| 13      | Mozuizi [7,15] | 磨嘴子 | Gansu, PRC | 2350-2000 BC/Machang Culture | 37.801425 | 102.86876 | 1599 | Hexi Corridor | 16 |       |
| 14      | Lianhuatai [18] | 联花台 | Gansu, PRC | 1470-1080 BC/Xindian Culture | 35.769601 | 103.165769 | 1757 | Hexi Corridor | 6 |       |
| 15      | Mogou [7,14] | 磨沟 | Gansu, PRC | 1750-1100 BC/Qijia – Siwa Cultures | 34.977773 | 103.780975 | 2348 | Wei River valley | 85 |       |
| 16      | Zhanqi [7,18] | 赞奇 | Gansu, PRC | 1100-950 BC/Siwa Culture | 34.714335 | 103.844992 | 2263 | Wei River valley | 45 | 2 |
| 17      | Qiijiap [19] | 齐家坪 | Gansu, PRC | 1515-1264 BC/Qijia Culture | 35.887345 | 104.062574 | 2037 | Hexi Corridor | 42 | 19 |
| 18      | Buzhipang [17] | 堡子坪 | Gansu, PRC | 2126-1744 BC/Qijia Culture | 35.4 | 104.5 | 2298 | Hexi Corridor | 1 | 7 |
| 19      | Buzishan [17] | 堡子山 | Gansu, PRC | 2126-1744 BC/Qijia Culture | 35.4 | 104.5 | 2298 | Hexi Corridor | 1 | 5 |
| 20      | Maojiapi [20] | 毛家坪 | Gansu, PRC | 1046-221 BC/Western and Eastern Zhou | 34.756619 | 105.099274 | 1380 | Hexi Corridor | 51 |       |
| 21      | Bayanbulag [21] | Байбичулаг | Umnugovi, Mongolia | 365 - 107 BC/Pre-Han | 42.6 | 105.175 | 1246 | Steppe | 15 |       |
| 22      | Lixian [22] | 璧縣 | Gansu, PRC | 2832-2470 BC/ Longshan Culture; 803-543 BC/Zhou; AD 1027-1201 Song Dynasty | 34.189345 | 105.17864 | 1414 | Wei River Valley | 3 |       |

(continued on next page)
| Site ID | Site | Local name | Location (modern reference) | Time period/culture | Latitude  | Longitude | Altitude (m.a.s.l.) | Geographic zones | Total number of data | Human | Faunal |
|--------|------|------------|-----------------------------|--------------------|-----------|-----------|---------------------|-----------------|---------------------|-------|-------|
| 23     | Xishan [23] | 西山 | Gansu, PRC | 475-221 BC/Western Zhou to Warring States | 34.192296 | 105.183033 | 1414 | Hexi Corridor | 19 |       |       |
| 24     | Dadiwan [24] | 大地湾 | Gansu, PRC | 4500-2900 BC/ Yangshao Culture | 35.01948 | 105.92631 | 1585 | Wei River Valley | 5 |       |       |
| 25     | Baga Gazaryn Chuluu [25] | Бага Газарын Чулдуу | Dundgovi, Mongolia | 2000-500 BC/Bronze Age; 1000-400 BC/Iron Age; 300 BC-AD 200/Xiongnu; AD 600-800/Turkic; AD 1200-1400/Mongol | 46.2034 | 106.0299 | 1584 | Desert | 38 | 14* |       |
| 26     | Jianhe [23] | 建河 | Shaanxi, PRC | 480-221 BC/Warring States period | 34.515439 | 106.364578 | 964 | Wei River valley | 14 |       |       |
| 27     | Fenggeling [22] | 負闕嶺 | Shaanxi, PRC | 533-361 BC/Bronze/Early Zhou | 34.529939 | 106.44783 | 903 | Wei River Valley | 4 |       |       |
| 28     | Nalin Taohai [26] | 鈕林套海 | Inner Mongolia, PRC | 202 BC- 8 AD/Western Han | 40.487159 | 106.6411 | 1042 | Desert | 6 |       |       |
| 29     | Shigushan [18] | 石鼓山 | Shaanxi, PRC | 1200-1000 BC/Predynastic Zhou to early Western Zhou | 34.43362 | 107.190987 | 607 | Wei River valley | 7 |       |       |
| 30     | Sunjianantou [27] | 孫家南頭 | Shaanxi, PRC | 770-221 BC/Western Zhou | 34.472717 | 107.24411 | 686 | Wei River valley | 25 |       |       |
| 31     | Zhouyuan [18,23] | 周原 | Shaanxi, PRC | 1200-1000 BC/Predynastic Zhou to early Western Zhou | 34.486595 | 107.602417 | 774 | Wei River valley | 20 |       |       |
| 32     | Zhanguo [22] | 周頭 | Shaanxi, PRC | 511-376 BC/Bronze/Early Zhou | 34.396124 | 107.96717 | 541 | Wei River Valley | 1 |       |       |
| 33     | Xunyi [22] | 旬邑 | Shaanxi, PRC | 2447-2034 BC/Longshan Culture | 35.107672 | 108.332886 | 976 | Wei River Valley | 3 |       |       |
| 34     | Jichang [28] | 機場 | Shaanxi, PRC | AD 25-220/Eastern Han | 34.429958 | 108.738685 | 488 | Wei River valley | 30 | 7 | (1) |
| 35     | Guanzhong Prison [29] | 閏中監獄 | Shaanxi, PRC | 475-221 BC/Warring States | 34.360057 | 108.752309 | 378 | Wei River valley | 25 |       |       |
| 36     | Yuhuazhai [22] | 魚化寨 | Shaanxi, PRC | 3779-3347 BC/Yangshao Culture | 34.233445 | 108.860317 | 406 | Wei River Valley | 2 |       |       |
| 37     | Guandao [28] | 官道 | Shaanxi, PRC | 141 BC-AD 220/Mid-Western Han to Eastern Han | 34.752401 | 108.90653 | 629 | Wei River valley | 5 | 1 | (1) |
| 38     | Guangming [28] | 光明 | Shaanxi, PRC | 141 BC-AD 24/Western Han | 34.440213 | 108.976327 | 405 | Wei River valley | 7 | 2 | (2) |
| 39     | Dongying [30] | 東營 | Shaanxi, PRC | 2600-2000 BC/Kexingzhuang II | 34.44333 | 109.0153 | 374 | Wei River valley | 5 |       |       |
| 40     | Banpo [31] | 半坡 | Shaanxi, PRC | 4800-4300 BC/Banpo Culture | 34.2729 | 109.053402 | 421 | Wei River valley | 1 |       |       |
| 41     | Lintong [22] | 靈鷲 | Shaanxi, PRC | 391-4 BC/Eastern Zhou to Western Han; AD 426-585 Six Dynasties | 34.3673 | 109.21376 | 471 | Wei River Valley | 3 |       |       |
| 42     | Jiangzhai [31,32] | 姜寨 | Shaanxi, PRC | 4900-4000BC/Banpo and Shijia Cultures | 34.377858 | 109.218143 | 446 | Wei River valley | 20 |       |       |

