**Table S1.** MalAvi lineage name for the publicly-available sequences used in the phylogenetic analyses.

| **Species** | **Lineage name** |
| --- | --- |
| *Haemoproteus antigonis* | GRUAME01 |
| *Haemoproteus antigonis* | GRUAME02 |
| *Haemoproteus antigonis* | GRUAME03 |
| *Haemoproteus attenuatus* | ROBIN1 |
| *Haemoproteus balmorali* | COLL3 |
| *Haemoproteus balmorali* | LULU1 |
| *Haemoproteus balmorali* | SFC1 |
| *Haemoproteus belopolskyi* | ARW1 |
| *Haemoproteus belopolskyi* | HIICT1 |
| *Haemoproteus belopolskyi* | HIICT3 |
| *Haemoproteus belopolskyi* | HIICT4 |
| *Haemoproteus belopolskyi* | HIICT5 |
| *Haemoproteus belopolskyi* | MW1 |
| *Haemoproteus belopolskyi* | RW3 |
| *Haemoproteus belopolskyi* | SW1 |
| *Haemoproteus belopolskyi* | SW3 |
| *Haemoproteus bukaka* | CRALOU01 |
| *Haemoproteus catharti* | CATAUR01 |
| *Haemoproteus coatneyi* | DENCOR01 |
| *Haemoproteus coatneyi* | PACPEC02 |
| *Haemoproteus coatneyi* | TANIG01 |
| *Haemoproteus coatneyi* | TANVAS02 |
| *Haemoproteus coatneyi* | ARBRU01 |
| *Haemoproteus coatneyi* | ATPAL02 |
| *Haemoproteus coatneyi* | PIOLI03 |
| *Haemoproteus coatneyi* | ZOCAP13 |
| *Haemoproteus coatneyi* | ANSOM01 |
| *Haemoproteus coatneyi* | ARBRU02 |
| *Haemoproteus columbae* | COLIV01 |
| *Haemoproteus columbae* | COLIV02 |
| *Haemoproteus columbae* | COLIV03 |
| *Haemoproteus columbae* | COQUI05 |
| *Haemoproteus columbae* | HAECOL1 |
| *Haemoproteus concavocentralis* | HAWF2 |
| *Haemoproteus coraciae* | CORGAR01 |
| *Haemoproteus cyanomitrae* | CYAOLI03 |
| *Haemoproteus cyanomitrae* | CYAOLI05 |
| *Haemoproteus cyanomitrae* | CYAOLI06 |
| *Haemoproteus danilewskyii* | COCOR01 |
| *Haemoproteus erythrogravidus* | ZOCAP01 |
| *Haemoproteus erythrogravidus* | ZOCAP14 |
| *Haemoproteus fringillae* | CCF3 |
| *Haemoproteus fringillae* | ZONALB01 |
| *Haemoproteus fuscae* | CELEC01 |
| *Haemoproteus gavrilovi* | MEAPI02 |
| *Haemoproteus hirundinis* | DELURB1 |
| *Haemoproteus homobelopolskyi* | PLOMEL01 |
| *Haemoproteus homobelopolskyi* | PLOMEL02 |
| *Haemoproteus homohandai* | TROAED19 |
| *Haemoproteus homoleiothrichus* | TROERY02 |
| *Haemoproteus homopalloris* | PHSIB2 |
| *Haemoproteus homovelans* | PICAN02 |
| *Haemoproteus ilanpapernai* | STSEL1 |
| *Haemoproteus iwa* | FREMIN01 |
| *Haemoproteus jenniae* | CREFUR01 |
| *Haemoproteus killangoi* | ZOSMAD01 |
| *Haemoproteus killangoi* | ZOSLAT07 |
| *Haemoproteus killangoi* | ZOSLAT10 |
| *Haemoproteus killangoi* | ZOSXAN03 |
| *Haemoproteus lanii* | RB1 |
| *Haemoproteus lanii* | RBS2 |
| *Haemoproteus lanii* | RBS4 |
| *Haemoproteus leiothrichus* | TROERY01 |
| *Haemoproteus macrovacuolatus* | DENAUT01 |
| *Haemoproteus magnus* | CCF7 |
| *Haemoproteus magnus* | ROFI1 |
| *Haemoproteus majoris* | CCF5 |
| *Haemoproteus majoris* | CWT4 |
