**Table 1. Environmental and blank samples included in differential analyses**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Accession** | **Publication** | **Sample** | **Source2** | **Location** |
| Unpublished | n/a | WH\_blank\_1 | Extraction blank WH | n/a |
| Unpublished | n/a | WH\_blank\_2 | Extraction blank WH | n/a |
| Unpublished | n/a | KH\_blank\_1 | Extraction blank KH | n/a |
| Unpublished | n/a | KH\_blank\_2 | Extraction blank KH | n/a |
| Unpublished | n/a | LB\_blank\_1 | Extraction blank LB | n/a |
| Unpublished | n/a | LB\_blank\_2 | Extraction blank LB | n/a |
| Unpublished | n/a | MS10790 | Archaeological bone | Houhora |
| Unpublished | n/a | MS10902 | Archaeological bone | Long Bay |
| Unpublished | n/a | MS10903 | Archaeological bone | Long Bay |
| Unpublished | n/a | MS10904 | Archaeological bone | Long Bay |
| Unpublished | n/a | MS11102 | Archaeological bone | Wairau Bar |
| Unpublished | n/a | MS11103 | Archaeological bone | Wairau Bar |
| Unpublished | n/a | MS11107 | Archaeological bone | Wairau Bar |
| Unpublished | n/a | MS11108 | Archaeological bone | Wairau Bar |
| ERS12841707 | Klapper2023 | ERR10114881 | Cave site | Spain |
| ERS14617144 | Zampirolo2024 | ERR10878162 | Rock shelter | Czech Republic |
| ERR12074384 | Buchwald2024 | ERR12074384 | Marine sediment | Beringia Sea |
| ERR12074385 | Buchwald2024 | ERR12074385 | Marine sediment | Beringia Sea |
| ERR12074386 | Buchwald2024 | ERR12074386 | Marine sediment | Beringia Sea |
| ERR12814467 | Liu2024 | ERR12814467 | Freshwater sediment | Beringia Sea |
| ERR12814470 | Liu2024 | ERR12814470 | Freshwater sediment | Tibetan Plateau |
| ERR12814471 | Liu2024 | ERR12814471 | Freshwater sediment | Tibetan Plateau |
| ERR12814474 | Liu2024 | ERR12814474 | Freshwater sediment | Tibetan Plateau |
| ERR12814476 | Liu2024 | ERR12814476 | Freshwater sediment | Tibetan Plateau |
| ERR1560093 | Pedersen2016 | ERR1560093 | Lake sediment | North America |
| ERR1560094 | Pedersen2016 | ERR1560094 | Lake sediment | North America |
| ERR1560095 | Pedersen2016 | ERR1560095 | Lake sediment | North America |
| ERR1883420 | Slon2017 | ERR1883420 | Cave site | Russia |
| ERR1883422 | Slon2017 | ERR1883422 | Cave site | Russia |
| ERR1883436 | Slon2017 | ERR1883436 | Cave site | Russia |
| ERS4181275 | Borry2020 | ERR3761400 | Midden site | UK |
| ERS4181276 | Borry2020 | ERR3761401 | Midden site | Portugal |
| ERS4181277 | Borry2020 | ERR3761402 | Archaeological soil | Spain |
| ERS4181278 | Borry2020 | ERR3761403 | Midden site | Ireland |
| ERS4181279 | Borry2020 | ERR3761404 | Archaeological soil | Spain |
| ERS4181280 | Borry2020 | ERR3761405 | Midden site | Germany |
| ERS4181281 | Borry2020 | ERR3761406 | Archaeological soil | Slovakia |
| SRR24222623 | Perez2023 | SRR24222623 | Lake sediment | Australia |
| SRR24222625 | Perez2023 | SRR24222625 | Lake sediment | Australia |
| SRR24222626 | Perez2023 | SRR24222626 | Lake sediment | Australia |
| SRR24222627 | Perez2023 | SRR24222627 | Lake sediment | Australia |
| SRR24222629 | Perez2023 | SRR24222629 | Lake sediment | Australia |
| SRS18592602 | Murchie2023 | SRR25620676 | Permafrost | Canada |