(continued on next page)
| Site ID | Site | Location (modern reference) | Time period/culture | Latitude  | Longitude  | Altitude (m.a.s.l.) | Geographic zones | Total number of data |
|---------|------|-----------------------------|---------------------|-----------|------------|---------------------|------------------|---------------------|
| 43      | Shijia [31] | Shaanxi, PRC             | 4300-4000 BC/Shijia Culture | 34.725018 | 109.357346 | 384                  | Wei River valley | 9                   |
| 44      | Baijia [33] | Shaanxi, PRC             | 5709-5389 BC^C/|Laoguantai Culture | 34.55209 | 109.4107 | 350                  | Wei River valley | 1                   |
| 45      | Beiliu [34] | Shaanxi, PRC             | 6000-5000 BC/Laoguantai and 4000-3500 BC/Miaodigou cultures | 34.374866 | 109.555338 | 583                  | Wei River valley | 9                   |
| 46      | Shengedaliang [35] | Shaanxi, PRC | 1825-1615 BC/Yongxingdian-Dakou II culture | 38.63355 | 109.93335 | 1220                | Ordos Plateau | 28                  |
| 47      | Muzhuzhuliang [36] | Shaanxi, PRC | 1950-1780 BC/ Late Longshan Culture | 38.639179 | 110.43702 | 1164                | Ordos Plateau | 8                   |
| 48      | Xinhua [22] | Shaanxi, PRC             | 2014-1770 BC/Longshan Culture | 38.734138 | 110.099833 | 1156                | Ordos Plateau | 1                   |
| 49      | Zhukaigou [22] | Inner Mongolia, PRC      | 2195-1696 BC/ Longshan Culture | 39.644967 | 110.43219 | 1338                | Ordos Plateau | 2                   |
| 50      | Shimao [22] | Shaanxi, PRC             | 2107-1746 BC/ Shimao Culture | 39.064226 | 110.50283  | 366                 | Wei River valley | 30                  |
| 51      | Liangdaicun [23,37] | Shaanxi, PRC | 1200-1000 BC/Western Zhou to Spring-Autumn | 39.064226 | 110.50283  | 366                 | Wei River valley | 30                  |
| 52      | Neiyangyuan [38] | Shaanxi, PRC             | 770-476 BC/Xia and Spring-Autumn | 35.989888 | 110.785445 | 1079                | Lúliang Mountains | 23                  |
| 53      | Xipo [39] | Henan, PRC               | 3300-3000 BC/Yangshao Culture | 34.35444  | 110.846353 | 871                  | Wei River valley | 30\(3^*\)          |
| 54      | Qinglongquan [40-42] | Hubei, PRC | 3500-3000 BC/Yangshao, 3000-2600 BC/Qijialing and 2600-2200 BC/Shijiähe Cultures, 770-221 BC/Eastern Zhou | 32.83979  | 110.851701 | 189                  | North China Plain | 36(26)              |
| 55      | Qiangliang Temple [43] | Shaanxi, PRC | 3300-3000 BC/Miaodigou and 2300-1800BC/Longshan cultures | 34.76158  | 110.894048 | 532                  | Yellow River valley | 27                  |
| 56      | Dakou [22] | Inner Mongolia, PRC      | 2339-2041 BC/Longshan Culture | 39.403118 | 111.136222 | 852                  | Ordos Plateau | 2                   |
| 57      | Xiazhai [44] | Henan, PRC               | 2600-2000 BC/Longshan Culture | 33.01115  | 111.273355 | 171                  | North China Plain | 22                  |
| 58      | Shenmingpu [45] | Henan, PRC | 480-221 BC/Warring States and 220 BC-220 AD/the Han Dynasties | 33.002771 | 111.303279 | 166                  | North China Plain | 32                  |
| 59      | Gouwan [46] | Henan, PRC               | 5000-3500 BC/Yangshao and 3000-2600 BC/Qijialing Cultures | 33.078699 | 111.47917 | 176                  | North China Plain | 41                  |