| *Haemoproteus majoris* | PARUS1 |
| *Haemoproteus majoris* | PHSIB1 |
| *Haemoproteus majoris* | WW2 |
| *Haemoproteus manwelli* | MEAPI01 |
| *Haemoproteus micronuclearis* | PLONIG01 |
| *Haemoproteus micronuclearis* | PLONIG02 |
| *Haemoproteus micronuclearis* | PLONIG03 |
| *Haemoproteus micronuclearis* | RBQ11 |
| *Haemoproteus micronuclearis* | VILWE1 |
| *Haemoproteus minchini* | CORCRI01 |
| *Haemoproteus minutus* | TUCHR01 |
| *Haemoproteus minutus* | TUPHI01 |
| *Haemoproteus minutus* | TURDUS2 |
| *Haemoproteus motacillae* | YWT1 |
| *Haemoproteus motacillae* | YWT2 |
| *Haemoproteus motacillae* | YWT3 |
| *Haemoproteus motacillae* | YWT5 |
| *Haemoproteus motacillae* | YWT6 |
| *Haemoproteus multipigmentatus* | COLBUC01 |
| *Haemoproteus multipigmentatus* | COLTAL01 |
| *Haemoproteus multipigmentatus* | MICRO01 |
| *Haemoproteus multipigmentatus* | MICRO02 |
| *Haemoproteus multipigmentatus* | ZEAUR06 |
| *Haemoproteus multipigmentatus* | ZEGAL05 |
| *Haemoproteus multipigmentatus* | ZEGAL06 |
| *Haemoproteus multipigmentatus* | ZEGAL07 |
| *Haemoproteus multivolutinus* | TURTYM01 |
| *Haemoproteus noctuae* | CIRCUM01 |
| *Haemoproteus nucleocondensus* | GRW01 |
| *Haemoproteus nucleofascialis* | MALRUB02 |
| *Haemoproteus nucleofascialis* | PLOMEL03 |
| *Haemoproteus ortalidum* | PENOBS01 |
| *Haemoproteus pallidulus* | SYAT03 |
| *Haemoproteus pallidus* | COLL2 |
| *Haemoproteus pallidus* | PFC1 |
| *Haemoproteus pallidus* | SFC3 |
| *Haemoproteus palloris* | WW1 |
| *Haemoproteus parabelopolskyi* | SYAT01 |
| *Haemoproteus parabelopolskyi* | SYAT02 |
| *Haemoproteus parabelopolskyi* | SYAT07 |
| *Haemoproteus parabelopolskyi* | SYAT11 |
| *Haemoproteus parabelopolskyi* | SYAT16 |
| *Haemoproteus parabelopolskyi* | SYBOR01 |
| *Haemoproteus parabelopolskyi* | SYBOR03 |
| *Haemoproteus parabelopolskyi* | SYNIS1 |
| *Haemoproteus paramultipigmentatus* | COLPAS03 |
| *Haemoproteus paramultipigmentatus* | COLPAS05 |
| *Haemoproteus paranucleophilus* | MALRUB01 |
| *Haemoproteus paraortalidum* | TOFLA03 |
| *Haemoproteus paruli* | TABI02 |
| *Haemoproteus passeris* | PADOM05 |
| *Haemoproteus pastoris* | LAMPUR01 |
| *Haemoproteus payevskyi* | RW1 |
| *Haemoproteus picae* | PIPUB01 |
| *Haemoproteus ptilotis* | MELLEW01 |
| *Haemoproteus ptilotis* | LICHRYS01 |
| *Haemoproteus ptilotis* | MELALB01 |
| *Haemoproteus ptilotis* | MELALB02 |
| *Haemoproteus ptilotis* | MYZSAN02 |
| *Haemoproteus ptilotis* | NMIN01 |
| *Haemoproteus sacharovi* | MODO1 |
| *Haemoproteus sanguinis* | BUL1 |
| *Haemoproteus sanguinis* | BUL2 |
| *Haemoproteus syrnii* | STAL2 |
| *Haemoproteus syrnii* | OTSCO05 |
| *Haemoproteus syrnii* | CULKIB01 |
| *Haemoproteus tartakovskyi* | ALARV01 |
| *Haemoproteus tartakovskyi* | ALARV02 |