| SRS18592596 | Murchie2023 | SRR25620681 | Permafrost | Canada |
| SRS18592524 | Murchie2023 | SRR25620753 | Permafrost | Canada |
| SRS18592522 | Murchie2023 | SRR25620756 | Permafrost | Canada |
| SRS18592492 | Murchie2023 | SRR25620786 | Permafrost | Canada |
| SRS18592488 | Murchie2023 | SRR25620790 | Permafrost | Canada |
| SRS18592483 | Murchie2023 | SRR25620795 | Permafrost | Canada |
| SRS3730744 | Moore2020 | SRR7774469 | Midden site | Mexico |
| SRS3730743 | Moore2020 | SRR7774470 | Midden site | USA |
| SRS3730742 | Moore2020 | SRR7774471 | Midden site | USA |
| SRS3730741 | Moore2020 | SRR7774472 | Midden site | USA |
| SRS3730740 | Moore2020 | SRR7774473 | Midden site | USA |
| SRS3730735 | Moore2020 | SRR7774474 | Midden site | USA |
| SRS3730738 | Moore2020 | SRR7774476 | Midden site | USA |
| SRS3730737 | Moore2020 | SRR7774477 | Midden site | USA |

**Table 2. Modern dog samples from Yarlagadda et al. (2022) included in differential analyses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample** | **Country** | **Individual** | **Lifestyle** |
| SRR14842321 | India | IS11 A | missing |
| SRR14842333 | India | IPerm (A/B) | Shelter |
| SRR14842360 | India | I14 (A1/A2/B1/B2/B3/B4/B5) | Shelter |
| SRR14842361 | India | I13 B | missing |
| SRR14842362 | India | I13 A | Shelter |
| SRR14842364 | India | Buddy (A/B) | Shelter |
| SRR14842365 | India | I12 (A/B1/B2) | Shelter |
| SRR14842366 | India | IS14 (A/B) | Street |
| SRR14842368 | India | Scott (A/B1/B2) | Shelter |
| SRR14842369 | India | I11 (A1/A2/B1/B2) | Shelter |
| SRR14842370 | India | Sihar B | missing |
| SRR14842371 | India | Sihar A | Shelter |
| SRR14842372 | India | IS13 A | Street |
| SRR14842373 | India | IS6 (A/B) | Street |
| SRR14842375 | India | IS1 (A/B) | Street |
| SRR14842376 | India | IS11 B | Street |
| SRR14842377 | India | IS2 (A/B) | Street |
| SRR14842378 | India | Laila (A/B) | Shelter |
| SRR14842380 | India | IS7 (A1/A2/B) | Street |
| SRR14842381 | India | I10 (A1/A2/A3/B1/B2) | Shelter |
| SRR14842382 | India | I9 (B1/B2) | missing |
| SRR14842383 | India | I9 (A1/A2) | Shelter |
| SRR14842384 | India | I7 (A1/A2/B) | Shelter |
| SRR14842386 | India | IS5 (a/B) | Street |
| SRR14842387 | India | IS4 (A/B) | Street |
| SRR14842388 | India | IS12 (A/B) | Street |
| SRR14842389 | India | missing | missing |
| SRR14842390 | India | IS3 A | Street |
| SRR14842391 | India | IS9 (A/B) | Street |
| SRR14842392 | India | IS10 (A1/A2/B) | Street |
| SRR14842393 | India | I8 (A1/A2/B) | Shelter |
| SRR14842394 | India | IS8 (A/B) | Street |
| SRR14842395 | India | I6 (A/B) | Shelter |
| SRR14842397 | India | I5 (A1/A2/B1/B2) | Shelter |
| SRR14842398 | India | I4 (A1/A2/B1/B2) | Shelter |
| SRR14842399 | India | I3 (A1/A2/B1/B2) | Shelter |
| SRR14842400 | India | missing | missing |
| SRR14842401 | India | I2 (A1/A2) | Shelter |
| SRR14842402 | India | Soyie B | Shelter |
| SRR14842403 | India | missing | missing |
| SRR14842404 | India | I1 (A1/A2) | Shelter |
| SRR14842324 | Laos | L11 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842325 | Laos | L10 (A1/A2/A3/A4/B1/B2/B3 | Laos Dog |