(continued on next page)
| Site ID | Site                 | Local name    | Location (modern reference)                  | Time period/culture        | Latitude   | Longitude  | Altitude (m.a.s.l.) | Geographic zones                  | Total number of data | Human | Faunal |
|--------|----------------------|---------------|---------------------------------------------|-----------------------------|------------|------------|---------------------|------------------------------------|---------------------|-------|--------|
| 60     | Tuchengzi [47]       | 土城子        | Inner Mongolia, PRC                         | 475–221 BC/Warring States   | 40.441392  | 111.800105 | 1150                | Loess Plateau                     | 17                  |       |        |
| 61     | Xindianzi [48]       | 新店子        | Inner Mongolia, PRC                         | 770–221 BC/Eastern Zhou     | 40.241491  | 112.07507  | 1190                | Loess Plateau                     | 20                  |       |        |
| 62     | Dabaoshan [49]       | 大堡山        | Inner Mongolia, PRC                         | 410–180 BC/Late Warring States | 40.228893  | 112.157243 | 1228                | Loess Plateau                     | 41                  |       |        |
| 63     | Xinhuacon [22]       | 杏花村        | Shanxi, PRC                                 | 2337–2050 BC/Longshan Culture | 37.808167  | 112.311249 | 1661                | Lüliang Mountains                 | 2                   |       |        |
| 64     | Zhonggou [50]        | 中溝          | Henan, PRC                                  | 3010–2921 BC/Late Yangshao Culture | 34.7      | 112.4      | 167                 | Luoyang Basin                     | 26                  | 5     |        |
| 65     | Wanggedang [50]      | 王圪垯        | Henan, PRC                                  | 2500–1750 BC/Late Longshan to early Erlitou Culture | 34.63333  | 112.46676  | 140                 | Luoyang Basin                     | 14                  | 17    |        |
| 66     | Xiaonanzhuang [51]   | 小南莊        | Shanxi, PRC                                 | 770–221 BC/Eastern Zhou     | 37.7515    | 112.72531  | 828                 | Jinzhou Basin                     | 16                  |       |        |
| 67     | Neidan [52]          | 瓜店          | Shanxi, PRC                                 | 2070–1600 BC/Xia Dynasty    | 37.751272  | 112.741538 | 855                 | Taihang Mountains                 | 60                  |       |        |
| 68     | Meishan [44]         | 煤山          | Henan, PRC                                  | 2600–2000 BC/Longshan Culture | 34.175594  | 112.832212 | 219                 | North China Plain                 | 4                   |       |        |
| 69     | Tunliu Yuwu [53]     | 屯留余吾      | Shanxi, PRC                                 | 480–221 BC/Warring States and 220 BC–AD the Han Dynasties | 36.376475  | 112.843458 | 964                 | Datong Basin                      | 21                  |       |        |
| 70     | Sandaowan [54]       | 三道灣        | Inner Mongolia, PRC                         | AD 120–386/Eastern Han      | 41.710605  | 113.102828 | 1485                | Ulanqab grassland/ Hill/Plateau   | 2                   |       |        |
| 71     | Huhewusu [55]        | 呼和烏素      | Inner Mongolia, PRC                         | 206 BC – AD 9/Western Han   | 40.737092  | 113.134797 | 1361                | North China Plain                 | 5                   |       |        |
| 72     | Chenjiagou [56]      | 陳家溝        | Henan, PRC                                  | 770–221 BC/Eastern Zhou     | 34.939501  | 113.149566 | 103                 | North China Plain                 | 39                  |       |        |
| 73     | Xuecun [56]          | 薛村          | Henan, PRC                                  | 141 BC–220 AD/Western and Eastern Han | 34.865228  | 113.238266 | 141                 | Datong Basin                      | 53                  |       |        |
| 74     | Huayu Square [57]    | 華宇廣場      | Shanxi, PRC                                 | -AD 534/Late Northern Wei   | 40.06092   | 113.292698 | 1052                | Datong Basin                      | 16                  |       |        |
| 75     | Dongxin Square [57]  | 東信廣場      | Shanxi, PRC                                 | -AD 398/Early Northern Wei  | 40.055731  | 113.299989 | 1053                | Datong Basin                      | 26                  |       |        |
| 76     | Nanjiao [58]         | 南郊          | Shanxi, PRC                                 | AD 386-534/ Northern Wei    | 40.050959  | 113.304452 | 1053                | Datong Basin                      | 42                  | 29    |        |