| *Haemoproteus tartakovskyi* | ALARV03 |
| *Haemoproteus tartakovskyi* | HAWF1 |
| *Haemoproteus tartakovskyi* | SISKIN1 |
| *Haemoproteus thraupi* | PIOLI01 |
| *Haemoproteus turtur* | STSEN1 |
| *Haemoproteus vacuolatus* | ANLAT02 |
| *Haemoproteus valkiunasi* | FREAND01 |
| *Haemoproteus vireonis* | VIGIL01 |
| *Haemoproteus vireonis* | VIOLI05 |
| *Haemoproteus vireonis* | VIOLI06 |
| *Haemoproteus witti* | TROAED20 |
| *Haemoproteus zosteropis* | ZOSLAT04 |
| *Haemoproteus zosteropis* | ZOSSTE01 |
| *Haemoproteus zosteropis* | ZOSLAT11 |
| *Haemoproteus zosteropis* | ZOSXAN02 |
| *Leucocytozoon buteonis* | BUBT2 |
| *Leucocytozoon buteonis* | BUTJAM10 |
| *Leucocytozoon buteonis* | BUTREG01 |
| *Leucocytozoon californicus* | FASPA02 |
| *Leucocytozoon caulleryi* | GALLUS05 |
| *Leucocytozoon danilewskyi* | BUBO01 |
| *Leucocytozoon fringillinarum* | TFUS01 |
| *Leucocytozoon fringillinarum* | TFUS02 |
| *Leucocytozoon fringillinarum* | TFUS03 |
| *Leucocytozoon fringillinarum* | TFUS04 |
| *Leucocytozoon fringillinarum* | ZOLEU02 |
| *Leucocytozoon grallariae* | GRSQU02 |
| *Leucocytozoon majoris* | CB1 |
| *Leucocytozoon mathisi* | ACCOP01 |
| *Leucocytozoon mathisi* | ACNI04 |
| *Leucocytozoon neotropicalis* | PIRIE02 |
| *Leucocytozoon quynzae* | HEAME01 |
| *Leucocytozoon schoutedeni* | GALLUS06 |
| *Leucocytozoon schoutedeni* | GALLUS07 |
| *Leucocytozoon toddi* | ACCFRA01 |
| *Plasmodium ashfordi* | GRW02 |
| *Plasmodium cathemerium* | PADOM09 |
| *Plasmodium cathemerium* | SEIAUR01 |
| *Plasmodium circumflexum* | SW5 |
| *Plasmodium circumflexum* | TURDUS1 |
| *Plasmodium delichoni* | COLL6 |
| *Plasmodium elongatum* | GRW06 |
| *Plasmodium gallinaceum* | GALLUS01 |
| *Plasmodium globularis* | ANLAT01 |
| *Plasmodium homocircumflexum* | COLL4 |
| *Plasmodium homonucleophilum* | SW2 |
| *Plasmodium homopolare* | BAEBIC02 |
| *Plasmodium juxtanucleare* | GALLUS02 |
| *Plasmodium juxtanucleare* | GALLUS03 |
| *Plasmodium lucens* | CYAOLI09 |
| *Plasmodium lutzi* | TFUS05 |
| *Plasmodium lutzi* | DIGLAF01 |
| *Plasmodium lutzi* | DIGLAF02 |
| *Plasmodium lutzi* | DIGCYA08 |
| *Plasmodium matutinum* | LINN1 |
| *Plasmodium megaglobularis* | PYSUN1 |
| *Plasmodium multivacuolaris* | ANLAT07 |
| *Plasmodium nucleophilum* | DENPET03 |
| *Plasmodium parahexamerium* | ALEDIA02 |
| *Plasmodium paranucleophilum* | MYCAME02 |
| *Plasmodium relictum* | GRW04 |
| *Plasmodium relictum* | GRW11 |
| *Plasmodium relictum* | LZFUS01 |
| *Plasmodium relictum* | PHCOL01 |
| *Plasmodium relictum* | SGS1 |
| *Plasmodium rouxi* | PADOM16 |
| *Plasmodium tejerai* | SPMAG01 |
| *Plasmodium tejerai* | SPMAG02 |
| *Plasmodium unalis* | TUMIG03 |
| *Plasmodium unalis* | TFUS06 |
| *Plasmodium unalis* | TURUF03 |
| *Plasmodium unalis* | TURUF04 |
| *Plasmodium vaughani* | SYAT05 |