| SRR14842326 | Laos | LA24 (B1/B2/B3) | Laos Dog |
| SRR14842327 | Laos | LA24 (A1/A2/A3) | Laos Dog |
| SRR14842328 | Laos | L26 (A1/A2/A3/A4/B1/B2/B3/B4) | Laos Dog |
| SRR14842334 | Laos | L6 (A1/A2) | Laos Dog |
| SRR14842335 | Laos | L1 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842336 | Laos | L9 (A1/A2/B1/B2) | Laos Dog |
| SRR14842337 | Laos | L25 (A1/A2/A3/B1/B2/B3) | Laos Dog |
| SRR14842338 | Laos | L5 (A1/A2/B1/B2/B3) | Laos Dog |
| SRR14842339 | Laos | LA24 (B1/B2/B3) | Laos Dog |
| SRR14842340 | Laos | L12 (A1/A2/A3) | Laos Dog |
| SRR14842341 | Laos | L15 (A1/A2/B1/B2) | Laos Dog |
| SRR14842342 | Laos | L4 (A1/A2/B1/B2) | Laos Dog |
| SRR14842344 | Laos | L18 (A1/A2/B1/B2) | Laos Dog |
| SRR14842345 | Laos | LA7 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842346 | Laos | L17 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842347 | Laos | L28 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842348 | Laos | LA19 (A1/A2/B1/B2/B3) | Laos Dog |
| SRR14842349 | Laos | LA27 (B1/B2/B3) | Laos Dog |
| SRR14842350 | Laos | LA27 (A1/A2/A3) | Laos Dog |
| SRR14842351 | Laos | LA20 (A1/A2/A3/B1/B2/B3) | Laos Dog |
| SRR14842352 | Laos | L13 (A1/A2/B1/B2/B3) | Laos Dog |
| SRR14842363 | Laos | L8 (A/B) | Laos Dog |
| SRR14842374 | Laos | L23 (A1/A2/B1/B2) | Laos Dog |
| SRR14842385 | Laos | L21 (A1/A2/B1/B2/B3) | Laos Dog |
| SRR14842396 | Laos | L3 (B1/B2) | Laos Dog |
| SRR14842407 | Laos | L22 (A1/A2/A3/B1/B2/B3) | Laos Dog |
| SRR14842415 | Laos | L16 (A1/A2/B1/B2/B3) | Laos Dog |
| SRR14842416 | Laos | L3 (A1/A2) | Laos Dog |
| SRR14842417 | Laos | L6 (B1/B2) | missing |
| SRR14842424 | Laos | L14 (A1/A2/A3/B1/B2) | Laos Dog |
| SRR14842426 | Laos | L2 (A1/A2/A3) | Laos Dog |
| SRR14842320 | South Africa | SAJHHOND1 (A1) | Urban |
| SRR14842322 | South Africa | SAADFHOND1 B1 | Farm |
| SRR14842323 | South Africa | SALPHOND1 A1 | Urban |
| SRR14842329 | South Africa | SAADFHOND2 A1 | Laos Dog |
| SRR14842332 | South Africa | SASFHOND2 (A1/B1) | Urban |
| SRR14842343 | South Africa | SAJBHHOND1 (A1/B1) | Urban |
| SRR14842353 | South Africa | SALPHOND5 (A1/B1) | Urban |
| SRR14842354 | South Africa | SAJHHOND2 (A1) | Urban |
| SRR14842355 | South Africa | SASFHOND1(A1/B1) | Urban |
| SRR14842356 | South Africa | SAADFHOND2 B1 | Farm |
| SRR14842357 | South Africa | SACRHOND2 (A1/B1) | Suburban |
| SRR14842358 | South Africa | SACRHOND1 (A1/B1) | Suburban |
| SRR14842359 | South Africa | SASSDOG1 (A1/B1) | Urban |
| SRR14842367 | South Africa | SALPHOND7 (A1/A2/B1/B2) | Suburban |
| SRR14842379 | South Africa | SALPHOND3 (A1/B1) | Urban |
| SRR14842411 | South Africa | SALPHOND1 B1 | missing |
| SRR14842412 | South Africa | SALPHOND4 (A1/B1) | Urban |
| SRR14842413 | South Africa | SAJHHOND4 A1 | missing |
| SRR14842418 | South Africa | SALPHOND2 (A1/B1) | Urban |
| SRR14842419 | South Africa | SALPHOND6 (A1/B1) | Suburban |
| SRR14842420 | South Africa | SAJHHOND4 B1 | Urban |
| SRR14842421 | South Africa | SAADFHOND1 A1 | missing |
| SRR14842422 | South Africa | SAADFHOND3 (A1/B1) | Farm |
| SRR14842330 | US | Brandy P1 A | Diet\_experiment |
| SRR14842331 | US | Dany P1 (A/B) | Diet\_experiment |