(continued on next page)
| Site ID | Site | Local name | Location (modern reference) | Time period/culture | Latitude | Longitude | Altitude (m.a.s.l.) | Geographic zones | Total number of data |
|---------|------|------------|-----------------------------|---------------------|----------|-----------|---------------------|-------------------|---------------------|
| 77      | Yuchang Jiayuan [57] | 御昌佳園 | Shanxi, PRC | ~AD 439/Middle Northern Wei | 40.077464 | 113.347343 | 1047 | Datong Basin | 21 |
| 78      | Miaozigou [59] | 麦子溝 | Inner Mongolia, PRC | ~3500 BC/Miaozigou Culture | 40.766093 | 113.347685 | 422 | Hill/Plateau | 9 |
| 79      | Guanzhuang [60] | 官莊 | Henan, PRC | 1045-476 BC/ Late Western Zhou to Mid Spring Autumn Period | 34.854892 | 113.37718 | 127 | North China Plain | 21 |
| 80      | Wadian [61] | 瓦店 | Henan, PRC | 2200-1900 BC/Longshan Culture | 34.18744 | 113.4049 | 130 | North China Plain | 12 |
| 81      | Yangdi [56] | 阳翟 | Henan, PRC | 770-221 BC/Eastern Zhou | 33.866937 | 113.446075 | 85 | North China Plain | 5 |
| 82      | Jiahu [62] | 贼溝 | Henan, PRC | 7000-6200 BC/Jiahu Culture | 33.612622 | 113.667383 | 70 | North China Plain | 9 |
| 83      | Tianli [9,63] | 天利 | Henan, PRC | 770-256 BC/ Eastern Zhou | 34.368713 | 113.736025 | 114 | North China Plain | 13 |
| 84      | Xinzheng City [56] | 新鄭市 | Henan, PRC | 1046-221 BC/Western and Eastern Zhou | 34.396609 | 113.753075 | 107 | North China Plain | 75 |
| 85      | Laodaojing [64] | 老道井 | Henan, PRC | 476-221 BC/Warring States | 35.4065 | 113.913412 | 1576 | North China Plain | 24 |
| 86      | Bagou [54] | 巴溝 | Inner Mongolia, PRC | AD 120-386/Eastern Han | 40.951547 | 113.937875 | 5 | Ulanqab grassland | 5 |
| 87      | Haojiatai [44] | 貁家台 | Henan, PRC | 2600-2000 BC/Longshan Culture | 33.592542 | 114.031276 | 64 | North China Plain | 11 |
| 88      | Liuzhuang [65] | 劉莊 | Henan, PRC | 1750-1600 BC/Proto-Shang | 35.605103 | 114.132122 | 98 | North China Plain | 21 |
| 89      | Songzhuang [63] | 宋莊 | Henan, PRC | 770-220 BC/Eastern Zhou | 35.562036 | 114.244393 | 69 | North China Plain | 48 |
| 90      | Jiangjialiang [66] | 姜家梁 | Hebei, PRC | 3300-3000 VC/Xiaoyehyan Culture | 40.2 | 114.283333 | 1347 | Yongding River Basin | 25 |
| 91      | Yinxu [18,67-70] | 殷墟 | Henan, PRC | 1250 - 1046 BC/Late Shang Dynasty | 36.13944 | 114.3031 | 82 | North China Plain | 142 |
| 92      | Gu'an [71] | 固安 | Henan, PRC | AD 534-550/Eastern Wei to AD 550-577/ Northern Qi | 36.229459 | 114.311262 | 91 | North China Plain | 4 |
| 93      | Nancheng [72] | 南城 | Hebei, PRC | 2000-1600 BC/Proto-Shang | 36.50347 | 114.375754 | 81 | North China Plain | 75 |

(continued on next page)
| Site ID | Site          | Local name      | Location (modern reference) | Time period/culture                        | Latitude  | Longitude  | Altitude (m.a.s.l.) | Geographic zones | Human | Faunal |
|--------|---------------|-----------------|------------------------------|--------------------------------------------|-----------|------------|---------------------|------------------|-------|--------|
| 95     | Pingliangtai  | 平糧台          | Henan, PRC                   | 2600-2000 BC/Longshan Culture              | 33.683665 | 114.907931 | 44                  | North China Plain | 8     |        |
| 96     | Liujiazhuang  | 劉家莊          | Shandong, PRC                | 1086-919 BC/Shang Dynasty                  | 36.421557 | 116.838755 | 142                 | North China Plain | 20    |        |
| 97     | Xiaojingshan  | 小荊山          | Shandong, PRC                | 6060-5750 BC/Houli Culture                 | 36.496515 | 116.844681 | 67                  | North China Plain | 10    |        |
| 98     | Oupan kiln    | 歐盤窯          | Anhui, PRC                   | AD 534-644/Sui-Tang Dynasty               | 34.137875 | 117.054959 | 36                  | North China Plain | 1     |        |
| 99     | Dawenkou      | 大汶口          | Shandong, PRC                | 3700-2450 BC/Dawenkou Culture              | 35.939856 | 117.09958  | 97                  | North China Plain | 26    | 24     |
| 100    | Xigongqiao    | 西公橋          | Shandong, PRC                | 3000-2500 BC/Dawenkou Culture              | 34.937363 | 117.23151  | 53                  | North China Plain | 3     |        |
| 101    | Houjiachai    | 候家寨          | Anhui, PRC                   | 5350-3250 BC/Houjiachai Culture            | 32.517778 | 117.272222 | 33                  | Jianghuai Plain  | 52    |        |
| 102    | Zhalainuoer   | 扎萊諾爾        | Inner Mongolia, PRC          | 220 BC-150 AD/Eastern Han                  | 49.451343 | 117.75078  | 543                 | Steppe           | 1     | 1      |
| 103    | Liangwangcheng| 梁王城         | Jiangsu, PRC                 | 3000-2500BC/Dawenkou Culture              | 34.505537 | 117.79311  | 26                  | North China Plain | 27    | 12     |
| 104    | Jinggouzi     | 井溝子          | Inner Mongolia, PRC          | 650-350 BC/Jinggouzi Culture               | 43.382352 | 118.25009  | 1030                | Inner Mongolian Plateau | 10 |        |
| 105    | Boyangcheng   | 薄陽城          | Anhui, PRC                   | 1122-771 BC/Western Zhou                   | 32.200878 | 118.29586  | 39                  | Yangtze River Delta | 39 | 29     |
| 106    | Dashanqian    | 大山前          | Inner Mongolia, PRC          | 800-300 BC/Upper Xiaijadian                | 42.203063 | 118.8178  | 694                  | Yan Mountains | 9 |        |
| 107    | Junzhuang     | 軍莊           | Jiangsu, PRC                 | 206 BC-25 AD/Western Han                   | 32.947137 | 118.886298 | 23                  | Jianghuai Plain | 9     |        |
| 108    | Sanxingcun    | 三星村          | Jiangsu, PRC                 | 4500-3500 BC/Sanxingcun Culture            | 31.681159 | 119.493831 | 5                   | Yangtze River Delta | 18 |        |
| 109    | Dongwuzhuer   | 東烏珠爾        | Inner Mongolia, PRC          | 222 BC-150 AD/Eastern Han                  | 49.23139  | 119.70473  | 627                 | Steppe           | 4     | 1      |
| 110    | Tuanjie       | 圍結            | Inner Mongolia, PRC          | 221 BC-150 AD/Eastern Han                  | 49.228    | 119.80145  | 641                 | Steppe           | 4     | 1      |
| 111    | Beiqian       | 北遷            | Shandong, PRC                | 4100-3500 BC/Dawenkou Culture and 1046-256 BC/Zhou Dynasty | 36.600228 | 120.740882 | 33                  | North China Plain | 42    | 32     |

