**Supplementary Material**

**Table S1.** Adenovirus reference genomes and their Genbank number included in the phylogenetic analysis.

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| **Virus Abbrv.** | **Virus name** | **Virus genus**  | **Host common name**  | **Host scientific name**  | **Genbank ID** |
| BAdV-D | Bovine Atadenovirus D | Atadenovirus | Domestic cow  | *Bos taurus* | AF036092.3 |
| DAdV-A | Duck Atadenovirus A | Atadenovirus | Domestic duck  | *Anas platyrhynchos domesticus* | AC000004.1 |
| EsAdV-1 | Estrildidae Adenovirus 1 | Atadenovirus | Long-tailed finch | *Poephila acuticauda* | MK413652 |
| LiAdV-A | Lizard Atadenovirus A | Atadenovirus  | Mexican beaded lizard  | *Heloderma horridum* | KJ156523.1 |
| OAdV-D | Ovine Atadenovirus D | Atadenovirus | Domestic sheep  | *Ovia aries*  | U40839.3 |
| PAdV-A | Psittacine Atadenovirus A | Atadenovirus | Southern mealy amazon  | *Amazona farinosa* | KJ675568.1 |
| SnAdV-A | Snake Atadenovirus A | Atadenovirus | Corn snake  | *Elaphe guttata* | DQ106414.1 |
| DAdV-B | Duck Aviadenovirus B | Aviadenovirus  | Muscovy duck  | *Cairina moschata* | KJ469653.1 |
| FAdV-A | Fowl Aviadenovirus A | Aviadenovirus | Chicken  | *Gallus gallus*  | AC000014.1 |
| FAdV-D | Fowl Aviadenovirus D | Aviadenovirus  | Domestic chicken  | *Gallus gallus domesticus*  | KT862806.1 |
| FAdV-C | Fowl Aviadenovirus C | Aviadenovirus  | Chicken  | *Gallus gallus*  | GU188428.1 |
| FAdV-B | Fowl Aviadenovirus B | Aviadenovirus | Chicken  | *Gallus gallus*  | KC493646.1 |
| FAdV-E | Fowl Aviadenovirus E | Aviadenovirus | Domestic chicken  | *Gallus gallus domesticus*  | KT862808.1 |
| GoAdV-A | Goose Aviadenovirus A | Aviadenovirus | Domestic goose  | *Anser anser domestica* | JF510462.1 |
| PiAdV-A | Pigeon Aviadenovirus A | Aviadenovirus  | Domestic pigeon  | *Columba livia domestica* | FN824512.1 |
| PiAdV-B | Pigeon Aviadenovirus B | Aviadenovirus  | Domestic pigeon | *Columba livia domestica* | KX121164.1 |
| PiAdV-5 | Pigeon Adenovirus 5 | Aviadenovirus | Domestic pigeon | *Columba livia domestica* | DNA pol (partial) KX555532.1 |
| PsAdV-C | Psittacine Aviadenovirus C | Aviadenovirus  | Senegal parrot | *Poicephalus senegalus* | MH580295.1 |
| PsAdV-B | Psittacine Aviadenovirus B | Aviadenovirus  | Red-bellied parrot  | *Poicephalus rufiventris* | KX577802.1 |
| TAdV-B | Turkey Aviadenovirus B | Aviadenovirus | Turkey  | *Meleagris gallopavo* | GU936707.2 |
| TAdV-C | Turkey Aviadenovirus C | Aviadenovirus  | Turkey  | *Meleagris gallopavo*  | KF477312.1 |
| TAdV-D | Turkey Aviadenovirus D | Aviadenovirus  | Turkey  | *Meleagris gallopavo* | KF477313.1 |
| BAdV-A | Bovine Mastadenovirus A | Mastadenovirus | Domestic cow  | *Bos taurus*  | AC000191.1 |
| BtAdV-A | Bat Mastadenovirus A | Mastadenovirus | Rickett's big-footed bat | *Myotis ricketti* | NC016895.2 |
| CAdV-A | Canine Mastadenovirus A | Mastadenovirus | Domestic dog  | *Canis familiaris* | U77082.1 |
| CSLAdV-A | California Sea Lion Mastadenovirus A | Mastadenovirus | California sea lion | *Zalophus californianus* | KJ563221.1 |
| EAdV-A | Equine Mastadenovirus A | Mastadenovirus | Domestic horse  | *Equus caballus* |  JN418926.1 |
| HAdV-A | Human Mastadenovirus A | Mastadenovirus | Human  | *Homo sapien*  | AC000005.1 |
| HAdV-D | Human Mastadenovirus D | Mastadenovirus | Human  | *Homo sapien*  | EF121005.1 |
| MAdV-A | Murine Mastadenovirus A | Mastadenovirus | House mouse  | *Mus musculus* | AC000012.1 |
| MAdV-B | Murine Mastadenovirus B | Mastadenovirus | House mouse  | *Mus musculus* |  HM049560.1 |
| PAdV-A | Porcine Mastadenovirus A | Mastadenovirus | Domestic pig  | *Sus scrofa domesticus* | AC000189.1 |
| SkAdV-A | Skunk Mastadenovirus A | Mastadenovirus | North American skunk | *Conepatus leuconotus* | KP238322.1 |
| SqAdV-A | Squirrel Mastadenovirus A | Mastadenovirus  | Red squirrel  | *Sciurus vulgaris* | KY427939.1 |
| TSAdV-A | Tree Shrew Mastadenovirus A | Mastadenovirus | Common tree shrew  | *Tupaia glis* | AC000190.1 |
| CSPAdV-A | Penguin Siadenovirus A | Siadenovirus | Chinstrap penguin | *Pygoscelis antarcticus* | KP144329.1 |
| EsAdV-2 | Estrildidae Adenovirus 2 | Siadenovirus | Long-tailed finch | *Poephila acuticauda* | MK413651 |
| FrAdV-A | Frog Siadenovirus A | Siadenovirus | Leopard frog  | *Rana pipiens*  | AF224336.1 |
| GFAdV-1 | Gouldian Finch Adenovirus 1 | Siadenovirus | Gouldian finch  | *Erythrura gouldiae* | DNA pol (partial) KF031569.1 Hexon (partial) AGU01649.1  |
| GtAdV-A | Great Tit Siadenovirus A | Siadenovirus | Great tit | *Parus major*  | DNA pol (partial) FJ849795.1 |
| PiAdV-4 | Pigeon Adenovirus 4 | Siadenovirus | Domestic pigeon | *Columba livia domestica*  | DNA pol (partial) KX555531.1 |
| PiAdV-3 | Pigeon Adenovirus 3 | Siadenovirus | Domestic pigeon | *Columba livia domestica* | DNA pol (partial) KX555530.1 |
| PsAdV-2 | Psittacine Adenovirus 2 | Siadenovirus  | Plum headed parakeet | *Psittacula cyanocephala* | DNA pol (partial) ABU48656.1  |
| RAdV-A | Raptor Siadenovirus A | Siadenovirus | Harris Hawk  | *Parabuteo unicinctus* | NC015455.1 |
| SPSAdV-A | Skua Siadenovirus A | Siadenovirus | South polar skua  | *Catharacta maccormicki* | HM585353.1 |
| TAdV-A | Turkey Siadenovirus A | Siadenovirus | Turkey  | *Meleagris gallopavo* | AC000016.1 |