| SRR14842405 | US | Brandy P2 (A/B) | Diet\_experiment |
| SRR14842406 | US | missing | Diet\_experiment |
| SRR14842408 | US | Morgan P2 A | Diet\_experiment |
| SRR14842409 | US | Jacky P2 (A/B) | Diet\_experiment |
| SRR14842410 | US | Dany P2 (A/B) | Diet\_experiment |
| SRR14842414 | US | Brandy P1 B | Diet\_experiment |
| SRR14842423 | US | Jacky P1 (A/B) | Diet\_experiment |
| SRR14842425 | US | Morgan P1 (A/B) | Diet\_experiment |

**Table 3. Modern human samples from The Human Microbiome Project Consortium included in differential analyses (project accession PRJNA275349)**

|  |  |
| --- | --- |
| **Accession** | **Sample** |
| SRR1944873 | 700097907\_zg\_G\_DNA\_Stool |
| SRR1952058 | 700122166\_zg\_G\_DNA\_Stool |
| SRR1952344 | 700122765\_zg\_G\_DNA\_Stool |
| SRR1952418 | 700167825\_zg\_G\_DNA\_Stool |
| SRR1952455 | 700021123\_zg\_G\_DNA\_Stool |
| SRR1952457 | 700164891\_zg\_G\_DNA\_Stool |
| SRR1952459 | 700117239\_zg\_G\_DNA\_Stool |
| SRR1952501 | 700165311\_zg\_G\_DNA\_Stool |
| SRR1952518 | 700161743\_zg\_G\_DNA\_Stool |
| SRR1952521 | 700172132\_zg\_G\_DNA\_Stool |
| SRR1952522 | 700117395\_zg\_G\_DNA\_Stool |
| SRR1952531 | 700172927\_zg\_G\_DNA\_Stool |
| SRR1952562 | 700161533\_zg\_G\_DNA\_Stool |
| SRR1952575 | 700173320\_zg\_G\_DNA\_Stool |
| SRR1952613 | 700163419\_zg\_G\_DNA\_Stool |
| SRR1952617 | 700097482\_zg\_G\_DNA\_Stool |
| SRR1952618 | 700123135\_zg\_G\_DNA\_Stool |
| SRR1952620 | 700166862\_zg\_G\_DNA\_Stool |
| SRR1952621 | 700161342\_zg\_G\_DNA\_Stool |
| SRR2175647 | 700013597\_zg\_G\_DNA\_Stool |
| SRR2175649 | 700013600\_zg\_G\_DNA\_Stool |
| SRR2175654 | 700013603\_zg\_G\_DNA\_Stool |
| SRR2175658 | 700013672\_zg\_G\_DNA\_Stool |
| SRR2175670 | 700014386\_zg\_G\_DNA\_Stool |
| SRR2175723 | 700014498\_zg\_G\_DNA\_Stool |
| SRR2175724 | 700014556\_zg\_G\_DNA\_Stool |
| SRR2175725 | 700015114\_zg\_G\_DNA\_Stool |
| SRR2175726 | 700015182\_zg\_G\_DNA\_Stool |
| SRR2175727 | 700016000\_zg\_G\_DNA\_Stool |
| SRR2175749 | 700016608\_zg\_G\_DNA\_Stool |
| SRR2175755 | 700032138\_zg\_G\_DNA\_Stool |
| SRR2175756 | 700032223\_zg\_G\_DNA\_Stool |
| SRR2175764 | 700033726\_zg\_G\_DNA\_Stool |
| SRR2175766 | 700095058\_zg\_G\_DNA\_Stool |
| SRR2175767 | 700095287\_zg\_G\_DNA\_Stool |
| SRR2175768 | 700095353\_zg\_G\_DNA\_Stool |
| SRR2175773 | 700098359\_zg\_G\_DNA\_Stool |
| SRR2175774 | 700098867\_zg\_G\_DNA\_Stool |
| SRR2175776 | 700099002\_zg\_G\_DNA\_Stool |
| SRR2175777 | 700099059\_zg\_G\_DNA\_Stool |
| SRR2175779 | 700099746\_zg\_G\_DNA\_Stool |
| SRR2175780 | 700100228\_zg\_G\_DNA\_Stool |
| SRR2175792 | 700101225\_zg\_G\_DNA\_Stool |
| SRR2175804 | 700120572\_zg\_G\_DNA\_Stool |
| SRR2240287 | 700097291\_zg\_G\_DNA\_Stool |
| SRR2240290 | 700098267\_zg\_G\_DNA\_Stool |
| SRR2240728 | 700122042\_zg\_G\_DNA\_Stool |
| SRR2240729 | 700122109\_zg\_G\_DNA\_Stool |
| SRR2240837 | 700122408\_zg\_G\_DNA\_Stool |
| SRR2240921 | 700123700\_zg\_G\_DNA\_Stool |
| SRR2241023 | 700161219\_zg\_G\_DNA\_Stool |
| SRR2241109 | 700161429\_zg\_G\_DNA\_Stool |
| SRR2241305 | 700165530\_zg\_G\_DNA\_Stool |
| SRR2241306 | 700166262\_zg\_G\_DNA\_Stool |
| SRR2241409 | 700166643\_zg\_G\_DNA\_Stool |