(continued on next page)
### Table 1 (continued)

| Site ID | Site                          | Local name                     | Location (modern reference) | Time period/culture            | Latitude     | Longitude     | Altitude (m.a.s.l.) | Geographic zones | Total number of data | Human | Faunal |
|---------|-------------------------------|--------------------------------|------------------------------|-------------------------------|--------------|--------------|--------------------|-------------------|---------------------|--------|--------|
| 112     | Lamadong [88]                 | 喇撝洞                         | Liaoning, PRC                | 300-450 AD/Sanyan Culture     | 41.800152    | 120.770245   | 220                | Highland          | 20                  |        |        |
| 113     | Tianluoshan [89]              | 田螺山                         | Zhejiang, PRC                | 5050-3050 BC/Hemudu Culture   | 30.036505    | 121.400808   | 49                 | Yangtze River Delta | 9                   |        |        |
| 114     | Tashan [90]                   | 塔山                           | Zhejiang, PRC                | 3950-2250 BC/Liangzhu Culture | 29.478818    | 121.883383   | 5                  | Yangtze River Delta | 1                   | 6      |        |
| 115     | Tianrui Cement Plant [91]     | 天瑞水泥廠                     | Liaoning, PRC                | 220 BC-220 AD/the Han Dynasties | 40.275651    | 122.197996   | 20                 | Coastal           | 12                  | 6      |        |
| 116     | Xiaozhushan [92]              | 小珠山                         | Inner Mongolia, PRC          | 4750-2150 BC/Xiaozhushan Culture | 39.187535    | 122.359547   | 27                 | Island            | 81                  |        |        |
| 117     | Tuerji Mountain Tomb [93]     | 吐爾基山陵墓                   | Liaoning, PRC                | AD 916-1125/ Liao Dynasty    | 43.652       | 122.8376     | 166                | Sanhe Plain       | 1                   |        |        |
| 118     | Shuangta [94]                 | 雙塔                           | Jilin, PRC                   | 4500-4000 BC/Huangjia Weizi Culture | 45.3946  | 122.95867   | 153                | Horqin Grassland | 5                   |        |        |
| 119     | Daejuk-ri [95]                | 대죽리                          | Chungcheongnam-do, Republic of Korea | 2500-1900 BC/Late Chulmun | 37.003235    | 126.401251   | 12                 | Coastal           | 1                   |        |        |
| 120     | Gonam-ri [96]                 | 高南里                          | Chungcheongnam-do, Republic of Korea | 2100-1100 BC/Late Chulmun | 36.416       | 126.41        | 6                  | Coastal           | 1                   |        |        |
| 121     | Yeongdong-ri [97]             | 영동리                          | Jeollanam-do, Republic of Korea | AD 300-600/Baekje Period    | 35.003       | 126.64       | 7                  | Naju Plain        | 9                   |        |        |
| 122     | Pungnap Toseong Fotress [98]  | 풍납 토성                      | Gyeonggi-do, Republic of Korea | 18 BC-AD 475/Baekje Period  | 37.538214    | 127.122025   | 20                 | Han River Plain   | 17                  |        |        |
| 123     | Ando [95]                     | 안도                           | Jeollanam-do, Republic of Korea | 6000-5000 BC/Incipient Chulmun | 34.488231   | 127.810068   | 70                 | Island            | 5                   | 8      |        |
| 124     | Troitskiy Cemetery [99]       | Трёбное кладбище                | Amur Oblast, Russian Federation | AD 698-926/Balhae | 50.740585    | 127.933789   | 138                | Amur-Zeya Plain   | 4                   |        |        |
| 125     | Neukdo [100]                  | 녹도                           | Gyeongsanam-do, Republic of Korea | 550-300 BC/Late Mumun to 300 BC-AD 1 /early Iron Age | 34.924232   | 128.034867   | 18                 | Island            | 48                  | 45     |        |

(continued on next page)
Table 1 (continued)

| Site ID | Site                  | Local name             | Location (modern reference)                  | Time period/culture                      | Latitude   | Longitude  | Altitude (m.a.s.l.) | Geographic zones | Total number of data |
|---------|-----------------------|------------------------|-----------------------------------------------|-------------------------------------------|------------|------------|---------------------|-------------------|---------------------|
| 126     | Sunheung Mural Tomb   | Sunheung 벽화 고분     | Gyeongsangbuk-do, Republic of Korea           | AD 300-688/ Three Kingdoms Period         | 36.912756  | 128.565621 | 233                 | Jungnyeong Mountain | 7 (7)               |
| 127     | Janghang              | 장항                   | Gyeongsangbuk-do, Republic of Korea           | Early Neolithic                          | 35.057563  | 128.80703  | 6                   | Island            | 10                  |
| 128     | Yean-ri               | 예안리                 | Gyeongsangnam-do, Republic of Korea          | AD 300-688/ Gaya Culture                 | 35.259     | 128.955    | 181                 | Hill              | 109                 |
| 129     | Daepo                 | 대포                   | Gyeongsangnam-do, Republic of Korea          | 5000-4400 BP/Early Chulmun               | 35.259     | 128.955    | 181                 | Island            | 5                   |
| 130     | Dongsam-dong          | 동삼동                 | Gyeongsangnam-do, Republic of Korea          | 3500-2000 BC/Middle Chulmun              | 35.07113   | 129.0795   | 5                   | Island            | 1 20                |
| 131     | Dongnae Paechong      | 동래 패총               | Gyeongsangnam-do, Republic of Korea          | AD 21-337                                | 35.205     | 129.082    | 10                  | Coastal           | 1 16                |
| 132     | Gyeongju              | 경주                   | Gyeongsangbuk-do, Republic of Korea          | 57 BC-AD 935/ Silla Kingdom              | 35.82748   | 129.21327  | 39                  | Gyeongju Basin     | 1                   |
| 133     | Donggung palace and   | 동궁과 월지 3호          | Gyeongsangbuk-do, Republic of Korea          | AD 856-1025/                             | 35.834747  | 129.226382 | 56                  | Gyeongju Basin     | 4                   |
|         | Wolji pond            |                        |                                               |                                            |            |            |                     |                   |                     |
| 134     | Boisman 2             | Бойсмана-2             | Primorye, Russian Federation                | 4500-2700 BC/Boisman Culture             | 42.783333  | 131.28333  | 0                   | Coastal           | 10                  |
| 135     | Cherepakha 13         | Черепаха-13            | Primorye, Russian Federation                | 1410-930 BC/Yankovsky Culture            | 43.28333   | 132.3      | 0                   | Coastal           | 11                  |
| 136     | Chertovy Vorota       | Чертовые ворота        | Primorye, Russian Federation                | 4800-3900 BC                             | 44.483333  | 135.5      | 371                 | Khanka Lowlands    | 2                   |
**Table 2**  
Summary of sites that are entirely excluded, listed in chronologically order.

| Site                  | Local name      | Location (modern reference)       | Period/Culture                                             | Excluded reason                                      | Note                                |
|-----------------------|-----------------|-----------------------------------|------------------------------------------------------------|------------------------------------------------------|------------------------------------|
| Xinglongwa [111]      | 喜隆溝          | Inner Mongolia, PRC               | c. 6200-5400 BC/Xinlongwa Culture; 4700-2900BC/Hongsan Culture; 2200-1600 BC/Lower Xiajiadian Culture | Collagen QC not provided                           |                                    |
| Beishouling [112]     | 青首溝          | Shaanxi, PRC                      | c. 5100-3790 BC/ Yangshao Culture                           | Collagen QC not provided                           |                                    |
| Xiaowu [113]          | 晟垢            | Henen, PRC                        | c. 5000-3000 BC/ Yangshao Culture                           | Collagen QC not provided                           |                                    |
| Xipo [114]            | 西坡            | Shaanxi, PRC                      | c. 5000-3000 BC/ Yangshao Culture                           | Collagen QC not provided                           |                                    |
| Xishan [114]          | 西山            | Henan, PRC                        | c. 5000-3000 BC/ Yangshao Culture                           | Collagen QC not provided                           |                                    |
| Yuhuazhai [114]       | 鱼化寨          | Henan, PRC                        | c. 5000-3000 BC/ Yangshao Culture                           | Collagen QC not provided                           |                                    |
| Banpo [112]           | 半坡            | Shaanxi, PRC                      | c. 4800-3300 BC/Banpo Culture                              | Collagen QC not provided                           |                                    |
| Guanjia [115]         | 関家            | Henan, PRC                        | c. 4000-3500 BC/ Middle Yangshao                           | Raw data not provided in report                     | Raw data provided in Liu et al., [116]. |
| Songze [111]          | 崇澤            | Shanghai, PRC                     | c. 4000-3300 BC/Songze Culture                             | Collagen QC not provided                           |                                    |
| Changdao Beizhuang     | 長島北莊        | Shandong, PRC                     | c. 4000-1900 BC/Dawenkou Culture                           | Collagen QC not provided                           |                                    |
| Lingyanghe [112]      | 凌陽河          | Shandong, PRC                     | c. 4000-1900 BC/Dawenkou Culture                           | Collagen QC not provided                           |                                    |
| Qixia Guzhen [111]    | 桂霞古鎮        | Shanxi, PRC                       | c. 4000-1900 BC/Dawenkou Culture                           | Collagen QC not provided                           |                                    |
| Baishicun [112]       | 白石村          | Shandong, PRC                     | c. 3900-3400 BC/ Baishicun Culture                         | Collagen QC not provided                           |                                    |
| Guchengzhai [114]     | 古城寨          | Henen, PRC                        | c. 3000-1900 BC/Longshan Culture                           | Collagen QC not provided                           |                                    |
| Hemudu [111]          | 河姆渡          | Zhejiang, PRC                     | c. 3000-1900 BC/Hemudu Culture                            | Collagen QC not provided                           |                                    |
| Wadian [114]          | 瓦店            | Henen, PRC                        | c. 3000-1900 BC/Longshan Culture                           | Collagen QC not provided                           |                                    |
| Xinzhai [117]         | 新砦            | Henen, PRC                        | c. 3000-1900 BC/Longshan Culture; 1870-1720 BC/Xinzhai Culture; 1750-1530 BC/Erlitou Culture | All C/N ratios fall outside of acceptable threshold. |                                    |
| Huxizhuang [112]      | 湘子莊          | Shaanxi, PRC                      | c. 2700-2400 BC/ Miaodigou Culture                         | Collagen QC not provided                           |                                    |
| Taosi [112,118]       | 陶寺            | Shanxi, PRC                       | c. 2300-1900 BC/Taosi Culture                             | Collagen QC not provided                           |                                    |
| Guojiashan [119]      | 郭家山          | Gansu, PRC                        | 2463-1525 BC/Machang Culture                               | Elemental concentrations too high                  |                                    |
| Qipanshan [119]       | 棋盤山          | Gansu, PRC                        | 2194-2034 BC/Machang Culture                               | Elemental concentrations too high                  |                                    |
| Shuikou [119]         | 水口            | Gansu, PRC                        | 2192-1982 BC/Machang Culture                               | Elemental concentrations too high                  |                                    |
| Xihuishan [119]       | 西灰山          | Gansu, PRC                        | 1915-1531 BC/SiFa Culture                                  | Elemental concentrations too high                  |                                    |

(continued on next page)
| Site       | Local name | Location (modern reference) | Period/Culture | Excluded reason                             | Note                                                      |
|------------|------------|-----------------------------|----------------|---------------------------------------------|-----------------------------------------------------------|
| Yichuan Nanzhai [111] | 伊川南寨 | Henan, PRC | c. 1900-1500 BC/Erlitou Culture | Collagen QC not provided | Sacrificial victims from M54 Context not specified |
| Lijiageleng [119] | 李家戈楞 | Gansu, PRC | 1860-1638 BC/Qijia Culture | Elemental concentrations too high |
| Erlitou [118,120] | 二里头 | Henan, PRC | c. 1750-1500 BC/ Erlitou Culture | Collagen QC not provided |
| Yanshi Shangcheng [111] | 健师商城 | Henan, PRC | c. 1600-1400 BC/ Early Shang | Collagen QC not provided |
| Dadunwan [119] | 大墩灣 | Gansu, PRC | 1495-1268 BC/Siba Culture | Elemental concentrations too high |
| Tuba [119] | 土墩 | Gansu, PRC | 1218-1056 BC/Dongjiaji Culture | Elemental concentrations too high |
| Yinxu [121] | 谷堆 | Henan, PRC | c. 1250-1046 BC/ Late Shang | Collagen QC not provided |
| Yinxu [111] | 谷堆 | Shandong, PRC | c. 1200-800 BC/Late Shang to early Zhou | Collagen QC not provided |
| Liulie [111] | 琉璃河 | Beijing, PRC | c. 1045-771 BC/Western Zhou | Collagen QC not provided |
| Xujianian [112] | 徐家碾 | Gansu, PRC | c. 1000-700 BC/Siwa Culture | Collagen QC not provided |
| Shangsunjia [111] | 上孫家 | Qinghai, PRC | c. 900-600 BC/Kayue Culture; 202 BC - AD 220/Han Dynasty | Collagen QC not provided |
| Zhaojiashuimo [119] | 趙家水磨 | Gansu, PRC | 820-415 BC/Shanma Culture | Elemental concentrations too high |
| Gudongtan [119] | 古董溝 | Gansu, PRC | 794-431 BC/Shanma Culture | Elemental concentrations too high |
| Minqin Sanjiaocheng [119] | (民勤)三角城 | Gansu, PRC | 775-539 BC/Shajing Culture | Elemental concentrations too high |
| Shichengshan [119] | 石城山 | Gansu, PRC | 770-220 BC/Eastern Zhou | Elemental concentrations too high |
| Changxinyuan [115] | 楚馨園 | Henan, PRC | 770-220 BC/Eastern Zhou | Raw data not provided in report |
| Linxi Daqing | 林西大井 | Inner Mongolia, PRC | 770-220 BC/Eastern Zhou | Cannot locate reference |
| Xiyasi [115] | 西亞斯 | Henan, PRC | 770-220 BC/Eastern Zhou | Raw data not provided in report |
| Puge Xian [112] | 普格縣 | Sichuan, PRC | 475 BC – AD 220/Warring States to Han | Collagen QC not provided |
| Qiangshan [123] | 七郎山 | Inner Mongolia, PRC | 220 BC-150 AD/Eastern Han (early Xianbei) | Raw data not provided in report |
| Yangtun [112] | 楊屯 | Liaoning, PRC | 698-926 AD /Balhae Kingdom | Collagen QC not provided |
Fig. 1. Map showing all sites included in this collection. A key to site IDs is provided in Table 1. The black star indicates the location of Nanzhuangtou, the site with the earliest evidence of domesticated crop in Northeast Asia (no isotope data is available from this site). Modern geopolitical borders included for reference.

zones, altitude, and cultural affiliations are included in Table 1. Few coordinates are exact. For a vast majority of the sites, coordinates are extrapolated from textual descriptions, therefore only represent the approximated locations of the sites. Elevations are obtained from mapcoordinates.net (https://www.mapcoordinates.net/en) using the approximated coordinates described above. Distances to the coast (online database only, not shown in Table 1) are estimated using the "measure distance" function on Google Maps. Note that the "coast" refers to the modern coastline as shown on the satellite view on Google maps. Therefore, all these measurements should only be treated as a general reference.

Meta-datasets from archaeological contexts should not be constrained by modern geopolitical borders, therefore, the area chosen for data collection is not limited by such. The data included in this dataset come from archaeological sites traversing several modern countries. Therefore, wherever possible, bibliographic information (i.e. author names, article/book/thesis titles), and site names are provided in both the original published language as well as English. This is an important point, as Romanization of site names can be inconsistent across publications: e.g. 乾坤崖 can be spelled as Ganguya [18,119] or Ganguai [7]; and 수흥 백화 고분 was spelled as Sunhung Mural Tomb in one study [101], and as Sunheung Mural Tomb in others [125,126]. By providing bibliographic information and site names in its original language, users of this dataset should be able to locate the original publication(s) regarding particular site(s), or to pursue more information on particular site(s) beyond the references provided here. Note that the original site names cannot be recovered for two of the sites, Xinhua (Shaanxi, PRC) and
Zhanguo (Shaanxi, PRC), due to the lack of precise information provided in the original report [22]. Three other site names from the same report: Lintong, Lixian, and Xunyi are county names and therefore offer little information about the sites. Hence, the coordinates of these five sites are only estimated from the figure provided in the original report.

Data are systemically collected using academic search engines Google Scholar (https://scholar.google.com/), the China National Knowledge Infrastructure (https://www.cnki.net/), and ScienceON (https://scienceon.kisti.re.kr/main/mainForm.do), with keywords such as “archaeology”, “stable isotope analysis”, “collagen”, “carbon isotope”, “nitrogen isotope”, “palaeodiet”, in English, Chinese, and Korean. Search results included publications in peer-reviewed journals, research dissertations/theses, and book chapters. Focusing on reports published before December 2019, only collagen (bone and dentine) stable isotope data are collected. In some instances, the same dataset is published in multiple languages. In that case, only one publication is cited. This collection is by no means an exhaustive list of all stable isotopic data from within the described geographical and temporal zones. It is hoped that this effort can serve to initiate more active research sharing and collaborations among Asian archaeologists, and more importantly, to encourage more scholars to contribute their research data from the region to help filling in the temporal and geographical gaps in the current dataset.

Descriptions of the collagen extraction protocol are provided in all reports, mostly following the standard procedure after the Longin method [127], with various minor modifications. Not all studies report conventional QC criteria for collagen. In this collection, only studies that include at least the atomic C/N ratios are included. All data in this dataset has atomic C/N ratios between 2.9 and 3.6, and has passed all other QC criteria, whenever included [1–4]. While there are certain advantages to also include data that is not reported with, or did not pass the QC criteria, the key priority of this database is to allow users to obtain data that is immediately comparable. Therefore, users interested in those excluded data are recommended to seek out the original reports. For stable sulfur isotope data, even though most studies follow the QC outlined in Nehlich & Richards’ report [128], the efficacy of using %S to determine whether diagenetic changes have taken place is debated [129]. Therefore, before a universally accepted QC for stable sulfur isotope measurements in collagen is established, all previously published δ34S values are included in this dataset, along with information of their elemental compositions (%S, C/S, N/S). Users are encouraged to check the elemental compositions associated with all S isotope data in this dataset carefully before selecting the data for analysis.

Most studies report isotopic measurements to 1 significant figure. However, some report up to 3 significant figures. To ensure consistency, all isotope measurements are round up to 1 significant figure. Regarding precision, accuracy, and overall uncertainty of measurements, unfortunately, very few studies reported detailed information regarding check standards and calibration methods. Furthermore, it has been noticed that non-matrix matched materials (i.e., non-collagen) were used as internal standards in some instances. Unfortunately, there is little that can be done post-hoc, therefore users are warned that a level of assumption has to be made concerning the comparability and compatibility of the data. Future studies are thus urged to report carefully and fully on their calibration methods, as detailed in Szpak et al.’s study [130].

Last but not the least, high elemental concentrations (e.g. averages of %C and %N higher than 45% and 15%, respectively) have been observed in several studies [21,22,35,54,119]. As the collagen yields, atomic C/N ratios, and isotopic measurements appear to be admissible for most samples, it is speculated that the unusually high elemental concentration was a result of calibration error, which could be rectified if the elemental concentrations of the standards were provided. Another possibility is that the higher than usual elemental concentrations may be a result of contamination. At current stage, it is not possible to draw any conclusion without detailed measurements from the standards used in these analytical sessions. Herein, data from all but one report [119] are still included in this collection, provided the samples still meet the conventional QC criteria. Data from Yang et al. [119] are excluded for now, as the elemental concentrations (%C and %N) for more than half of the samples analysed are higher than those of the conventional acceptable thresholds [3]. It is hoped that these data can be added to the collection in the future if the problem proves to be a calibration issue.
Ethics Statement

This study does not involve any modern human or animal subject.

CRediT Author Statement

Christina Cheung: Conceptualization, Methodology, Data curation, Writing.

Declaration of Competing Interest

The author declares that they have no known competing financial interests or personal relationships which have or could be perceived to have influenced the work reported in this article.

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